Environmental Report for the Rezoning of Lakes Business Park - Southern Precinct 11-13 Lord Street, Botany NSW Lot 2, DP717692

DEXUS

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Executive Summary

DEXUS engaged Prensa Pty Ltd (Prensa) to prepare an Environmental Report to support a Rezoning Application for Botany Lakes Business Park - Southern Precinct, 11-13 Lord Street, Botany NSW (the site).

It is understood that DEXUS intends to obtain planning approval for the rezoning of the site from B7 Business Park to B4 Mixed Use. A concept design plan has been prepared for the rezoning of the site, which comprises the demolition of existing buildings and construction of 658 medium density apartments with two (2) levels of basement car parking, above ground soft landscaping and car parking at the site.

The objectives of the Environmental Report were to:

- Review the completed environmental investigations provided by DEXUS;
- Summarise the requirements of the Council of the City of Botany and Department of Planning and Infrastructure (DPI) with respect to the proposed rezoning;
- Define a scope of works required to address data gaps and further assess the site in light of the proposed rezoning of the site for a medium density residential development; and
- Provide input and advice to the DEXUS consultant team for the development of the Masterplan and possible land uses.

A review of the Botany Bay Development Control Plan 2013 indicates that to ensure land subject to a rezoning is suitably assessed (to determine the extent of contamination and if necessary, remediation required as part of the rezoning), the application must comply with the Contaminated Land Management Act 1997 (CLM Act 1997) and State Environmental Planning Policy No. 55 *Remediation of Land* (SEPP 55).

SEPP 55 indicates that for a rezoning application it would not be appropriate to proceed with rezoning unless the land was proven suitable for that development or it could be demonstrated that the land can, and will be, remediated to make the land suitable.

Prensa conducted a review of eight (8) previous environmental reports/letters pertaining to the site, as provided by DEXUS. The provided reports/letters were reviewed to gain insight into the scope of environmental works conducted to date and the contamination status of the site. The outcome of the review identified a number of data gaps that are recommended to be addressed as part of further works at the site.

As the KPMG SGA 2014 investigation was limited in scope, there are data gaps that will be required to be addressed (refer to Section 11) to inform Council of the City of Botany Bay that the risk from potential soil contamination (not assessed to date) for the proposed medium-density residential land use can be investigated and managed following rezoning. This can be achieved through implementation of a Detailed Site Investigation and preparation and implementation of a Remedial Action Plan (RAP) (if required).

On the basis of the review, a scope of works has been developed for a DSI (inclusive of a preliminary acid sulfate soil assessment) (outlined in Section 12), which if implemented, should address data gaps identified following a review of previous investigations and further assess the contamination status of the site in light of the proposed medium-density residential land use. As the buildings currently occupy approximately 30% of the site, Prensa considers that the DSI will be more

effectively implemented following demolition of the buildings, which can be managed under a separate development application subsequent to rezoning.

If a potential unacceptable risk to human health or the environment is identified during the DSI then further assessment, remediation or site management may be required. The scope of work for a Remedial Action Plan, if required, has also been provided within this report (Section 12.7.2).

KPMG SGA concluded in their Limited Environmental Investigation Report undertaken in 2014 that "*contaminants of concern were not identified at the site that would limit the sites ongoing use as a commercial/industrial facility*" and "*contaminants of concern within soil samples analysed were below the relevant investigation levels for the protection of human health in a residential setting with minimal soil access land use and therefore no evidence has been identified to preclude redevelopment for such land use*".

Based on the above findings and the proposed scope of works for additional assessment, Prensa concludes that rezoning should be allowed to proceed, as measures will be put in place to ensure that the potential for contamination and the suitability of the land can be more effectively assessed once detailed proposals are made and demolition of the buildings has occurred.

Statement of Limitations

This document has been prepared in response to specific instructions from Dexus to whom the report has been addressed. The work has been undertaken with the usual care and thoroughness of the consulting profession. The work is based on generally accepted standards, practices of the time the work was undertaken. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The report has been prepared for the use by Dexus and the use of this report by other parties may lead to misinterpretation of the issues contained in this report. To avoid misuse of this report, Prensa advise that the report should only be relied upon by Dexus and those parties expressly referred to in the introduction of the report. The report should not be separated or reproduced in part and Prensa should be retained to assist other professionals who may be affected by the issues addressed in this report to ensure the report is not misused in any way.

Prensa is not a professional quantity surveyor (QS) organisation. Any areas, volumes, tonnages or any other quantities noted in this report are indicative estimates only. The services of a professional QS organisation should be engaged if quantities are to be relied upon.

Sampling Risks

Prensa acknowledges that any scientifically designed sampling program cannot guarantee all sub-surface contamination will be detected. Sampling programs are designed based on known or suspected site conditions and the extent and nature of the sampling and analytical programs will be designed to achieve a level of confidence in the detection of known or suspected subsurface contamination. The sampling and analytical programs adopted will be those that maximises the probability of identifying contaminants. Dexus must therefore accept a level of risk associated with the possible failure to detect certain sub-surface contamination where the sampling and analytical program misses such contamination. Prensa will detail the nature and extent of the sampling and analytical program used in the investigation in the investigation report provided.

Environmental site assessments identify actual subsurface conditions only at those points where samples are taken and when they are taken. Soil contamination can be expected to be non-homogeneous across the stratified soils where present on site, and the concentrations of contaminants may vary significantly within areas where contamination has occurred. In addition, the migration of contaminants through groundwater and soils may follow preferential pathways, such as areas of higher permeability, which may not be intersected by sampling events. Subsurface conditions including contaminant concentrations can also change over time. For this reason, the results should be regarded as representative only.

Dexus recognises that sampling of subsurface conditions may result in some cross contamination. All care will be taken and the industry standards used to minimise the risk of such cross contamination occurring, however, Dexus recognises this risk and waives any claims against Prensa and agrees to defend, indemnify and hold Prensa harmless from any claims or liability for injury or loss which may arise as a result of alleged cross contamination caused by sampling.

Reliance on Information Provided by Others

Prensa notes that where information has been provided by other parties in order for the works to be undertaken, Prensa cannot guarantee the accuracy or completeness of this information. Dexus therefore waives any claim against the company and agrees to indemnify Prensa for any loss, claim or liability arising from inaccuracies or omissions in information provided to Prensa by third parties. No indications were found during our investigations that information contained in this report, as provided to Prensa, is false.

Recommendations for Further Study

The industry recognised methods used in undertaking the works may dictate a staged approach to specific investigations. The findings therefore of this report may represent preliminary findings in accordance with these industry recognised methodologies. In accordance with these methodologies, recommendations contained in this report may include a need for further investigation or analytical analysis. The decision to accept these recommendations and incur additional costs in doing so will be at the sole discretion of Dexus and Prensa recognises that that Dexus will consider their specific needs and the business risks involved. Prensa does not accept any liability for losses incurred as a result of Dexus not accepting the recommendations made within this report.

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1 Introduction

DEXUS engaged Prensa Pty Ltd (Prensa) to prepare an Environmental Report to support a Rezoning Application for Botany Lakes Business Park - Southern Precinct, 11-13 Lord Street, Botany NSW (the site). The location of the site is shown on Figure 1 in the 'Figures' section of this report.

It is understood that DEXUS intends to obtain planning approval for the rezoning of the site from B7 Business Park to B4 Mixed Use. A concept design plan has been prepared for the rezoning of the site, which comprises the demolition of existing buildings and construction of 658 medium density apartments with two (2) levels of basement car parking, above ground soft landscaping and car parking at the site.

A review of the Botany Bay Development Control Plan 2013 indicates that to ensure land subject to a rezoning is suitably assessed (to determine the extent of contamination and if necessary, remediation required as part of the rezoning), the application must comply with the CLM Act 1997 and SEPP 55.

The CLM Act 1997 enables the Environment Protection Authority (EPA) to respond to contamination that it has reason to believe is significant enough to warrant regulation. The Act requires land owners and persons who carry on contaminating activities to notify the EPA of the contamination of land in certain circumstances and it allows the EPA to accredit people as site auditors. The EPA also makes or approves guidelines for use in the assessment and remediation of contaminated sites, and administers the public record of regulated sites under the CLM Act 1997.

SEPP 55 indicates that for a rezoning application it would not be appropriate to proceed with rezoning unless the land was proven suitable for that development or it could be demonstrated that the land can, and will be, remediated to make the land suitable. Furthermore, rezoning should be allowed to proceed, provided measures are in place to ensure that the potential for contamination and the suitability of the land for any proposed use are assessed once detailed proposals are made.

2 Background

DEXUS Funds Management acquired Lakes Business Park in December 2014 which comprises both the Northern and Southern Precincts (Lot 1 in DP1035345 and Lot 2 in DP717692 respectively).

At the time of writing, the Southern portion (the site) was legally defined as Lot 2 in DP717692, covered an area of 29,769 m^2 and was occupied by two commercial buildings (offices and warehouses) with car parking and soft landscaping.

Prensa was previously engaged by Napier & Blakeley Pty Ltd (N&B) to undertake a *Due Diligence Environmental and Hazardous Materials Assessment for Lakes Business Park (Northern and Southern Precincts)* in August 2014 (Ref: 52468 DD Lakes Business Park E03 Rep-Rev1, August 2014) (Prensa 2014). Prensa recommended intrusive soil sampling be undertaken in areas not previously assessed to confirm the presence/absence of contamination in those areas.

KPMG SGA Property Consultancy Pty Ltd (KPMG SGA) were subsequently engaged by DEXUS to undertake a Limited Environmental Investigation at the Northern and Southern Precincts of Lakes Business Park in December 2014 (Ref: 95357, 19th December 2014) (KPMG SGA 2014), which comprised analysis of soil samples from seventeen (17) boreholes and groundwater samples from four (4) monitoring wells at accessible areas of the site.

KPMG SGA concluded, for the site that:

- Contaminants of concern in soil samples were below guidelines for protection of human health for commercial/industrial and high density residential land use; and
- Concentrations of some metals (arsenic, zinc and aluminium) were identified within the groundwater above the adopted criteria [Northern Precinct]. The zinc and aluminium were considered representative of regional conditions and not attributable to site activities. The arsenic was considered to be associated with the highly leachable arsenic within natural soils onsite which was believed to be being released due to reducing conditions. The Mill Pond to the north of the site was also considered to also be contributing to arsenic within groundwater.

As the KPMG SGA 2014 investigation was limited in scope, there are data gaps that will be required to be addressed (refer to Section 11) to inform Council of the City of Botany Bay that the risk from potential soil contamination (not assessed to date) for the proposed medium-density residential land use can be investigated and managed following rezoning. This can be achieved through implementation of a DSI and preparation and implementation of a RAP (if required), the scopes of which are outlined in this report.

3 Objectives

The objectives of the Environmental Report were to:

- Review the completed environmental investigations provided by DEXUS;
- Summarise the requirements of the Council of the City of Botany and Department of Planning and Infrastructure (DPI) with respect to the proposed rezoning;
- Define a scope of works required to address data gaps and further assess the site in light of the proposed rezoning of the site for a medium density residential development; and
- Provide input and advice to the DEXUS consultant team for the development of the Masterplan and possible land uses.

4 Scope of Works

To complete the objectives, Prensa undertook the following:

- Kick-off meeting with DEXUS;
- Desktop study including a review of background information and available reports pertaining to the site;
- Site walkover; and
- Provision of this Environmental Report.

5 Technical Framework

This report was been prepared in general accordance with the following:

- NSW Work Health and Safety Act 2011 (WHS Act 2011);
- NSW Work Health and Safety Regulation 2011 (WHS Regulation 2011);
- The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999);
- Contaminated Land Management (CLM) Act, 1997 (CLM Act 1997);
- Contaminated Land Management Amendment Act 2008;
- Protection of the Environment Operations (POEO) Act 1997 (POEO Act 1997);
- National Environment Protection Council (NEPC) Act 1994 (NEPC Act 1994);

- National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure, 1999 (April 2013) (NEPM 2013);
- Department of Environment and Conservation (DEC) NSW, Guidelines for the Assessment and Management of Groundwater Contamination, 2007 (DEC 2007);
- NSW Environment Protection Authority (EPA) State Environmental Planning Policy 55 – Remediation of Land (SEPP55), 1998;
- NSW Environment Protection Authority (EPA) Waste Classification Guidelines: Part 1 – Classifying Waste, 2014 (EPA 2014);
- Guidelines for Managing Risk in Recreational Waters (GMRRW), 2008 (GMRRW 2008);
- CRC Care Technical Report No. 10, Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, 2011 (CRCCARE 2011);
- NSW Office of Environment and Heritage (OEH), Guidelines for Consultants Reporting on Contaminated Sites, 2011 (OEH 2011);
- NSW Department of Environment and Conservation, Contaminated Sites Guidelines for the Assessment and Management of Groundwater Contamination, 2007 (OEH 2011a);
- Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), National Water Quality Management Strategy Australian and New Zealand guidelines for fresh and marine water quality, 2000 (ANZECC 2000);
- National Health and Medical Research Council (NHMRC) Guidelines for Managing Risk in Recreational Waters, 2008 (GMRRW 2008);
- National Health and Medical Research Council (NHMRC) and Natural Resource Management Ministerial Council (NRMMC), National Water Quality Management Strategy Australian Drinking Water Guidelines, 2013 – amended 2015 (NRMMC 2015);
- Australian Standard (AS) 4482.1, Guide to Investigation and Sampling of Sites with Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile Compounds, 2005;
- AS 4482.2, Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Volatile Substances, 1999; and
- AS 1726 Geotechnical Site Investigations, 1993.

6 Site Description

A walkover of the site was undertaken on 26th March 2015 by an experienced Prensa Environmental Consultant. Access to the site was from Lord Street which formed the northern site boundary. The site was level and, with the exception of a detention pit in the north-west of the site, appeared to be raised by approximately 1.5 m above Lord Street. The detention pit was approximately 600 mm below Lord Street.

Two (2) buildings (Buildings 11 and 13) occupied the centre and west of the site and were used for office and warehouse space. The majority of the outside space of the site was covered in concrete hard stand and was used for car parking and vehicle access. The detention pond had a grass surface and was surrounded by trees and shrubs.

Three (3) groundwater monitoring wells (installed during the KPMG SGA 2014 investigation) were identified in the south-west (MW16), south-east (MW25) and east (MW27) of the site respectively. The wells were gauged with an interface probe and groundwater was recorded between 1.7 m below top of casing (mBTOC) (MW20) and 2.6 mBTOC (MW25). Non aqueous phase liquid (NAPL) was not detected during gauging and odours were not observed in any of the wells. A fourth well

(MW20), located within the detention pit, could not be found; it was considered likely that the well had been installed with a flush gatic similar to the other three (3) monitoring wells and has since been covered with soil and debris as a result of recent rainfall events. The location of the groundwater monitoring wells are shown in KPMGSGA Figure 2 in Appendix C.

A discussion with the DEXUS Facilities Manager on site indicated that:

- The buildings were constructed circa 1990;
- Surface water from the majority of the site drained through surface water pits to the detention pond. During periods of heavy rainfall overflow from the detention pit flowed onto Lord Street and into drains following which it passed through a culvert through the northern precinct of Lakes Business Park before discharging into Mill Pond;
- Spills from inside a warehouse in the west of Building 11 would be collected in an underground pit adjacent to the western wall of the building before being discharged to sewer; and
- Surface water from Mill Pond is used on site for irrigation purposes.

Surface water run-off pits were noted to be in good condition and there was no visual evidence of underground fuel or waste storage tanks during the site walkover. Photographs of the Site are provided in Appendix A.

7 Surrounding Land use

The surrounding area was largely occupied by commercial and residential properties. The surrounding land uses were:

- North: Lord Street with commercial properties of Lakes Business Park northern precinct, Mill Pond (part of Botany wetlands) and Southern Cross Drive beyond;
- East: Boralee Park with Botany Aquatics Centre and Industrial Railway beyond;
- South: Boralee Park and Residential properties of Daphne Street with commercial/industrial and residential properties beyond; and
- West: Substation, Motor Registry and Depot.

The closest surface water body to the site was Mill Pond, approximately 150 m to the north of the site which flows into Botany Bay approximately 1.5 km south of the site.

8 Previous Reports

Prensa was supplied with eight (8) environmental reports/letters pertaining to the site and Northern Precinct of Lakes Business Park, comprising:

- Environmental Investigation Services Pty Ltd (Environmental Investigations), *Environmental Site Screening, 6 Lord Street Botany* [Lot 1 in DP1035345] (Ref: E15639Flet, 19th February 2001) (Environmental Investigations 2001);
- Correspondence from NSW EPA, Contaminated Groundwater in Lord Street Area, Botany (Ref: HO2370/HOF8346, 21st November 2001) (EPA 2001);
- Environmental Investigations, Stage 1 Preliminary Environmental Site Assessment for Proposed Commercial Development at South Precinct, Lakes Business Park, 11-13 Lord Street, Botany, NSW (Ref:E21472FJ-RPT, September 2007) (Environmental Investigations 2007);
- Environmental Investigations, Stage 1 Preliminary Environmental Site Assessment for Proposed Commercial Development at North Precinct, Lakes Business Park, 2-12 Lord Street, Botany, NSW [Lot 1 in DP1035345] (Ref:E21472FJ-RPT1.1, March 2008) (Environmental Investigations 2008)
- SGS Australia Pty Ltd *Analytical Reports ENV 7393* (SGS 2008) and ENV 7597 (SGS 2008a);

- Environmental Monitoring Services (EMS), *Asbestos Register, Lakes Business Park, Lord Street Botany, NSW 2019* (Ref: EMS13 2001, September 2013) (EMS 2013).
- Prensa, *Due Diligence Environmental and Hazardous Materials Assessment* (ref: 52468 DD Lakes Business Park E03 Rep-Rev1, August 2014) (Prensa 2004); and
- KPMG SGA, *Limited Environmental investigation Report* (Ref: 95357, 19th December 2014) (KPMG SGA 2014).

A summary of the Environmental Investigations 2001, EPA 2001, Environmental Investigations 2007, Environmental Investigations 2008 and EMS 2001reports/letters were summarised in the Prensa 2014 report.

8.1 SGS Analytical Reports (SGS 2008 and SGS 2008a)

8.1.1 SGS Analytical Report 7393 (SGS 2008)

Two (2) samples of water were analysed by SGS on 4th April 2008 from Mill Pond and upstream of Mill Pond defined as Irrigation Pump Sample and Upstream Sample.

A review of the analytical results indicated concentrations of hydrocarbons, pesticides, polychlorinated biphenyls and hexavalent chromium were below laboratory limits of reporting. Arsenic and lead were detected in both samples and had higher concentrations (4.6 µg/L and 4.8 µg/L respectively) in the Irrigation Pump Sample.

A copy of the analytical report is provided in Appendix B.

8.1.2 SGS Analytical Report 7597 (SGS 2008a)

Two (2) samples of water were analysed by SGS on 12th May 2008 defined as Inlet Water and Upstream Water. The samples were analysed for a wide suite of metals. Arsenic was not detected in either sample and lead was not analysed.

A copy of the analytical report is provided in Appendix B.

8.2 Environmental Site Screening, 6 Lord Street Botany [Lot 1 in DP1035345] (Environmental Investigations 2001)

The Environmental Investigations 2001 report was prepared for the northern precinct to the north of the site [Lot 1 in DP1035345]. The key findings of the Environmental Investigations report are summarised below as referenced from the Prensa 2014 report:

- *Subsurface conditions generally comprised a silty sand fill with sandstone, igneous and concrete gravel to a depth of 1.4 m. Sand was encountered underlying the fill in the majority of the boreholes.*
- *Groundwater was measured at depths of 0.4 m to 2.0 m;*
- *The analytical results reported by Environmental Investigations for the samples of fill indicated that the contaminant concentrations were below the guideline concentrations for commercial/industrial land uses adopted for the investigation (listed in the Guidelines for the NSW Site Auditor Scheme, EPA 1998).*
- *No monitoring of groundwater was undertaken by Environmental Investigations as part of its investigation; with the Environmental Investigations report stating "As soil contaminant levels were well below the commercial/industrial guideline levels a screening of contaminant levels in the groundwater was not undertaken."*
- *The Environmental Investigations report also stated that "Inspection of the site and surrounding areas did not indicate any obvious on-site or nearby off-site activity that could be expected to generate significant soil or groundwater contamination."*

Prensa corroborates with the information above in its relevance for this Environmental Report.

8.3 Correspondence from NSW EPA, Contaminated Groundwater in Lord Street Area, Botany

The following (in italics) is summarised from the Prensa 2014 report.

"Niall Johnston of the EPA, issued a letter to Lakes Business Park on 21st November 2001, with a summary of the letter, as well as the response from the general manger of Lakes Business Park provided below.

- *NSW EPA reported that it was provided with information about contaminated groundwater in the greater Botany area and undertook a significant harm assessment in accordance with Section 9 of the Contaminated Land Management (CLM) Act 1997.*
- *The assessment concluded that arsenic contamination within the Lord Street area posed a significant risk of harm to both human health and the environment.*
- *NSW EPA notified Lakes Business Park of their potential to be contributing to the arsenic contaminated groundwater detected in the Lord Street area.*
- *The EPA acknowledged that the issue may not have necessarily arisen from one particular site and was seeking to determine potential sources of this contamination.*
- *The letter noted that the NSW EPA was aware that the Site occupied by Lakes Business Park was formerly as wool scourers.*
- *A request was made by NSW EPA for groundwater monitoring results (if such sampling had been undertaken) and any other information that would assist the EPA in determining the source of the arsenic contamination affecting groundwater in the Lord Street area.*

A response letter from Lakes Business Park was sent on 28th November 2001 by Alan Darley (General Manager) with key points summarised below:

- *The land on which Lakes Business Park was developed was owned by Stoneleigh Holdings Pty Ltd.*
- *The letter acknowledged that part of the land was used for wool scouring and topmarking.*
- *A sheep dip previously existed at the Site which historically contained arsenic.*
- *The use of arsenic was outlawed in the early 1980's and all scouring waste was reportedly discharged into the sewer.*
- *All wool processing ceased at the Site (on Lord Street) in 1987.*
- *It was reported that the land located to the east of Lakes Business Park (2 Daniel Street), on the northern side of Lord Street, a large tannery operated for most of the 20th century. The general manager of Lakes Business Park noted in the response to NSW EPA that "a great deal of subsoil remediation was necessitated due to the leaching of tanning material." This remediation was reportedly carried out by Sydney Waster prior to sale of the land.*

Lakes Business Park articulated a line-of-evidence approach to NSW EPA to explain why the Site was unlikely to be an ongoing source of arsenic contamination, based on the following:

- *Tenants on-site are not involved in the manufacture or use of "any chemical";*
- *67% of the land leased within the park is for office use only; and*
- *Prior to Building 6 being developed, Environmental Investigations assessed the likelihood of contamination of subsurface soils in the building precinct, which concluded "Inspection of the site and surrounding areas did not indicate any obvious on-site or nearby activity that could be expected to generate significant soil or groundwater contamination".*

Prensa corroborates with the information above in its relevance for this Environmental Report.

8.4 Stage 1 Preliminary Environmental Site Assessment for Proposed Commercial Development at South Precinct, Lakes Business Park, 11-13 Lord Street, Botany (Environmental Investigations 2007)

The key findings of the Environmental Investigations 2007 report are summarised below as referenced from the Prensa 2014 report.

- The southern precinct was historically used for wool scouring, wool production and tannery operations from approximately 1898 to the mid-1980s.
- The Bayley tannery was previously located to the north east of the southern precinct, with remediation works reportedly completed at the Bayley tannery in the late 1980s.
- A previous geotechnical assessment completed in 2006 (but not included in the Environmental Investigations report) indicated that sandy fill was present to depths of 0.6 m to 1.8 m across the southern precinct. The fill was underlain by natural silty and clayey sand, with groundwater present at approximately 2.8 m depth.
- The main potential contaminants of concern included metals, PAH, TPH, PCBs and asbestos within fill.
- Although no soil sampling was undertaken by Environmental Investigations, a comment was made that "The 1980s site redevelopment is likely to have included raising the site levels with imported fill material in addition to paving the majority of the site with impermeable concrete or asphalt. Therefore, the level of risk to site occupants associated with the potential contamination is relatively low."

Prensa corroborates with the information above in its relevance for this Environmental Report.

8.5 Stage 1 Preliminary Environmental Site Assessment for Proposed Commercial Development at North Precinct, Lakes Business Park, 2-12 Lord Street, Botany [Lot 1 in DP1035345] (Environmental Investigations 2008)

The key findings of the Environmental Investigations 2008 report are summarised below, as referenced from the Prensa 2014 report.

- The northern precinct was historically used for wool scouring, wool production and chemical manufacturing operations from approximately 1906 to the mid-1980s.
- The Bayley tannery was previously located to the east of the northern precinct, with remediation works reportedly completed at the Bayley tannery in the late 1980s.
- The Environmental Invesigations report made reference to the soil investigation completed at 6 Lord Street in 2001 (as discussed previously in this report), which found that sandy fill was present to depths ranging from 0.7 m to 1.5 m, with groundwater seepage noted at approximately 1.5 m to 2.0 m depth.
- The main potential contaminants of concern included metals, PAH, TPH, PCB and asbestos within fill.
- Although no soil sampling was undertaken by Environmental Investigations, a comment was made that "Development of the existing commercial park facilities is likely to have included raising the site levels with imported fill material in addition to paving extensive areas of the site with impermeable concrete or asphalt. Therefore, the level of risk to site occupants associated with the potential contamination is relatively low."

Prensa corroborates with the information above in its relevance for this Environmental Report.

8.6 Asbestos Register, Lakes Business Park, Lord Street Botany (EMS 2013)

The following (in italics) is summarised from the Prensa 2014 report.

The EMS report stated that no asbestos-containing materials (ACM) were identified on-site.

Samples were collected from fibre cement sheeting (FCS), insulation to air conditioning ducts and pipework, and structural beam insulation by EMS, with the analysis of these materials finding that they did not contain asbestos.

Prensa corroborates with the information above in its relevance for this Environmental Report.

8.7 Due Diligence Environmental and Hazardous Materials Assessment (Prensa 2014)

The key findings of the Prensa 2014 report comprised the following.

- Prior to the construction of the existing buildings between 1990 and 2002, the site was previously used for wool scouring and topmarking activities. A sheep dip previously operated at the site.
- The land to the east of the site historically operated as a tannery for several decades.
- Based on the nature of previous uses of the site and surrounding area it was possible that some historical contamination could exist.
- A preliminary environmental assessment was undertaken on part of the Site (6 Lord Street) prior to the construction of Building 6 and part of the Development Approval process. This preliminary assessment identified the presence of fill up to 1.4 m depth in this part of the site. The analysis of soil samples collected from the fill found that the contaminant concentrations in soil the 6 Lord Street property were less than the health investigation levels (HILs) adopted for a commercial/ industrial land use and would be unlikely to affect the ongoing commercial/ industrial use of the site.
- In the absence of previous environmental assessment reports that include intrusive soil sampling for the other parts of the site, a potential purchaser should be aware that without undertaking intrusive soil sampling, it is not possible to confirm the presence of contamination in these areas which could present a liability to a future site owner. Potential purchasers should consider the necessity to undertake intrusive soil sampling.
- The potential for the current activities at the site to represent a potential source of significant contamination was considered relatively low. No visible evidence to indicate the presence of underground storage tanks (USTs) or significant liquid chemical storage was identified at the time of the inspection.
- Based on the dates of construction, it was considered unlikely that significant quantities of asbestos containing materials (ACM) were used in the construction of the buildings at the site. However, it was considered possible that some ACM might be present within friction materials (such as gaskets) in items of plant, as the use of asbestos in these materials was not banned in Australia until the end of 2003.
- Synthetic mineral fibre materials were present at the site within:
  - Insulation to the underside of metal sheet roofing;
  - Insulation to air conditioning ductwork;
  - Panelling surrounding rooftop cooling fans;
  - Insulation to structural supports;
  - Bathroom wall linings;
  - SMF fibreglass cooling towers located on the roof of the buildings, noted to be in sound condition;

- SMF fire pillows in penetrations for risers throughout the buildings; and
- Hot water heaters insulation found throughout the eight buildings (mainly tenant owned and operated).

8.8 Limited Environmental Investigations Report (KPMG SGA 2014)

KPMG SGA was engaged by DEXUS to undertake a Limited Environmental Investigation at the Lakes Business Park to assess the potential for impact to soil/groundwater by contaminants of concern associated with the former use and associated potential risks to human health and the environment.

KPMG SGA concluded the following:

- Contaminants of concern were not identified at the site that would limit the sites ongoing use as a commercial/industrial facility;
- Contaminants of concern within soil samples analysed were below the relevant investigation levels for the protection of human health in a residential setting with minimal soil access land use and therefore no evidence has been identified to preclude redevelopment for such land use; and
- Concentrations of some metals (arsenic, zinc and aluminium) were identified within the groundwater above the adopted criteria. The zinc and aluminium were considered representative of regional conditions and not attributable to site activities. The arsenic was considered to be associated with the highly leachable arsenic within natural soils onsite which was believed to be being released due to reducing conditions. The Mill Pond to the north of the site was also considered to also be contributing to arsenic within groundwater.

9 Environmental Setting

9.1 Geology

A review of the 1:100,000 Geological Series Map of Sydney (Department of Mineral Resources Geological Survey of NSW, Sheet 9130, Edition 1, 1983) indicated the site was underlain by medium to fine grained “marine” sands with podsols of the Holocene Epoch characteristic of the Botany Sands.

9.2 Acid Sulfate Soils

A review of the Department of Infrastructure, Planning and Natural Resources (DIPNR) Acid Sulfate Soils Risk Mapping on NSW Natural Resource Atlas online (http://www.nratlas.nsw.gov.au/), accessed 9th April 2015, indicated the site was located in an area of low probability of occurrence of potential acid sulphate soils.

A review of the Botany Bay Local Environmental Plan (LEP) 2013 *Acid Sulfate Soils Map* (Acid Sulfate Soils Map - Sheet ASS_001), accessed 9th April 2015, indicated the site is located in a Class 4 area. Development consent is not required for works more than 2 metres below the natural ground surface or works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.

As such a preliminary acid sulfate soil assessment would be recommended in the event that significant subsurface works extend beyond 2 m or the water table is lowered more than 2 m.

Field indicators of actual acid sulfate soils include:

- A field pH (PHF) less than 4 pH units (indicates soils where sulphides have been oxidised in the past, resulting in acid soils and soil pore water).
- The presence of shell material.

- Jarositic horizons or substantial iron oxide mottling in auger holes, in surface encrustations or in any material dredged or excavated and left exposed.

Field indicators of potential acid sulfate soils include:

- Waterlogged soils - unripe muds (soft, buttery, blue grey or dark greenish grey) or estuarine silty sands or sands (mid to dark grey) or bottom sediments of estuaries or tidal lakes (dark grey to black).
- The presence of shells.
- A positive field peroxide test using 30% hydrogen peroxide including one or more of the following:
  - A change in colour of the soil from grey tones to brown tones effervescence.
  - The release of sulfur smelling gases such as sulfur dioxide or hydrogen sulfide.
  - A lowering of the soil pH after peroxide oxidation (pHFOX) by at least one unit.
  - A final pH following oxidation (pHFOX) less than 3.5 pH units (preferably pH less than 3 pH units).

9.3 Online Searches

9.3.1 Contaminated Land Record

A search of the NSW EPA Contaminated Land Record of Notices online (http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx), accessed on 9th April 2015, indicated there were no recorded notices for the site, or land within 250 m of the site, under Section 58 of the CLM Act 1997.

9.3.2 NSW EPA Public Register

A search of the NSW EPA public register under the Protection of the Environment Operations (POEO) Act 1997 online (http://www.epa.nsw.gov.au/prpoeoapp/, accessed 9th September 2014) indicated there were no registered licences, applications, notices, audits or pollution studies and reduction programs for the site.

Abbott Australasia Pty Ltd located at 32-34 Lord Street (opposite Lord Street from the site) previously held a licence (POEO Licence number 12310, expired 15th Oct 2012) for Hazardous, Industrial or Group A Waste Generation or Storage up to 100 tonnes comprising waste pharmaceuticals, drugs and medicines (R120), clinical and related wastes (R100) and cytotoxic wastes (R130).

Given the enforcement of an EPA licence, it was considered unlikely that the waste generated and/or stored at 32-34 Lord Street would pose a risk to current and future potential site users.

9.4 Site Summary History

A review of historical and current land title searches and aerial photographs was undertaken as part of the Prensa Due Diligence Environmental and Hazardous Materials Assessment Report and key details pertaining to the site (southern precinct) are summarised below:

- The site was owned by the Metropolitan Water Sewerage and Drainage Board between 1925 and 1989, when Stoneleigh Holdings (the owner at the time the existing business park was developed) acquired the site;
- The historical review indicated that prior to the construction of the existing buildings between 1990 and 2002, the site was previously used for wool scouring and topmarking activities, with a sheep dip previously operating at the site; and

- The result for the Section 149 planning search indicated the site is within an environmentally sensitive area.

10 Rezoning Requirements

A review of the Botany Bay Development Control Plan 2013 indicated that to ensure land subject to a rezoning is suitably assessed (to determine the extent of contamination and if necessary, remediation required as part of the rezoning), the application must comply with the CLM Act 1997 and SEPP 55.

SEPP 55 indicates that for a rezoning application it would not be appropriate to proceed with rezoning unless the land was proven suitable for that development or it could be demonstrated that the land can, and will be, remediated to make the land suitable. Furthermore, rezoning should be allowed to proceed, provided measures are in place to ensure that the potential for contamination and the suitability of the land for any proposed use are assessed once detailed proposals are made.

Prensa is unaware of specific requirements by DPI for rezoning concerning contaminated land assessments above and beyond council requirements.

11 Data Gap Appraisal

11.1 Conceptual site model

For an ecological or human health risk from contamination to be present at the site, there must be a plausible pollutant linkage between the source and a receptor by means of a transport mechanism (pathway).

A conceptual site model (CSM) was initially developed for the site as part of the KPMG SCA 2014 report. This CSM has been further refined based on the findings of the limited investigation to:

- Provide information on the potential risk to human health and the environment in light of the proposed rezoning application and future residential land use; and
- Identify data gaps that would require further investigation.

11.1.1 Potential Sources of Contamination

Based on a review of available background information and in consideration of the previous reports, the following potential sources of contamination have been identified:

- Historical use of the site for wool scouring, topmarking and as a tannery;
- Uncontrolled fill across the site for construction of the current site use; and
- Off-site historical industries surrounding the site including tanneries within Botany.

11.1.2 Contaminants of Potential Concern

Contaminants of Potential Concern (CoPC) associated with:

- Animal products processing works (in particular tanneries) include heavy metals, inorganic compounds (sulphides and biocides), acids and alkalis and organic compounds (fuel oils (hydrocarbons), solvents, phenols, insecticides, oil tans and formaldehyde); and
- Uncontrolled fill include heavy metals, hydrocarbons, phenols, pesticides, polychlorinated biphenyls and asbestos.

11.1.3 Potential Receptors and Exposure Pathways

Based on the history of the site and associated CoPC, potential receptors for the proposed medium-density residential land use with basement car park include:

- Future site users from dermal contact, ingestion and inhalation of potentially contaminated soil and dust and asbestos fibres;
- Adjacent site users from inhalation of potentially contaminated dust and asbestos fibres;
- Future site users from vapour intrusion and inhalation from potentially contaminated groundwater;
- Shallow maintenance and excavation workers from dermal contact and ingestion and vapour inhalation;
- Terrestrial ecosystems;
- Ecosystems of the Mill Pond (approximately 150 m to the north of the site); and
- Ecosystems and recreational Users of Botany Bay.

11.2 Data Gaps

Based on a review of the previous reports and appreciation of the CSM, the following data gaps have been identified:

- The soil sampling density adopted in the KPMG SCA 2014 report does not meet the recommended minimum sampling points required for characterisation using a systematic sampling pattern. Given the unknown locations of processing activities associated with the former tannery at the site, the heterogeneous nature of the fill and proposed land use, a systematic sampling plan would be recommended to assess the potential risk to human health and the environment;
- The analytical suite adopted in the KPMG SCA 2014 report is summarised in Table 1. As summarised, contaminants of potential concern were not analysed at each borehole location. This is particularly relevant given the unknown location of historical activities at the site associated with the former tannery. The KPMG SGA 2014 sampling locations and analytical results are presented in Appendix C and Appendix D respectively; and
- Soil beneath the buildings on site was not assessed due to access constraints.

Table 1: KPMG SGA 2014 Analytical Suite

Analysis	Number of Soil Samples Analysed	
	Fill	Natural
TRH[1]	13	2
BTEX[2]	13	2
PAH[3]	13	2
Metals[4]	13	5 (3 samples only for arsenic)
Haxavalent chromium	13	2
OCP[5]	2	0
PCB[6]	2	0
Phenols	2	0
VOC[7]	2	0
Asbestos	2	0

[1] TRH – Total recoverable hydrocarbons
[2] BTEX – Benzene, toluene, ethylbenzene and xylene compounds
[3] PAH – Polycyclic aromatic hydrocarbons
[4] Heavy metals – arsenic, chromium, hexavalent chromium, cadmium, copper, lead, nickel, zinc, and mercury
[5] OCP – Organochlorine pesticides
[6] PCB – Polychlorinated biphenyls
[7] VOC – Volatile organic compounds

Should the site be re-developed for a medium-density residential land use, Prensa recommends further investigation, in the form of a DSI be undertaken, to address the potential risk to human health and the environment from potential soil contamination not assessed/identified to date.

As the buildings currently occupy approximately 30% of the site, Prensa considers that additional investigation can more effectively be implemented following demolition of the buildings, under a separate development application subsequent to the rezoning.

Should the DSI indicate a potential risk to human health and the environment, in light of the proposed medium-density residential land use, recommendations for further investigation, remediation or management would be required to be implemented such that the chemical composition of the soil and/or groundwater does not preclude the intended use of the site.

12 Proposed Scope for DSI- Sampling, Analysis and Quality Plan

This section outlines the scope of works to be undertaken as part of a proposed DSI to address the data gaps and further assess the site in light of the proposed medium-density residential land use.

12.1 Sampling Program and Rationale

To supplement the existing data set, soil samples of fill and natural material will be collected and analysed from forty (40) grid based locations across the site. This sampling density selected conforms to the minimum sampling points required for site characterisation based on detection of circular hotspots using a systematic grid sampling pattern as recommended in NSW EPA 1995.

In addition, a preliminary ASS assessment is also recommended, in the event that significant subsurface works extend beyond 2 m or the water table is lowered more than 2 m.

Groundwater samples will be collected and analysed from the four (4) groundwater monitoring wells (MW16, MW20, MW27 and MW25) present at the site as shown on KPMG SGA Figure 2 in Appendix C.

12.2 Fieldwork Preliminaries

A site-specific safety plan will be prepared to document the foreseeable hazards associated with the works and to outline the measures that will be implemented to remove or manage the associated health and environmental risks.

A Dial Before You Dig (DBYD) search will be required to be undertaken as standard procedure to check for underground services.

12.3 Sampling Methodology

12.3.1 Soil

Soil samples will be collected from forty (40) boreholes and/or test pits following demolition of the buildings.

Service clearance will be undertaken by a Telstra accredited service locator to reduce the risk of contact with underground services at the site. Concrete cutting will be undertaken where required.

Boreholes will be advanced using a drill rig with push tube and solid stem auger capability. Test pits will be excavated using an excavator. The target depth of the boreholes/test pits will be 1.0 m into natural material which is approximately 2.5 m below ground level based on soil logs presented within the KPMG SGA 2014 report. The subsurface profile will be logged and classified in general accordance with AS1726–1993 Geotechnical Site Investigations and a photo-ionisation detector (PID) will be used to screen the soil profile to provide an indication of the presence of volatile organic compounds during borehole advancement/test pit excavation and assist in determining which samples to analyse.

Soil samples will be collected from each borehole/test pit location, with selected samples only being scheduled for analysis. Soil samples will be collected directly from the surface of the soil (0.15 – 0.2 m), half a metre (0.5 m), 1.0 m and each metre to the base of the borehole/test pit or where any changes in lithology, evidence of contamination, or elevated (PID) readings are noted.

Field screening will be undertaken on natural soil samples for potential acid sulfate soils using hydrogen peroxide.

12.3.2 Groundwater

The groundwater sampling program comprises the following steps:

- Gauging;
- Purging; and
- Sampling.

The four (4) groundwater monitoring wells will be gauged with an oil/water interface probe to firstly determine if there is light non-aqueous phase liquid (LNAPL) present, as well as to determine the depth to groundwater.

Prior to sampling, the wells will be purged to remove stagnant water and to enable the collection of a representative groundwater sample. Water will be purged until the following quality parameter ranges have been reached for a minimum of three consecutive readings:

- ± 10% for dissolved oxygen;
- ± 10% turbidity;
- ± 3% for electrical conductivity;
- ± 0.05 for pH; and
- ± 10 mv for redox potential.

Groundwater sampling will be undertaken using a low-flow 'micropurge' sampling kit. Groundwater samples will be collected in appropriate sampling bottles in accordance with the analytical schedule summarised in Section 12.5.

12.4 Quality Assurance and Quality Control

Fieldwork shall be undertaken by appropriately qualified and experienced Prensa personnel in accordance with industry accepted standard practice and NEPM 2013.

Phosphate-free detergent will be used to clean sampling instruments between sample locations. The sampling instruments will be rinsed in deionised water and then sprayed with deionised water to minimise the potential for cross-contamination to occur.

Soil and groundwater samples will be placed in laboratory supplied jars, bags and bottles with Teflon lined lids and preservative, where required. The samples will be stored in ice chests before being transported to the laboratory along with Chain of Custody documentation.

A summary of the DQIs and acceptable limits for QA/QC are outlined in Appendix E.

12.5 Laboratory Analysis

National Association of Testing Authorities (NATA) accredited laboratories will be used for the proposed analysis of soil and groundwater samples

12.5.1 Soil

A summary of the proposed soil analytical schedule is provided in Table 2.

Table 2: Proposed Soil Analytical Schedule (DSI)

Samples	Medium/type	Quantity	Analysis/CoPC	Rationale
Primary	Fill	27	TRH[1], BTEX[2], PAH[3] and heavy metals[4]	To supplement the existing data set. Thirteen samples of fill were previously analysed for this suite.
	Fill	38	OCP/OPP[5], PCB[6] and asbestos	To supplement the existing data set. Two samples of fill were previously analysed for this suite.
	Fill	2	Clay content, cation exchange capacity and pH	To determine appropriate ecological assessment criteria.
	Natural	38	TRH, BTEX, PAH and heavy metals	To supplement the existing data set. Two samples of natural soil were previously analysed for this suite.
	Natural	40	OCP/OPP, herbicides[7], PCB, total phenolics, S/VOC[8] and formaldehyde	CoPC associated with the tannery (considered to be located beneath the level of the present day fill material) not assessed previously.
	Natural	2	Clay content, cation exchange capacity and pH	To determine appropriate ecological assessment criteria.
	Natural	10#	Suspension Peroxide Oxidation Combined Acidity & Sulfur (SPOCAS)	Acid sulfate soils assessment
Quality Control	Duplicates	8	TRH, BTEX, PAH and heavy metals*	DQIs and acceptable limits for QA/QC are outlined in Appendix E.
	Rinsate Blanks	3	TRH, BTEX, PAH and heavy metals*^	
	Field Blanks	3	TRH, BTEX, PAH and heavy metals*^	
	Trip Blanks	3	TRH, BTEX, PAH and heavy metals*^	

[1] TRH – Total recoverable hydrocarbons
[2] BTEX – Benzene, toluene, ethylbenzene and xylene compounds
[3] PAH – Polycyclic aromatic hydrocarbons
[4] Heavy metals – arsenic, chromium, hexavalent chromium, cadmium, copper, lead, nickel, zinc, and mercury
[5] OCP/OPP – Organochlorine/organophosphate pesticides
[6] PCB – Polychlorinated biphenyls
[7] Herbicides– 2,4,5-trichlorophenoxyacetic acid, 2,4-dichlorophenoxyacetic acid, 2-methyl-4-chlorophenoxyacetic acid, 4-butyric acid, mecoprop and picloram
[8] S/VOC – Semi/volatile organic compounds
The number of samples for SPOCAS will be determined following field screening.
* Pending analytical results
^ Based on three (3) days soil sampling

12.5.2 Groundwater

A summary of the proposed groundwater analytical schedule is provided in Table 3.

Table 3: Proposed Groundwater Analytical Schedule (DSI)

Samples	Medium/type	Quantity	Analysis/CoPC	Rationale
Primary	Groundwater	4	TRH, BTEX, PAH and heavy metals' Total alkalinity as CaCO3, OCP/OPP, PCB, total phenolics, VOC, TDS, pH, SO_4 and cl	To confirm the findings of the KPMG SGA 2014 report
Quality Control	Duplicates	2	TRH, BTEX, PAH and heavy metals*	DQIs and acceptable limits for QA/QC are outlined in Table A and Table B in Appendix E
	Rinsate Blanks	1	TRH, BTEX, PAH and heavy metals*^	
	Field Blanks	1	TRH, BTEX, PAH and heavy metals*^	
	Trip Blanks	1	TRH, BTEX, PAH and heavy metals*^	

* Pending analytical results

^ Based on one (1) day groundwater sampling

12.6 Assessment Criteria

To assess the significance of CoPC in soil and groundwater, reference will primarily be made to NEPM 2013, specifically 'Schedule B1 Guideline on Investigation Levels For Soil and Groundwater' (Schedule B1) for tier 1 soil and groundwater assessment criteria, where available. Schedule B1 provides a framework for the use of investigation and screening levels based on human health and ecological risks. In the absence of relative criteria in NEPM 2013, reference will be made to other nationally or state endorsed guidelines.

Based on the proposed site use, criteria for a residential land use with minimal opportunities for soil as defined in NEPM 2013 are deemed appropriate and will be adopted for the proposed DSI.

Full details regarding the proposed assessment criteria for soil and groundwater are provided in Appendix F.

12.7 Reporting

12.7.1 Detailed Site Investigation

Following intrusive works and receipt of the analytical results, a DSI report will be prepared which will comprise the following:

- Introduction;
- Objectives;
- Scope of Works;
- Technical Framework;
- Data Quality Objectives and Data Quality Indicators;
- Site Setting;
- Background information;
- Summary of previous reports;
- Conceptual Site Model;
- Tier 1 soil and groundwater assessment criteria for medium/high density residential land use as defined in NEPM 2013 and CRCCARE 2011;
- Methodology;
- Laboratory Analysis;

- Comparison of results against adopted assessment criteria;
- Discussion of results;
- Quality Assurance and Quality Control;
- Conclusions; and
- Recommendations, if required.

Appendices included as part of the report will comprise:

- Figures;
- Tables;
- Photographs;
- Waste Disposal Dockets;
- Calibration Certificates;
- Borehole Logs; and
- Laboratory Reports.

12.7.2 Remedial Action Plan

Should soil remediation be required following completion of the DSI, a RAP will be prepared, which would likely comprise the following:

- A summary of the site conditions, surrounding environment and background information;
- A summary of the previous environmental assessments;
- A conceptual site model including the contamination status of the site;
- Identification of remediation goals for soil;
- A review of relevant remedial technologies and their applicability to the site and the environmental setting;
- An overview of the preferred remedial strategies which would achieve suitable remedial objectives for soil at the site;
- Timing and schedules for the remedial work;
- Environmental management issues and contingency management;
- Work place health and safety issues; and
- An overview of approvals and licences required to complete the remedial works.

13 Conclusions

It is understood that DEXUS intends to obtain planning approval for the rezoning of the site from B7 Business Park to B4 Mixed Use. A concept design plan has been prepared for the rezoning of the site, which comprises the demolition of existing buildings and construction of 658 medium density apartments with two (2) levels of basement car parking and above ground soft landscaping and car parking at the site.

A review of the Botany Bay Development Control Plan 2013 indicates that to ensure land subject to a rezoning is suitably assessed (to determine the extent of contamination and if necessary, remediation required as part of the rezoning), the application must comply with the CLM Act 1997) and SEPP 55.

SEPP 55 indicates that for a rezoning application it would not be appropriate to proceed with rezoning unless the land was proven suitable for that development or it could be demonstrated that the land can, and will be, remediated to make the land suitable.

Prensa conducted a review of eight (8) previous environmental reports/letters pertaining to the site, as provided by DEXUS. The provided reports/letters were reviewed to gain insight into the scope of

environmental works conducted to date and the contamination status of the site. The outcome of the review identified a number of data gaps that are recommended to be addressed as part of further works at the site.

As the KPMG SGA 2014 investigation was limited in scope, there are data gaps that will be required to be addressed (refer to Section 11) to inform Council of the City of Botany Bay that the risk from potential soil contamination (not assessed to date) for the proposed medium-density residential land use can be investigated and managed following rezoning. This can be achieved through implementation of a Detailed Site Investigation and preparation and implementation of a Remedial Action Plan (RAP) (if required).

On the basis of the review, a scope of works has been developed for a DSI (inclusive of a preliminary ASS assessment) (outlined in Section 12), which if implemented, should address data gaps identified following a review of previous investigations and further assess the contamination status of the site in light of the proposed medium-density residential land use. As the buildings currently occupy approximately 30% of the site, Prensa considers that the DSI will be more effectively implemented following demolition of the buildings, which can be managed under a separate development application subsequent to rezoning.

If a potential unacceptable risk to human health or the environment is identified during the DSI then further assessment, remediation or site management may be required. The scope of work for a Remedial Action Plan, if required, has also been provided within this report (Section 12.7.2).

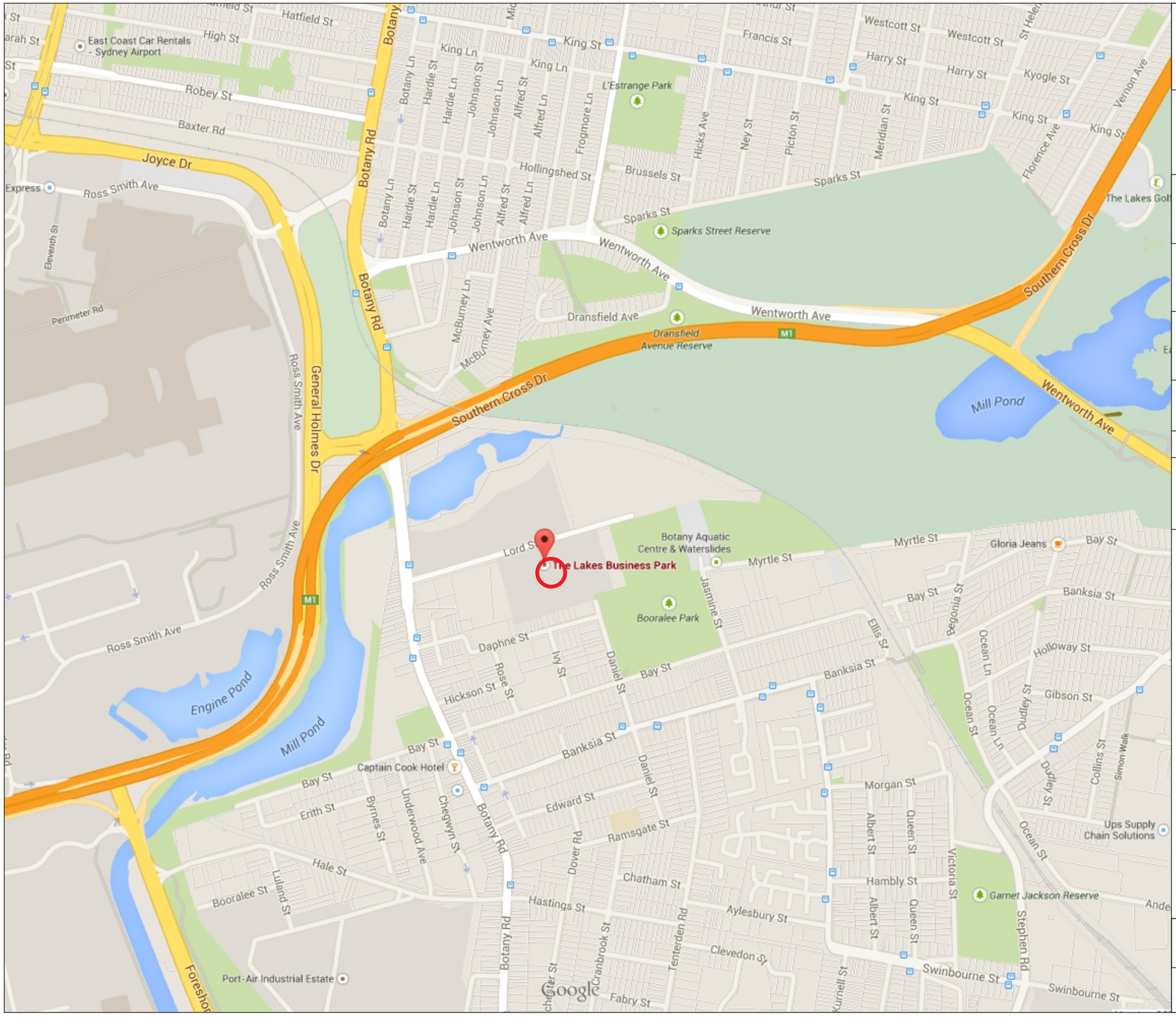
KPMG SGA concluded in their Limited Environmental Investigation Report undertaken in 2014 that "*contaminants of concern were not identified at the site that would limit the sites ongoing use as a commercial/industrial facility*" and "*contaminants of concern within soil samples analysed were below the relevant investigation levels for the protection of human health in a residential setting with minimal soil access land use and therefore no evidence has been identified to preclude redevelopment for such land use*".

Based on the above findings and the proposed scope of works for additional assessment, Prensa concludes that rezoning should be allowed to proceed, as measures will be put in place to ensure that the potential for contamination and the suitability of the land can be more effectively assessed once detailed proposals are made and demolition of the buildings has occurred.

Abbreviations

Abbreviation	Definition
AHD	Australian Height Datum
AMG	Australian Map Grid
ANZECC	Australian & New Zealand Environment & Conservation Council
AS	Australian Standard
BaP	Benzo(a)pyrene
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
BTOC	Below Top of Casing
COC	Chain of Custody
CoPC	Contaminant of Potential Concern
CLM	Contaminated Land Management
DBYD	Dial Before You Dig
DEC	Department of Environment and Conservation
DECCW	Department of Environment, Climate Change and Water
EPA	Environment Protection Authority
ESA	Environmental Site Assessment
GMRRW	Guidelines for Managing Risk in Recreational Waters
LNAPL	Non-Aqueous Phase Liquid
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NOW	New South Wales Office of Water
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photo Ionisation Detector
POEO	Protection of the Environment Operations
PQL	Practical Quantitation Limit
QA/QC	Quality Control/Quality Assurance
RPD	Relative Percentage Difference
SEPP	State Environmental Planning Policy
SSP	Site Safety Plan
SVOC	Semi-volatile Organic Compounds
SWL	Standing Water Level
TDS	Total Dissolved Solids
TOC	Top of Casing
TRH	Total Recoverable Hydrocarbons
VOC	Volatile Organic Compounds

Figures



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Client:
DEXUS Property Group

Project:
Environmental Report

Address:
Lakes Business Park - Southern Precinct,
8-11 Lord Street, Botany NSW

Drawing Title:
Site Location Plan

Job No.: 53195	Client No.: D0055

Metres
0 200

N

Legend:

Site Location

Note: All locations are approximate

Image source: Google Maps

Drawn by:	Date:	Checked by:	Date:
AXP	10/04/2015	AST	10/04/2015

File name:	Figure number:	Revision:
53195 Botany LBP Figures	1	A

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Project:
Environmental Report

Address:
Lakes Business Park - Southern Precinct,
8-11 Lord Street, Botany NSW

Drawing Title:
Site Layout Plan

Job No.: 53195 | Client No.: D0055

Metres
0 40

N

Legend:

Site Boundary

Note: All locations are approximate

Image source: Six Maps

Drawn by:	Date:	Checked by:	Date:
AXP	10/04/2015	AST	10/04/2015

File name:	Figure number:	Revision:
53195 Botany LBP Figures	2	A

Appendix A: Photographs

Photo 1. Detention Pit looking north-east

Photo 2. Western portion of site looking south

Photo 3. Typical warehouse space

Photo 4. South of site looking east

Photo 5. South-east of site looking east

Photo 6. Typical office space

Appendix B: SGA Analytical Reports

19 May 2008 **TEST REPORT**

Lakes Business Park
2B Lord St
Botany
NSW 2019

Your Reference: ENV 7597
Report Number: 60890

Attention: Brett Jordan

Dear Brett
The following samples were received from you on the date indicated.

Samples:	Qty.	2 Waters
Date of Receipt of Samples:		12/5/08
Date of Receipt of Instructions:		12/5/08
Date Preliminary Report Emailed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Edward Ibrahim
Lab Manager

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
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Member of the SGS Group

Metals in water by ICP-OES Our Reference: Your Reference Sample Type	UNITS ---------- ----------	60890-1 Inlet Water	60890-2 Upstream Water
Silver*	mg/L	<0.02	<0.02
Aluminium (Dissolved)	mg/L	0.04	<0.02
Arsenic (Dissolved)	mg/L	<0.05	<0.05
Boron (Dissolved)	mg/L	0.097	0.07
Beryllium (Dissolved)	mg/L	<0.0050	<0.0050
Barium (Dissolved)	mg/L	0.030	0.024
Cadmium (Dissolved)	mg/L	<0.005	<0.005
Cobalt (Dissolved)	mg/L	<0.005	<0.005
Chromium (Dissolved)	mg/L	<0.005	<0.005
Copper (Dissolved)	mg/L	<0.01	<0.01
Iron (Dissolved)	mg/L	0.36	0.22
Potassium (Dissolved)	mg/L	3.8	4.0
Magnesium (Dissolved)	mg/L	2.4	2.5
Manganese (Dissolved)	mg/L	0.036	0.018
Molybdenum (Dissolved)	mg/L	<0.020	<0.020
Sodium (Dissolved)	mg/L	15	15
Nickel (Dissolved)	mg/L	<0.010	<0.010
Phosphorus (Dissolved)*	mg/L	<0.50	<0.50
Sulphur (Dissolved)*	mg/L	3.9	4.1
Selenium (Dissolved)	mg/L	<0.05	<0.05
Silicon (Dissolved)*	mg/L	0.07	1.3
Tin (Dissolved)	mg/L	<0.05	<0.05
Strontium (Dissolved)	mg/L	0.069	0.060
Titanium (Dissolved)	mg/L	<0.005	<0.005
Thallium (Dissolved)*	mg/L	<0.02	<0.02
Vanadium (Dissolved)	mg/L	<0.010	<0.010
Zinc (Dissolved)	mg/L	0.039	0.013

Method ID	Methodology Summary
SEM-010	Metals - Determination of various metals by ICP-OES following appropriate sample preparation or digestion process.

QUALITY CONTROL Metals in water by ICP-OES	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Silver*	mg/L	0.02	SEM-010	<0.02	[NT]	[NT]	LCS	101 || [N/T]
Aluminium (Dissolved)	mg/L	0.02	SEM-010	<0.02	[NT]	[NT]	LCS	99 || [N/T]
Arsenic (Dissolved)	mg/L	0.05	SEM-010	<0.05	[NT]	[NT]	LCS	101 || [N/T]
Boron (Dissolved)	mg/L	0.05	SEM-010	<0.05	[NT]	[NT]	LCS	99 || [N/T]
Beryllium (Dissolved)	mg/L	0.005	SEM-010	<0.005 0	[NT]	[NT]	LCS	92 || [N/T]
Barium (Dissolved)	mg/L	0.005	SEM-010	<0.005	[NT]	[NT]	LCS	98 || [N/T]
Cadmium (Dissolved)	mg/L	0.005	SEM-010	<0.005	[NT]	[NT]	LCS	100 || [N/T]
Cobalt (Dissolved)	mg/L	0.005	SEM-010	<0.005	[NT]	[NT]	LCS	100 || [N/T]
Chromium (Dissolved)	mg/L	0.005	SEM-010	<0.005	[NT]	[NT]	LCS	98 || [N/T]
Copper (Dissolved)	mg/L	0.01	SEM-010	<0.01	[NT]	[NT]	LCS	95 || [N/T]
Iron (Dissolved)	mg/L	0.02	SEM-010	<0.02	[NT]	[NT]	LCS	99 || [N/T]
Potassium (Dissolved)	mg/L	0.2	SEM-010	<0.2	[NT]	[NT]	LCS	100 || [N/T]
Magnesium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	92 || [N/T]
Manganese (Dissolved)	mg/L	0.005	SEM-010	<0.005	[NT]	[NT]	LCS	99 || [N/T]
Molybdenum (Dissolved)	mg/L	0.02	SEM-010	<0.020	[NT]	[NT]	LCS	98 || [N/T]
Sodium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	95 || [N/T]
Nickel (Dissolved)	mg/L	0.01	SEM-010	<0.010	[NT]	[NT]	LCS	95 || [N/T]
Phosphorus (Dissolved)*	mg/L	0.5	SEM-010	<0.50	[NT]	[NT]	LCS	10 || [N/T]
Sulphur (Dissolved)*	mg/L	0.5	SEM-010	<0.50	[NT]	[NT]	LCS	103 || [N/T]
Selenium (Dissolved)	mg/L	0.05	SEM-010	<0.05	[NT]	[NT]	LCS	100 || [N/T]
Silicon (Dissolved)*	mg/L	0.03	SEM-010	<0.03	[NT]	[NT]	LCS	100 || [N/T]
Tin (Dissolved)	mg/L	0.05	SEM-010	<0.05	[NT]	[NT]	LCS	100 || [N/T]
Strontium (Dissolved)	mg/L	0.005	SEM-010	<0.005 0	[NT]	[NT]	LCS	88 || [N/T]
Titanium (Dissolved)	mg/L	0.005	SEM-010	<0.005	[NT]	[NT]	LCS	97 || [N/T]
Thallium (Dissolved)*	mg/L	0.02	SEM-010	<0.02	[NT]	[NT]	LCS	101 || [N/T]
Vanadium (Dissolved)	mg/L	0.01	SEM-010	<0.010	[NT]	[NT]	LCS	98 || [N/T]
Zinc (Dissolved)	mg/L	0.01	SEM-010	<0.010	[NT]	[NT]	LCS	98 || [N/T]

Result Codes

[INS]	:	Insufficient Sample for this test	[RPD]	:	Relative Percentage Difference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Report Comments

Date Organics extraction commenced:
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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Quality Control Protocol

Method Blank: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.
Duplicate: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Surrogate Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.
Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.
Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Quality Acceptance Criteria

Unless otherwise specified in the test method, the following general acceptance criteria apply:

Method Blanks:	<LOR
Duplicates:	<5 x LOR: No RPD criteria applied.
	>5 x LOR: 0-30% RPD is accepted.
LCS's:	Determined by Control Charts.
	Where control charts have not been developed, the Matrix Spikes criteria apply.
Matrix Spikes:	70-130% recovery is accepted for metals / inorganics.
	60-140% is accepted for organics.
Surrogates:	60-130% recovery is accepted for BTEX.
	70-130% recovery is accepted for other organics.

15 April 2008 **TEST REPORT**

Brett Jordan
2B Lord Street
BOTANY
NSW 2019

Your Reference: ENV 7393, Lakes Business Park (NSW)
Report Number: 59922

Attention: Ahmad Fard

Dear Ahmad
The following samples were received from you on the date indicated.

Samples:	Qty.	2 Waters
Date of Receipt of Samples:		4/4/08
Date of Receipt of Instructions:		4/4/08
Date Preliminary Report Emailed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report. Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Ly Kim Ha
Senior Organic Chemist

Edward Ibrahim
Laboratory Services Manager

SGS Australia Pty Ltd ABN 44 000 964 278 | Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia t (02) 8594 0400 f (02) 8594 0499 www.au.sgs.com
Member of the SGS Group

BTEX in Water (µg/L) Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (BTEX)		8/04/2008	8/04/2008
Date Analysed (BTEX)		9/04/2008	9/04/2008
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
Total Xylenes	µg/L	<3	<3
Surrogate	%	107	105

TRH in water with C6-C9 by P/T Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (TRH C6-C9 PT)		8/04/2008	8/04/2008
Date Analysed (TRH C6-C9 PT)		9/04/2008	9/04/2008
TRH C_6 - C_9 P&T in µg/L	µg/L	<40	<40
Date Extracted (TRH C10-C36)		9/04/2008	9/04/2008
Date Analysed (TRH C10-C36)		9/04/2008	9/04/2008
TRH C_{10} - C_{14}	ug/L	<100	<100
TRH C_{15} - C_{28}	ug/L	<200	<200
TRH C_{29} - C_{36}	µg/L	<200	<200

PAHs in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Naphthalene	µg/L	<0.5	<0.5
Acenaphthylene	µg/L	<0.5	<0.5
Acenaphthene	µg/L	<0.5	<0.5
Fluorene	µg/L	<0.5	<0.5
Phenanthrene	µg/L	<0.5	<0.5
Anthracene	µg/L	<0.5	<0.5
Fluoranthene	µg/L	<0.5	<0.5
Pyrene	µg/L	<0.5	<0.5
Benzo[*a*]anthracene	µg/L	<0.5	<0.5
Chrysene	µg/L	<0.5	<0.5
Benzo[*b,k*]fluoranthene	µg/L	<1.0	<1.0
Benzo[*a*]pyrene	µg/L	<0.5	<0.5
Indeno[*123-cd*]pyrene	µg/L	<0.5	<0.5
Dibenzo[*ah*]anthracene	µg/L	<0.5	<0.5
Benzo[*ghi*]perylene	µg/L	<0.5	<0.5
Total PAHs	µg/L	<8.0	<8.0
Nitrobenzene-d5	%	97	99
2-Fluorobiphenyl	%	97	99
p -Terphenyl-*d14*	%	93	95

OC Pesticides in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
HCB	µg/L	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2
gamma-BHC(lindane)	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
o,p-DDE	µg/L	<0.2	<0.2
alpha-Endosulfan	µg/L	<0.2	<0.2
trans-Chlordane	µg/L	<0.2	<0.2
cis-Chlordane	µg/L	<0.2	<0.2
trans-Nonachlor	µg/L	<0.2	<0.2
p,p-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
o,p-DDD	µg/L	<0.2	<0.2
o,p-DDT	µg/L	<0.2	<0.2
beta-Endosulfan	µg/L	<0.2	<0.2
p,p-DDD	µg/L	<0.2	<0.2
p,p-DDT	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Endrin Ketone	µg/L	<0.2	<0.2
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	95	97

OP Pesticides in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Chlorpyrifos	µg/L	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2
Bromofos Ethyl	µg/L	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2
OP_Surrogate 1	%	95	97

PCBs in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ----------	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Arochlor 1016	µg/L	<10	<10
Arochlor 1221	µg/L	<10	<10
Arochlor 1232	µg/L	<10	<10
Arochlor 1242	µg/L	<10	<10
Arochlor 1248	µg/L	<10	<10
Arochlor 1254	µg/L	<10	<10
Arochlor 1260	µg/L	<10	<10
Arochlor 1262	µg/L	<10	<10
Arochlor 1268	µg/L	<10	<10
Total Positive PCB	ug/L	<90.00	<90.00
PCB_Surrogate 1	%	95	97

Inorganics Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ----------	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (pH)		7/04/2008	7/04/2008
Date Analysed (pH)		7/04/2008	7/04/2008
pH	pH Units	7.1	6.9
Date Extracted (Conductivity)		7/04/2008	7/04/2008
Date Analysed (Conductivity)		7/04/2008	7/04/2008
Electrical Conductivity	µS/cm	220	220
Date Extracted (TDS)		8/04/2008	8/04/2008
Date Analysed (TDS)		8/04/2008	8/04/2008
Total Dissolved Solids	mg/L	140	140
Date Extracted (Alkalinity)		4/04/2008	4/04/2008
Date Analysed (Alkalinity)		4/04/2008	4/04/2008
Bicarbonate, HCO_3^-	mg/L	60	54
Carbonate, CO_3^{2-}	mg/L	<2.0	<2.0
Date Extracted ($Cr6^+$)		10.04.08	10.04.08
Date Analysed ($Cr6^+$)		10.04.08	10.04.08
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005

Anions in water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ----------	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Chloride, Cl	mg/L	29	28
Nitrate as N	mg/L	<0.05	0.20
Sulphate, SO4	mg/L	9.3	11

Metals in water by ICP-OES Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (Metals)		8/04/2008	8/04/2008
Date Analysed (Metals)		8/04/2008	8/04/2008
Calcium (Dissolvedl)	mg/L	12	12
Magnesium (Dissolved)	mg/L	2.8	2.7
Potassium (Dissolved)	mg/L	4.1	3.8
Sodium (Dissolved)	mg/L	18	18
Iron (Dissolved)	mg/L	0.50	0.29

Trace HM (ICP-MS)-Dissolved Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (Metals-ICPMS)		8/04/2008	8/04/2008
Date Analysed (Metals-ICPMS)		8/04/2008	8/04/2008
Arsenic	µg/L	4.6	1.4
Cadmium	µg/L	<0.10	<0.10
Copper	µg/L	1.9	1.6
Chromium	µg/L	<1.0	<1.0
Lead	µg/L	4.8	3.2
Nickel	µg/L	<1.0	1.4
Zinc	µg/L	14	14

Mercury Cold Vapor/Hg Analyser			
Our Reference:	UNITS	59922-1	59922-2
Your Reference	----------	Irrigation Pump	Upstream Sample
Sample Type	----------	Water	Water
Date Sampled		4/04/2008	4/04/2008
Time Sample Taken		10:50am	11:15am
Date Extracted (Mercury)		7/04/2008	7/04/2008
Date Analysed (Mercury)		7/04/2008	7/04/2008
Mercury (Dissolved)	mg/L	<0.0005	<0.0005

Method ID	Methodology Summary
SEO-018	BTEX - Determination by purge and trap/ Gas Chromatography with MS Detection.
SEO-017	BTEX/TRH C6-C9 - Determination by Purge and Trap Gas Chromatography with Flame Ionisation Detection (FID) and Photo Ionisation Detection (PID). The surrogate spike used is aaa-trifluorotoluene.
SEO-020	TRH - Determination of Total Recoverable Hydrocarbons by gas chromatography following extraction with DCM/Acetone for solids and DCM for liquids.
SEO-030	PAHs by GC/MS - Determination of Polynuclear Aromatic Hydrocarbons (PAH's) by Gas Chromatography / Mass Spectrometry following extraction with dichloromethane or dichloromethane/acetone. The surrogate spike used is p-Terphenyl-d14.
SEO-005	OC/OP/PCB - Determination of a suite of Organchlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by sonication extraction using dichloromethane for waters or acetone / hexane for soils followed by Gas Chromatographic separation with Electron Capture Detection (GC/ECD). The surrogate spike used is 2,4,5,6-Tetrachloro-m-xylene.
AN101	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
SEI-037	Ammonia - Determined by colourimetric method using Discrete Analyser
AN106	Conductivity and TDS by Calculation (cTDS) - Conductivity is measured using a conductivity cell and dedicated meter, in accordance with APHA Method 2510, 20th edition. TDS is calculated by TDS(mg/L)=0.6 x Conductivity(µS/cm).
SEI-017	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.
SEI-012	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
SEI-042	Hexavalent Chromium (Cr^{6+}) - determined colourimetrically. Soils are extracted by a hot alkali leach, the resulting leachate is then neutralised and analysed as water, in accordance with APHA 20th ED, 3500-Cr-B.
SEI-038	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 20th ED, 4110-B.
SEM-010	Metals - Determination of various metals by ICP-OES following appropriate sample preparation or digestion process.
SEP-015	Water sample is digested with Nitric Acid at 105°C for total metals analysed by ICPMS.
AN318	Determination of elements at trace levels in waters by ICP-MS. Method based on USEPA 6020A
SEM-005	Mercury - Determination of Mercury by Cold Vapour Generation Atomic Absorption Spectroscopy.

QUALITY CONTROL BTEX in Water (µg/L)	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (BTEX)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (BTEX)				09/04/08	[NT]	[NT]	LCS	09/04/08%
Benzene	µg/L	1	SEO-018	<1	[NT]	[NT]	LCS	100%
Toluene	µg/L	1	SEO-018	<1	[NT]	[NT]	LCS	101%
Ethylbenzene	µg/L	1	SEO-018	<1	[NT]	[NT]	LCS	101%
Total Xylenes	µg/L	3	SEO-018	<3	[NT]	[NT]	LCS	100%
Surrogate	%	0	SEO-018	102	[NT]	[NT]	LCS	77%
QUALITY CONTROL TRH in water with C6-C9 by P/T	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (TRH C6-C9 PT)				09/04/08	[NT]	[NT]	LCS	09/04/08%
TRH C_6 - C_9 P&T in µg/L	µg/L	40	SEO-017	<40	[NT]	[NT]	LCS	103%
Date Extracted (TRH C10-C36)				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed (TRH C10-C36)				09/04/08	[NT]	[NT]	LCS	09/04/08%
TRH C_{10} - C_{14}	ug/L	100	SEO-020	<100	[NT]	[NT]	LCS	84%
TRH C_{15} - C_{28}	ug/L	200	SEO-020	<200	[NT]	[NT]	LCS	84%
TRH C_{29} - C_{36}	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	95%
QUALITY CONTROL PAHs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	59922-1	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	59922-1	09/04/08%
Naphthalene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	104%
Acenaphthylene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	96%
Acenaphthene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	118%
Fluorene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Phenanthrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	106%
Anthracene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	115%
Fluoranthene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	105%
Pyrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	109%
Benzo[a]anthracene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Benzo[*b,k*]fluoranthene	µg/L	1.0	SEO-030	<1.0	[NT]	[NT]	[NR]	[NR]
Benzo[*a*]pyrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	110%
Indeno[*123-cd*]pyrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Dibenzo[*ah*]anthracene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Benzo[*ghi*]perylene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Total PAHs	µg/L	8.0		>8.0	[NT]	[NT]	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	96	[NT]	[NT]	59922-1	100%
2-Fluorobiphenyl	%	0	SEO-030	97	[NT]	[NT]	59922-1	100%
p -Terphenyl-*d* 14	%	0	SEO-030	95	[NT]	[NT]	59922-1	98%
QUALITY CONTROL OC Pesticides in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	LCS	09/04/08%
HCB	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
gamma-BHC(lindane)	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Heptachlor	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	132%
Aldrin	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	130%
beta-BHC	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
delta-BHC	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	123%
Heptachlor Epoxide	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
o,p-DDE	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Endosulfan	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
trans-Chlordane	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
cis-Chlordane	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
trans-Nonachlor	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
p,p-DDE	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Dieldrin	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	133%
Endrin	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	129%
o,p-DDD	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
o,p-DDT	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
beta-Endosulfan	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
p,p-DDD	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
p,p-DDT	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	116%
Endosulfan Sulphate	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL OC Pesticides in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Endrin Aldehyde	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Methoxychlor	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Ketone	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	0	SEO-005	125	[NT]	[NT]	LCS	127%
QUALITY CONTROL OP Pesticides in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	LCS	09/04/08%
Chlorpyrifos	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	130%
Fenitrothion	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Bromofos Ethyl	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
OP_Surrogate 1	%	0	SEO-005	125	[NT]	[NT]	LCS	127%
QUALITY CONTROL PCBs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	LCS	09/04/08%
Arochlor 1016	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1260	µg/L	10	SEO-005	<10	[NT]	[NT]	LCS	75%
Arochlor 1262	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1268	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Total Positive PCB	ug/L	10	SEO-005	<90	[NT]	[NT]	[NR]	[NR]
PCB_Surrogate 1	%	0	SEO-005	125	[NT]	[NT]	LCS	127%

QUALITY CONTROL Inorganics	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (pH)				[NT]	59922-1	7/04/2008 || 7/04/2008
Date Analysed (pH)				[NT]	59922-1	7/04/2008 || 7/04/2008
pH	pH Units	0	AN101	[NT]	59922-1	7.1 || 7.1 || RPD: 0
Electrical Conductivity	µS/cm	1	AN106	<1.0	59922-1	220 || 220 || RPD: 0
Date Extracted (TDS)				08/04/08	59922-1	8/04/2008 || [N/T]
Date Analysed (TDS)				08/04/08	59922-1	8/04/2008 || 8/04/2008
Total Dissolved Solids	mg/L	5	SEI-017	<5	59922-1	140 || [N/T]
Date Extracted (Alkalinity)				04/04/08	59922-1	4/04/2008 || [N/T]
Date Analysed (Alkalinity)				04/04/08	59922-1	4/04/2008 || [N/T]
Bicarbonate, HCO_3^-	mg/L	2	SEI-012	<2.0	59922-1	60 || [N/T]
Carbonate, CO_3^{2-}	mg/L	2	SEI-012	<2.0	59922-1	<2.0 || <2.0
Date Extracted ($Cr6^+$)				10/04/08	59922-1	10.04.08 || [N/T]
Date Analysed ($Cr6^+$)				10/04/08	59922-1	10.04.08 || [N/T]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	SEI-042	<0.005	59922-1	<0.005 || [N/T]

QUALITY CONTROL Anions in water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				9/04/2008	[NT]	[NT]	LCS	09/04/08%
Date Analysed				9/04/2008	[NT]	[NT]	LCS	09/04/08%
Chloride, Cl	mg/L	0.08	SEI-038	<0.1	[NT]	[NT]	LCS	107%
Nitrate as N	mg/L	0.05	SEI-038	<0.05	[NT]	[NT]	LCS	102%
Sulphate, SO4	mg/L	0.4	SEI-038	<0.4	[NT]	[NT]	LCS	103%
QUALITY CONTROL Metals in water by ICP-OES	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (Metals)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Calcium (Dissolvedl)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	78%
Magnesium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	88%
Potassium (Dissolved)	mg/L	0.2	SEM-010	<0.2	[NT]	[NT]	LCS	98%
Sodium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	93%
Iron (Dissolved)	mg/L	0.02	SEM-010	<0.02	[NT]	[NT]	LCS	101%
QUALITY CONTROL Trace HM (ICP-MS)-Dissolved	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals-ICPMS)			SEP-015	08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (Metals-ICPMS)			SEP-015	08/04/08	[NT]	[NT]	LCS	08/04/08%
Arsenic	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	86%
Cadmium	µg/L	0.1	AN318	<0.10	[NT]	[NT]	LCS	98%
Copper	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	95%
Chromium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	100%
Lead	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	101%
Nickel	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	97%
Zinc	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	99%

QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Mercury)				07/04/08	[NT]	[NT]	LCS	07/04/08%
Date Analysed (Mercury)				07/04/08	[NT]	[NT]	LCS	07/04/08%
Mercury (Dissolved)	mg/L	0.0005	SEM-005	<0.0005	[NT]	[NT]	LCS	111%

Result Codes

[INS]	:	Insufficient Sample for this test	[RPD]	:	Relative Percentage Difference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Report Comments

Date Organics extraction commenced: 08/04/08
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).

Quality Control Protocol

Method Blank: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.
Duplicate: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Surrogate Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.
Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.
Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Quality Acceptance Criteria

Unless otherwise specified in the test method, the following general acceptance criteria apply:

Method Blanks:	<LOR
Duplicates:	<5 x LOR: No RPD criteria applied.
	>5 x LOR: 0-30% RPD is accepted.
LCS's:	Determined by Control Charts.
	Where control charts have not been developed, the Matrix Spikes criteria apply.
Matrix Spikes:	70-130% recovery is accepted for metals / inorganics.
	60-140% is accepted for organics.
Surrogates:	60-130% recovery is accepted for BTEX.
	70-130% recovery is accepted for other organics.

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SILLIKER AUSTRALIA
SYDNEY LABORATORY
Unit 2 C2, 391 Park Road
Regents Park, NSW 2143
02 8718 6888 Fax 02 8718 6899

CERTIFICATE OF ANALYSIS

COA No:	SYD-50044178-0
Supersedes:	None
COA Date:	8/4/08
Page 1 of 1	

COPY TO:
Mr. Edward Ibrahim
Laboratory Manager
SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria, NSW 2015

ORIGINAL TO:
Ms. Alexandra Stenta
SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria, NSW 2015

Received From:	Alexandria, NSW
Received Date:	4/4/08
P.O.#:	21050
Location of Test: (except where noted)	Regents Park, NSW

Analytical Results

Desc. 1: Report Number:59922
Desc. 2: Water Sample ID:59922 - 1

Sample Number: 450192287
Condition Rec'd: NORMAL
Temp Rec'd (°C): 10
Date Started: 5/4/08

Analyte	Result	Units	Method Reference	Result Date	Loc.
Thermotolerant Coliforms	850 est.	CFU/100ml	M12.2	7/4/08	
Thermotolerant Coliforms	2100	CFU/100ml	M12.2	7/4/08	

Desc. 1: Report Number:59922
Desc. 2: Water Sample ID:59922 - 2

Sample Number: 450192289
Condition Rec'd: NORMAL
Temp Rec'd (°C): 10
Date Started: 5/4/08

Analyte	Result	Units	Method Reference	Result Date	Loc.
Thermotolerant Coliforms	800	CFU/100ml	M12.2	7/4/08	
Thermotolerant Coliforms	2300	CFU/100ml	M12.2	7/4/08	

TASS KARALIS B Sc(HONS), PhD
SENIOR CONSULTANT MICROBIOLOGIST

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ANALYTICAL REPORT

Customer: Brett Jordan
Lake Business Park (NSW) Pty Ltd
2B Lord Street, Botany, NSW, 1455
T: 02 93168026
Brett.jordan@lakesbp.com.au

Your Reference:

SGS Report Number: ENV 7597
(59922 & 60890)

Date of Receipt of Samples: 12/05/2008

The work has been carried out in accordance with your instructions. The results and associated information are contained in the following pages of the report. Should you have any queries regarding this report please contact the undersigned.

Reported by: Peter Novella

Report authorised by: Paul Pui

Date: 24/05/2008

Date: 24/05/2008

Background and Sample description:
SGS Environmental Services was commissioned to sample and analyse water from the Lake Botany aquifer situated at 2B Lord Street, Botany, NSW. The analysis and sampling of the Lake Botany aquifer was conducted to support Lakes Business Park Pty Ltd due diligence policy to ensure that water draw form the lake and used irrigation of the surrounding gardens of the Business Park complies to regulatory requirements.

Sampling
Sampling was undertaken by SGS personnel at two locations. The distance between the sampling points was visibly estimated to be about 100m:

Upstream – Lake Entrance.
Inlet – Pump inlet where the water is drawn for irrigation.

Methods Used:

The method used for each test is listed in the attached report.

Analytical Results:

Please see attached report.

Opinions and interpretation
Given the large number of industrial sites that are situated in the vicinity of the lake, and also the possible contaminations from industries previously present in the area, the water samples collected were analysed for a relatively large number of possible contaminants.
In assessing the water quality, reference was made to the Australian and New Zealand Water Quality Guidelines for Fresh and Marine Water and NSW department of primary industries Farm water quality and treatment agfact AC.2, 9th edition, April 2005.
The analytical results showed no significant contaminations detectable in the water samples taken on the 04/04/2008 and 12/05/2008 from the lake.
A relatively high count of Feacal Coliforms was found both in the upstream samples and inlets samples (2100 and 2300 for inlet and upstream samples respectively), however this concentration is regarded as acceptable for irrigation water with restricted public access and used for non food crops (Australian and New Zealand Guidelines for Fresh and Marine Water Quality vol3 9-2).
The only other contaminants found in any appreciable concentration were lead and arsenic. The concentration of these metals was well below the recommended long term trigger value levels for use in irrigation water (Australian and New Zealand Guidelines for Fresh and Marine Water Quality vol. 3 9-2).
Based on the analytical results from the samples of water drawn from Lake Botany aquifer, all of the parameters analysed are within the recommended Australian and New Zealand guidelines for irrigation water. The water is fit for the purpose irrigation and as such does not pose a health risk to the occupants of the site.

ANALYTICAL REPORT

Customer:	Brett Jordan Lake Business Park (NSW) Pty Ltd 2B Lord Street, Botany, NSW, 1455 T: 02 93168026, M: 0417 850 791, F: 02 93168075 Brett.jordan@lakespb.com.au
Your Reference:	N/A
SGS Report Number:	ENV 7393 (LIMS 59922)
Date of Receipt of Samples:	April 04, 2008
Sample Description:	Two samples of water were collected from the two defined positions of the lake for the analysis. The samples are defined as irrigation pump sample and upstream sample.

The samples were analysed in accordance with your instructions. The results and associated information are contained in the following pages of the report. If you have any queries regarding this report please contact the undersigned.

Reported by: Aal-e-Ali

Date: 23 Aril 2008

Report authorised by: Paul Pui

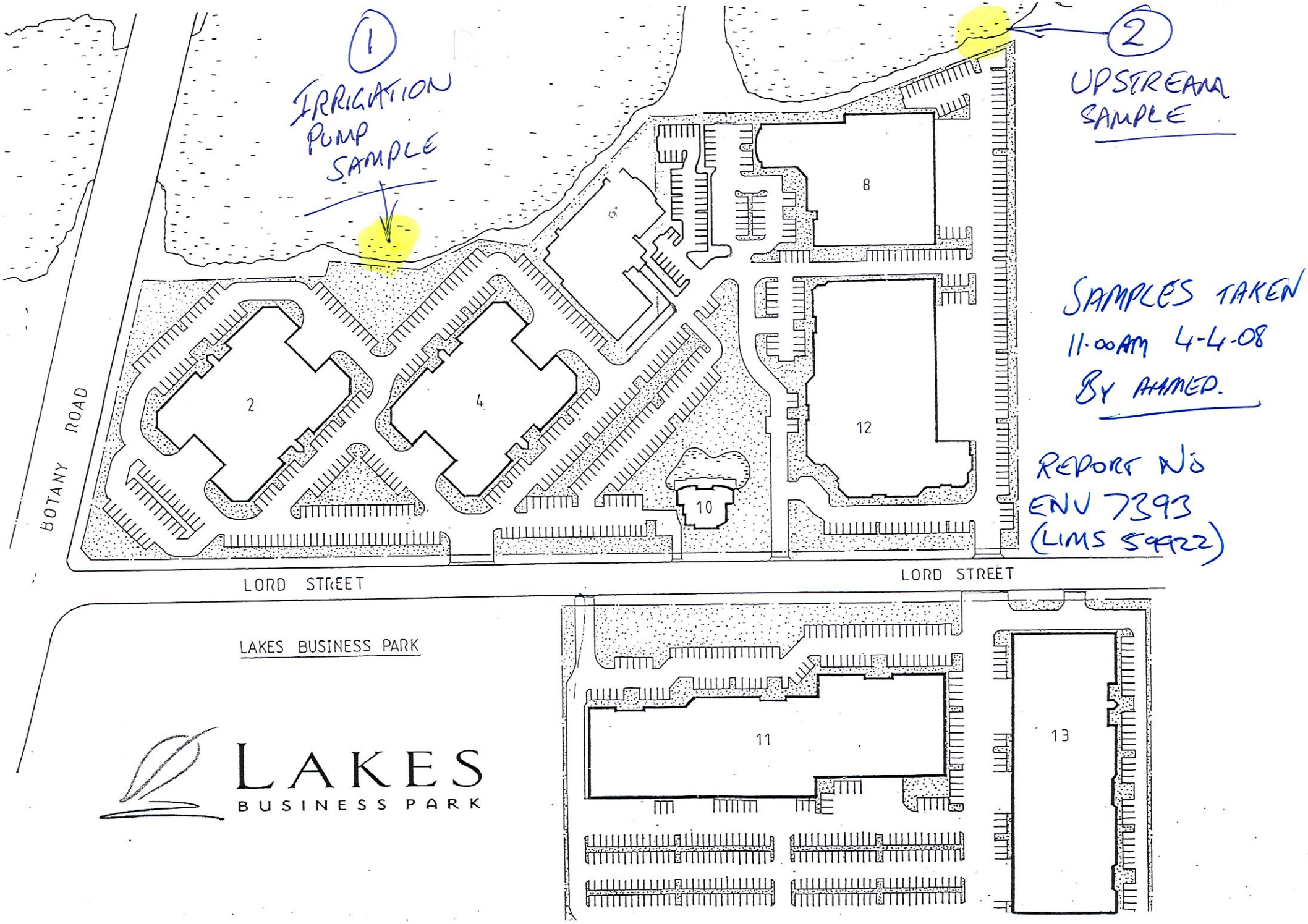
Date: 23 April 2008

Methods Used:

The method used for each test is listed in the attached report.

Analytical Results:

Please see attached report.


1
IRRIGATION PUMP SAMPLE
2
UPSTREAM SAMPLE
SAMPLES TAKEN 11.00AM 4-4-08 BY AHMED.
REPORT NO ENV 7393 (LIMS 59422)
BOTANY ROAD
LORD STREET
LORD STREET
LAKES BUSINESS PARK
2
4
6
8
10
11
12
13
LAKES
BUSINESS PARK

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CERTIFICATE OF ANALYSIS

COA No:	SYD-50044178-0
Supersedes:	None
COA Date:	8/4/08
Page 1 of 1	

COPY TO:
Mr. Edward Ibrahim
Laboratory Manager
SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria, NSW 2015

ORIGINAL TO:
Ms. Alexandra Stenta
SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria, NSW 2015

Received From:	Alexandria, NSW
Received Date:	4/4/08
P.O.#:	21050
Location of Test: (except where noted)	Regents Park, NSW

Analytical Results

Desc. 1: Report Number:59922
Desc. 2: Water Sample ID:59922 - 1

Sample Number: 450192287
Condition Rec'd: NORMAL
Temp Rec'd (°C): 10
Date Started: 5/4/08

Analyte	Result	Units	Method Reference	Result Date	Loc.
Thermotolerant Coliforms	850 est.	CFU/100ml	M12.2	7/4/08	
Thermotolerant Coliforms	2100	CFU/100ml	M12.2	7/4/08	

Desc. 1: Report Number:59922
Desc. 2: Water Sample ID:59922 - 2

Sample Number: 450192289
Condition Rec'd: NORMAL
Temp Rec'd (°C): 10
Date Started: 5/4/08

Analyte	Result	Units	Method Reference	Result Date	Loc.
Thermotolerant Coliforms	800	CFU/100ml	M12.2	7/4/08	
Thermotolerant Coliforms	2300	CFU/100ml	M12.2	7/4/08	

TASS KARALIS B Sc(HONS), PhD
SENIOR CONSULTANT MICROBIOLOGIST

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15 April 2008 **TEST REPORT**

Brett Jordan
2B Lord Street
BOTANY
NSW 2019

Your Reference: ENV 7393, Lakes Business Park (NSW)
Report Number: 59922

Attention: Ahmad Fard

Dear Ahmad
The following samples were received from you on the date indicated.

Samples:	Qty.	2 Waters
Date of Receipt of Samples:		4/4/08
Date of Receipt of Instructions:		4/4/08
Date Preliminary Report Emailed:		Not Issued

These samples were analysed in accordance with your written instructions.
A copy of the instructions is attached with the analytical report.

The results and associated quality control are contained in the following pages of this report.
Unless otherwise stated, solid samples are expressed on a dry weight basis (moisture has been supplied for your information only), air and liquid samples as received.

Should you have any queries regarding this report please contact the undersigned.

Yours faithfully
SGS ENVIRONMENTAL SERVICES

Ly Kim Ha
Senior Organic Chemist

Edward Ibrahim
Laboratory Services Manager

SGS Australia Pty Ltd
ABN 44 000 964 278
Environmental Services Unit 16, 33 Maddox Street, Alexandria Australia
t (02) 8594 0400 f (02) 8594 0499
www.au.sgs.com
Member of the SGS Group

BTEX in Water (µg/L) Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (BTEX)		8/04/2008	8/04/2008
Date Analysed (BTEX)		9/04/2008	9/04/2008
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
Total Xylenes	µg/L	<3	<3
Surrogate	%	107	105

TRH in water with C6-C9 by P/T Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (TRH C6-C9 PT)		8/04/2008	8/04/2008
Date Analysed (TRH C6-C9 PT)		9/04/2008	9/04/2008
TRH C_6 - C_9 P&T in µg/L	µg/L	<40	<40
Date Extracted (TRH C10-C36)		9/04/2008	9/04/2008
Date Analysed (TRH C10-C36)		9/04/2008	9/04/2008
TRH C_{10} - C_{14}	ug/L	<100	<100
TRH C_{15} - C_{28}	ug/L	<200	<200
TRH C_{29} - C_{36}	µg/L	<200	<200

✓ Petrols.
- Diesels & Kero ✓
- Lubricants ✓
- Oils ✓

Petrols & Solvents.

PAHs in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Naphthalene	µg/L	<0.5	<0.5
Acenaphthylene	µg/L	<0.5	<0.5
Acenaphthene	µg/L	<0.5	<0.5
Fluorene	µg/L	<0.5	<0.5
Phenanthrene	µg/L	<0.5	<0.5
Anthracene	µg/L	<0.5	<0.5
Fluoranthene	µg/L	<0.5	<0.5
Pyrene	µg/L	<0.5	<0.5
Benzo[*a*]anthracene	µg/L	<0.5	<0.5
Chrysene	µg/L	<0.5	<0.5
Benzo[*b,k*]fluoranthene	µg/L	<1.0	<1.0
Benzo[*a*]pyrene	µg/L	<0.5	<0.5
Indeno[*123-cd*]pyrene	µg/L	<0.5	<0.5
Dibenzo[*ah*]anthracene	µg/L	<0.5	<0.5
Benzo[*ghi*]perylene	µg/L	<0.5	<0.5
Total PAHs	µg/L	<8.0	<8.0
Nitrobenzene-d5	%	97	99
2-Fluorobiphenyl	%	97	99
p -Terphenyl-*d14*	%	93	95

Residue of combustibles

Pesticides.

OC Pesticides in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
HCB	µg/L	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2
gamma-BHC(lindane)	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
o,p-DDE	µg/L	<0.2	<0.2
alpha-Endosulfan	µg/L	<0.2	<0.2
trans-Chlordane	µg/L	<0.2	<0.2
cis-Chlordane	µg/L	<0.2	<0.2
trans-Nonachlor	µg/L	<0.2	<0.2
p,p-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
o,p-DDD	µg/L	<0.2	<0.2
o,p-DDT	µg/L	<0.2	<0.2
beta-Endosulfan	µg/L	<0.2	<0.2
p,p-DDD	µg/L	<0.2	<0.2
p,p-DDT	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Endrin Ketone	µg/L	<0.2	<0.2
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	95	97

OP Pesticides in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Chlorpyrifos	µg/L	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2
Bromofos Ethyl	µg/L	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2
OP_Surrogate 1	%	95	97

PCBs in Water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ----------	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Arochlor 1016	µg/L	<10	<10
Arochlor 1221	µg/L	<10	<10
Arochlor 1232	µg/L	<10	<10
Arochlor 1242	µg/L	<10	<10
Arochlor 1248	µg/L	<10	<10
Arochlor 1254	µg/L	<10	<10
Arochlor 1260	µg/L	<10	<10
Arochlor 1262	µg/L	<10	<10
Arochlor 1268	µg/L	<10	<10
Total Positive PCB	ug/L	<90.00	<90.00
PCB_Surrogate 1	%	95	97

Electrical components (1940's - 1960's) eg transformers.

Inorganics Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ----------	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (pH)		7/04/2008	7/04/2008
Date Analysed (pH)		7/04/2008	7/04/2008
pH	pH Units	7.1	6.9
Date Extracted (Conductivity)		7/04/2008	7/04/2008
Date Analysed (Conductivity)		7/04/2008	7/04/2008
Electrical Conductivity	µS/cm	220	220
Date Extracted (TDS)		8/04/2008	8/04/2008
Date Analysed (TDS)		8/04/2008	8/04/2008
Total Dissolved Solids	mg/L	140	140
Date Extracted (Alkalinity)		4/04/2008	4/04/2008
Date Analysed (Alkalinity)		4/04/2008	4/04/2008
Bicarbonate, HCO_3^-	mg/L	60	54
Carbonate, CO_3^{2-}	mg/L	<2.0	<2.0
Date Extracted ($Cr6^+$)		10.04.08	10.04.08
Date Analysed ($Cr6^+$)		10.04.08	10.04.08
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005

✓ 6 - 8.5 is good.

✓

- Sediment - (dust, soil).

✓

✓

- used in tanneries (industrial).

(very soluble).

Anions in water Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted		9/04/2008	9/04/2008
Date Analysed		9/04/2008	9/04/2008
Chloride, Cl	mg/L	29	28
Nitrate as N	mg/L	<0.05	0.20
Sulphate, SO4	mg/L	9.3	11

Salts - chloride

dead animals, proteins

Metals in water by ICP-OES Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (Metals)		8/04/2008	8/04/2008
Date Analysed (Metals)		8/04/2008	8/04/2008
Calcium (Dissolvedl)	mg/L	12	12
Magnesium (Dissolved)	mg/L	2.8	2.7
Potassium (Dissolved)	mg/L	4.1	3.8
Sodium (Dissolved)	mg/L	18	18
Iron (Dissolved)	mg/L	0.50	0.29

Trace HM (ICP-MS)-Dissolved Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ---------- 	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (Metals-ICPMS)		8/04/2008	8/04/2008
Date Analysed (Metals-ICPMS)		8/04/2008	8/04/2008
Arsenic	µg/L	4.6	1.4
Cadmium	µg/L	<0.10	<0.10
Copper	µg/L	1.9	1.6
Chromium	µg/L	<1.0	<1.0
Lead	µg/L	4.8	3.2
Nickel	µg/L	<1.0	1.4
Zinc	µg/L	14	14

Mercury Cold Vapor/Hg Analyser Our Reference: Your Reference Sample Type Date Sampled Time Sample Taken	UNITS ---------- ----------	59922-1 Irrigation Pump Water 4/04/2008 10:50am	59922-2 Upstream Sample Water 4/04/2008 11:15am
Date Extracted (Mercury)		7/04/2008	7/04/2008
Date Analysed (Mercury)		7/04/2008	7/04/2008
Mercury (Dissolved)	mg/L	<0.0005	<0.0005

Method ID	Methodology Summary
SEO-018	BTEX - Determination by purge and trap/ Gas Chromatography with MS Detection.
SEO-017	BTEX/TRH C6-C9 - Determination by Purge and Trap Gas Chromatography with Flame Ionisation Detection (FID) and Photo Ionisation Detection (PID). The surrogate spike used is aaa-trifluorotoluene.
SEO-020	TRH - Determination of Total Recoverable Hydrocarbons by gas chromatography following extraction with DCM/Acetone for solids and DCM for liquids.
SEO-030	PAHs by GC/MS - Determination of Polynuclear Aromatic Hydrocarbons (PAH's) by Gas Chromatography / Mass Spectrometry following extraction with dichloromethane or dichloromethane/acetone. The surrogate spike used is p-Terphenyl-d14.
SEO-005	OC/OP/PCB - Determination of a suite of Organchlorine Pesticides, Chlorinated Organo-phosphorus Pesticides and Polychlorinated Biphenyls (PCB's) by sonication extraction using dichloromethane for waters or acetone / hexane for soils followed by Gas Chromatographic separation with Electron Capture Detection (GC/ECD). The surrogate spike used is 2,4,5,6-Tetrachloro-m-xylene.
AN101	pH - Measured using pH meter and electrode in accordance with APHA 20th ED, 4500-H+.
SEI-037	Ammonia - Determined by colourimetric method using Discrete Analyser
AN106	Conductivity and TDS by Calculation (cTDS) - Conductivity is measured using a conductivity cell and dedicated meter, in accordance with APHA Method 2510, 20th edition. TDS is calculated by TDS(mg/L)=0.6 x Conductivity(µS/cm).
SEI-017	Total Dissolved Solids - determined gravimetrically by drying the sample, in accordance with APHA 20th ED, 2540-C.
SEI-012	Alkalinity - determined titrimetrically in accordance with APHA 20th ED, 2320-B.
SEI-042	Hexavalent Chromium (Cr^{6+}) - determined colourimetrically. Soils are extracted by a hot alkali leach, the resulting leachate is then neutralised and analysed as water, in accordance with APHA 20th ED, 3500-Cr-B.
SEI-038	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 20th ED, 4110-B.
SEM-010	Metals - Determination of various metals by ICP-OES following appropriate sample preparation or digestion process.
SEP-015	Water sample is digested with Nitric Acid at 105°C for total metals analysed by ICPMS.
AN318	Determination of elements at trace levels in waters by ICP-MS. Method based on USEPA 6020A
SEM-005	Mercury - Determination of Mercury by Cold Vapour Generation Atomic Absorption Spectroscopy.

QUALITY CONTROL BTEX in Water (µg/L)	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (BTEX)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (BTEX)				09/04/08	[NT]	[NT]	LCS	09/04/08%
Benzene	µg/L	1	SEO-018	<1	[NT]	[NT]	LCS	100%
Toluene	µg/L	1	SEO-018	<1	[NT]	[NT]	LCS	101%
Ethylbenzene	µg/L	1	SEO-018	<1	[NT]	[NT]	LCS	101%
Total Xylenes	µg/L	3	SEO-018	<3	[NT]	[NT]	LCS	100%
Surrogate	%	0	SEO-018	102	[NT]	[NT]	LCS	77%
QUALITY CONTROL TRH in water with C6-C9 by P/T	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (TRH C6-C9 PT)				09/04/08	[NT]	[NT]	LCS	09/04/08%
TRH C_6 - C_9 P&T in µg/L	µg/L	40	SEO-017	<40	[NT]	[NT]	LCS	103%
Date Extracted (TRH C10-C36)				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed (TRH C10-C36)				09/04/08	[NT]	[NT]	LCS	09/04/08%
TRH C_{10} - C_{14}	ug/L	100	SEO-020	<100	[NT]	[NT]	LCS	84%
TRH C_{15} - C_{28}	ug/L	200	SEO-020	<200	[NT]	[NT]	LCS	84%
TRH C_{29} - C_{36}	µg/L	200	SEO-020	<200	[NT]	[NT]	LCS	95%
QUALITY CONTROL PAHs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	59922-1	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	59922-1	09/04/08%
Naphthalene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	104%
Acenaphthylene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	96%
Acenaphthene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	118%
Fluorene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Phenanthrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	106%
Anthracene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	115%
Fluoranthene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	105%
Pyrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	109%
Benzo[a]anthracene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Benzo[*b,k*]fluoranthene	µg/L	1.0	SEO-030	<1.0	[NT]	[NT]	[NR]	[NR]
Benzo[*a*]pyrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	59922-1	110%
Indeno[*123-cd*]pyrene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Dibenzo[*ah*]anthracene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Benzo[*ghi*]perylene	µg/L	0.5	SEO-030	<0.5	[NT]	[NT]	[NR]	[NR]
Total PAHs	µg/L	8.0		>8.0	[NT]	[NT]	[NR]	[NR]
Nitrobenzene-d5	%	0	SEO-030	96	[NT]	[NT]	59922-1	100%
2-Fluorobiphenyl	%	0	SEO-030	97	[NT]	[NT]	59922-1	100%
p -Terphenyl-*d* 14	%	0	SEO-030	95	[NT]	[NT]	59922-1	98%
QUALITY CONTROL OC Pesticides in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	LCS	09/04/08%
HCB	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
gamma-BHC(lindane)	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Heptachlor	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	132%
Aldrin	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	130%
beta-BHC	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
delta-BHC	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	123%
Heptachlor Epoxide	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
o,p-DDE	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Endosulfan	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
trans-Chlordane	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
cis-Chlordane	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
trans-Nonachlor	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
p,p-DDE	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Dieldrin	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	133%
Endrin	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	129%
o,p-DDD	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
o,p-DDT	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
beta-Endosulfan	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
p,p-DDD	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
p,p-DDT	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	116%
Endosulfan Sulphate	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL OC Pesticides in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Endrin Aldehyde	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Methoxychlor	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Endrin Ketone	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xylene *(Surrogate*	%	0	SEO-005	125	[NT]	[NT]	LCS	127%
QUALITY CONTROL OP Pesticides in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	LCS	09/04/08%
Chlorpyrifos	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	LCS	130%
Fenitrothion	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Bromofos Ethyl	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	SEO-005	<0.2	[NT]	[NT]	[NR]	[NR]
OP_Surrogate 1	%	0	SEO-005	125	[NT]	[NT]	LCS	127%
QUALITY CONTROL PCBs in Water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				09/04/08	[NT]	[NT]	LCS	09/04/08%
Date Analysed				09/04/08	[NT]	[NT]	LCS	09/04/08%
Arochlor 1016	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1260	µg/L	10	SEO-005	<10	[NT]	[NT]	LCS	75%
Arochlor 1262	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Arochlor 1268	µg/L	10	SEO-005	<10	[NT]	[NT]	[NR]	[NR]
Total Positive PCB	ug/L	10	SEO-005	<90	[NT]	[NT]	[NR]	[NR]
PCB_Surrogate 1	%	0	SEO-005	125	[NT]	[NT]	LCS	127%

QUALITY CONTROL Inorganics	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (pH)				[NT]	59922-1	7/04/2008 || 7/04/2008
Date Analysed (pH)				[NT]	59922-1	7/04/2008 || 7/04/2008
pH	pH Units	0	AN101	[NT]	59922-1	7.1 || 7.1 || RPD: 0
Electrical Conductivity	µS/cm	1	AN106	<1.0	59922-1	220 || 220 || RPD: 0
Date Extracted (TDS)				08/04/08	59922-1	8/04/2008 || [N/T]
Date Analysed (TDS)				08/04/08	59922-1	8/04/2008 || 8/04/2008
Total Dissolved Solids	mg/L	5	SEI-017	<5	59922-1	140 || [N/T]
Date Extracted (Alkalinity)				04/04/08	59922-1	4/04/2008 || [N/T]
Date Analysed (Alkalinity)				04/04/08	59922-1	4/04/2008 || [N/T]
Bicarbonate, HCO_3^-	mg/L	2	SEI-012	<2.0	59922-1	60 || [N/T]
Carbonate, CO_3^{2-}	mg/L	2	SEI-012	<2.0	59922-1	<2.0 || <2.0
Date Extracted ($Cr6^+$)				10/04/08	59922-1	10.04.08 || [N/T]
Date Analysed ($Cr6^+$)				10/04/08	59922-1	10.04.08 || [N/T]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	SEI-042	<0.005	59922-1	<0.005 || [N/T]

QUALITY CONTROL Anions in water	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				9/04/2008	[NT]	[NT]	LCS	09/04/08%
Date Analysed				9/04/2008	[NT]	[NT]	LCS	09/04/08%
Chloride, Cl	mg/L	0.08	SEI-038	<0.1	[NT]	[NT]	LCS	107%
Nitrate as N	mg/L	0.05	SEI-038	<0.05	[NT]	[NT]	LCS	102%
Sulphate, SO4	mg/L	0.4	SEI-038	<0.4	[NT]	[NT]	LCS	103%
QUALITY CONTROL Metals in water by ICP-OES	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (Metals)				08/04/08	[NT]	[NT]	LCS	08/04/08%
Calcium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	78%
Magnesium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	88%
Potassium (Dissolved)	mg/L	0.2	SEM-010	<0.2	[NT]	[NT]	LCS	98%
Sodium (Dissolved)	mg/L	0.1	SEM-010	<0.1	[NT]	[NT]	LCS	93%
Iron (Dissolved)	mg/L	0.02	SEM-010	<0.02	[NT]	[NT]	LCS	101%
QUALITY CONTROL Trace HM (ICP-MS)-Dissolved	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Metals-ICPMS)			SEP-015	08/04/08	[NT]	[NT]	LCS	08/04/08%
Date Analysed (Metals-ICPMS)			SEP-015	08/04/08	[NT]	[NT]	LCS	08/04/08%
Arsenic	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	86%
Cadmium	µg/L	0.1	AN318	<0.10	[NT]	[NT]	LCS	98%
Copper	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	95%
Chromium	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	100%
Lead	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	101%
Nickel	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	97%
Zinc	µg/L	1	AN318	<1.0	[NT]	[NT]	LCS	99%

QUALITY CONTROL Mercury Cold Vapor/Hg Analyser	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted (Mercury)				07/04/08	[NT]	[NT]	LCS	07/04/08%
Date Analysed (Mercury)				07/04/08	[NT]	[NT]	LCS	07/04/08%
Mercury (Dissolved)	mg/L	0.0005	SEM-005	<0.0005	[NT]	[NT]	LCS	111%

Result Codes

[INS]	:	Insufficient Sample for this test	[RPD]	:	Relative Percentage Difference
[NR]	:	Not Requested	*	:	Not part of NATA Accreditation
[NT]	:	Not tested	[N/A]	:	Not Applicable

Report Comments

Date Organics extraction commenced: 08/04/08
NATA Corporate Accreditation No. 2562, Site No 4354
Note: Test results are not corrected for recovery (excluding Dioxins/Furans* and PAH in XAD and PUF).

Quality Control Protocol

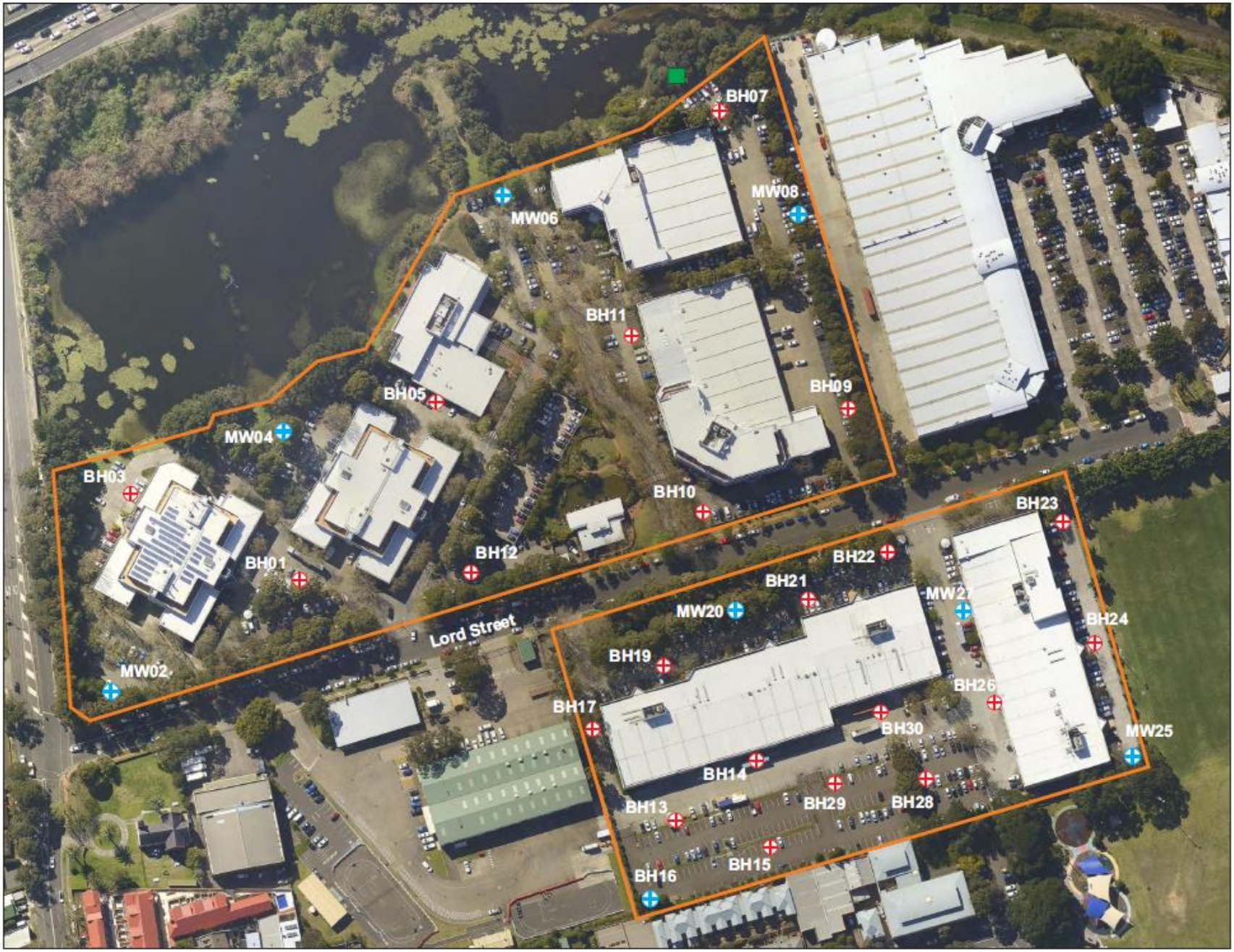
Method Blank: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.
Duplicate: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Surrogate Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.
Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.
Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.
Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Quality Acceptance Criteria

Unless otherwise specified in the test method, the following general acceptance criteria apply:

Method Blanks:	<LOR
Duplicates:	<5 x LOR: No RPD criteria applied.
	>5 x LOR: 0-30% RPD is accepted.
LCS's:	Determined by Control Charts.
	Where control charts have not been developed, the Matrix Spikes criteria apply.
Matrix Spikes:	70-130% recovery is accepted for metals / inorganics.
	60-140% is accepted for organics.
Surrogates:	60-130% recovery is accepted for BTEX.
	70-130% recovery is accepted for other organics.

Appendix C: KPMG SGA 2014 Figures



N

Legend

- Site boundary
- Soil Borehole
- Monitoring Well
- EIL sample

0 — Approximate Scale (m) — 100

Notes:
Source Nearmap

CLIENT: DEXUS Property Group

PROJECT: Lakes Business Park, 8 & 11-13 Lord St, Botany, NSW

TITLE: Figure 2 - Sampling Locations

SCALE	DATE	DRAWING No.	SIZE
NTS	19/12/2014	95357_Fig2	A

DRAWN	CHECKED	JOB No.
M.R.	A.B.	95357

SGA Environmental

N

Legend

- Site boundary
- Monitoring Well
- 4.0 Groundwater Contour (mAHD)
- Groundwater Flow Direction

0 — Approximate Scale (m) — 100

Notes:
Source Nearmap

CLIENT	DEXUS Property Group
PROJECT	Lakes Business Park, 8 & 11-13 Lord St, Botany, NSW
TITLE	Figure 3 - Groundwater Flow Direction
SCALE: NTS	DATE: 18/12/2014
DRAWN: M.R.	CHECKED: A.B.
JOB No.: 95357	DRAWING No.: 95357_Fig3
ISSUE: A	

SGA Environmental

Appendix D: KPMG SGA 2014 Tables

Table B1 - Laboratory Analytical Results of Soil for Total Recoverable Hydrocarbons, BTEX and PAHs

sga Environmental

Nominated Criteria			Decisions					BTEX	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Total Xylene	Total Recoverable Hydrocarbons	vTRH C6 - C10	vTPH C_6 - C_{10} (F1)	TRH >C_{10}-C_{16}	TRH >C_{10} - C_{16} (F2)	TRH >C_{16}-C_{34}	TRH >C_{34}-C_{40}	Polycyclic Aromatic Hydrocarbons	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total +ve	Benzo(a)pyrene TEQ
				Tier 1 Risk Screening													F1		F2	F3	F4																			
NEPM HIL for Soil Contaminants Commercial/Industrial D									-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	4000	40
NEPM HIL for Soil Contaminants Residential B									-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	4
HSL-D for Direct Contact (0-0.5m)*									430	99000	27000	-	-	81000		-	26000	-	20000	27000	38000		11000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saturation Concentration									360	560	84	-	-	300		-	950	-	560	-	-		9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-D for Vapour Intrusion 0m to <1m sand, silt, clay									3,4,4	NL	NL	NL	NL	230,NL,NL		-	260,250,310	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-D for Vapour Intrusion 1m to <2m sand, silt, clay									3,4,6	NL	NL	NL	NL	NL		-	370,360,460	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-D for Vapour Intrusion 2m to <4m sand, silt, clay									3,6,9	NL	NL	NL	NL	NL		-	630,560,NL	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-D for Vapour Intrusion + 4m sand, silt, clay									3,10,18	NL	NL	NL	NL	NL		-	NL	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-B for Vapour Intrusion 0 to <1m sand, silt, clay									0.5,0.6,0.7	160,~~295~~,480	55,~~70~~,NL	NL	NL	40,~~45~~,110		-	45,~~80~~,150	-	110,~~170~~,280	NL	NL		3,~~4~~,6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-B for Vapour Intrusion 0 to <2m sand, silt, clay									0.5,0.7,1	220,~~370~~,NL	NL	NL	NL	60,~~85~~,310		-	70,~~120~~,~~260~~	-	240,~~NL~~,NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-B for Vapour Intrusion 2 to <4m sand, silt, clay									0.5,0.7	310,~~520~~,NL	NL	NL	NL	95,~~160~~,NL		-	110,~~180~~,~~350~~	-	440,~~NL~~,NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM HSL-B for Vapour Intrusion + 4m sand, silt, clay									0.5,0.7	540,~~NL~~,NL	NL	NL	NL	170,~~NL~~,NL		-	200,~~NL~~,~~NL~~	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care HSL Intrusive Maintenance Worker for Vapour Intrusion 0 to <2m sand, silt, clay									77,250,350	NL	NL	NL	NL	NL		-	NL	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care HSL-Intrusive Maintenance Worker for Vapour Intrusion 2 to <4m sand, silt, clay									77,250,350	NL	NL	NL	NL	NL		-	NL	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRC Care HSL-Intrusive Maintenance Worker for Vapour Intrusion 4m+ sand, silt, clay									NL	NL	NL	NL	NL	NL		-	NL	-	NL	NL	NL		NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NEPM ESL for TPH fractions F1-F4, BTEX and BaP for Commercial/Industrial land use	Coarse / Fine								~~165~~	~~165~~	~~165~~	-	-	~~65~~		215	215	170	170	1700	3300		-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	-	-	-
NEPM Management Limits for TPH fractions F1-F4 Commercial/Industrial	Coarse / Fine								-	-	-	-	-	-		-	-	-	-	2500	10000		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Units									mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Method Detection Limit (MDL)									0.2	0.5	1	2	1	-		25	25	50	50	100	100		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	2	0.5
Sample Location	**Sample Depth**	**Description**	**Predominant Overlying Soil Texture**																																					
8 Lord Street																																							
BH1	0.2-0.35	Fill - Grey, Silty Sand & Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH1	0.5-0.7	Fill - Grey, Silty Sand & Gravel, ash and charcoal fragments							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	120	<100		<0.1	<0.1	0.2	0.1	2.8	0.6	6.5	5.9	2.4	2.7	4.5	2.7	1.7	0.3	1.9	33	3.9
BH1	1.0-1.2	Natural - Light Grey Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH2	0.3-0.45	Fill - Grey/Brown, Silty Sand & Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	0.29	<0.5
BH3	0.2-0.35	Fill - Grey/Brown/Red, Silty Sand & Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.3	0.2	0.2	0.7	0.5	0.4	<0.1	0.5	3.1	0.6
BH3	2.1-2.3	Natural - Brown to Grey/Brown Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH4	0.3-0.5	Fill - Dark Grey/Brown Silty Gravelly Sand							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH5	0.22-0.42	Fill - Grey/Brown, Silty Sand & Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH5	0.7-0.9	Fill - Grey/Brown, Silty Sand & Gravel, ash and charcoal fragments							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	0.05	<0.1	<0.1	<0.1	0.05	<0.5
BH5	1.2-1.4	Natural - Brown to Grey/Yellow Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH6	0.3-0.5	Fill - Grey/Brown, Silty Sand & Gravel, brick and ash fragments							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH7	0.15-0.3	Fill - Dark Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	140	<100		<0.1	<0.1	<0.1	<0.1	0.3	<0.1	0.3	0.3	0.1	0.2	0.3	0.1	0.1	<0.1	0.1	1.3	<0.5
BH7	2.0-2.2	Natural - Light Grey Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	1.8	<0.5
BH8	0.3-0.5	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH9	0.2-0.35	Fill - Grey/Brown, Silty Sand & Gravel ash and charcoal fragments							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.5	0.5	0.2	0.3	0.3	0.2	0.1	0.1	2.6	<0.5
BH10	0.05-0.2	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	0.1	<0.2	0.07	<0.1	<0.1	<0.1	0.4	<0.5
BH10	1.35-1.55	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	0.1	<0.2	0.06	<0.1	<0.1	<0.1	0.16	<0.5
BH10	2.1-2.25	Natural - Grey to Grey/Brown Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	0.24	<0.5
BH11	0.2-0.35	Fill - Grey/Brown Silty Sand & Gravel, brick and concrete fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH12	0.2-0.4	Fill - Light Grey - Grey/Brown Silty Sand and Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH12	2.0-2.2	Natural - Brown to Brown/Yellow Sand, organic content	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
B1	-	Field duplicate of BH5 0.22-0.42							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
11-13 Lord Street																																							
BH13	0.2-0.4	Fill - Dark Grey/Brown Silty Sand & Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	56	56	100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH14	0.25-0.4	Fill - Dark Grey/Brown Silty Gravelly Sand							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH15	0.1-0.3	Fill - Grey/Brown Silty Sand, Clay and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH15	1.2-1.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH15	2.8-3.0	Natural - Light Grey/Yellow Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.2	0.06	<0.1	<0.1	<0.1	0.16	<0.5
BH16	0.4-0.6	Fill - Grey/Brown Silty Sand and Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH17	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH17	1.0-1.2	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH17	2.1-2.3	Natural - Light Grey Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.3	0.1	0.2	0.3	0.2	0.1	<0.1	0.1	1.7	<0.5
BH19	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH20	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH20	1.8-2.0	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH21	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	1.3	<0.1	0.1	0.1	<0.1	0.3	<0.2	<0.05	<0.1	<0.1	<0.1	1.8	<0.5
BH22	0.3-0.5	Fill - Grey Silty Sand & Gravel, brick and concrete fragments							<0.2	<0.5	<1	<2	<1	<3		<25	<25	140	140	160	<100		0.2	<0.1	<0.1	0.2	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	0.83	<0.5
BH23	0.2-0.4	Fill - Light Grey Silty Sand & Gravel, brick and concrete fragments							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH24	0.2-0.4	Fill - Grey Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH24	1.55-1.8	Natural - Light Grey Sand	Sand						<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH25	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, concrete, brick and ash fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH26	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	140	<100		<0.1	<0.1	<0.1	<0.1	0.4	<0.1	0.4	0.4	0.2	0.2	0.3	0.1	<0.1	<0.1	0.1	2.2	<0.5
BH27	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	110		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH28	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH29	0.1-0.3	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH30	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
BH30	0.85-1.0	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5
B2	-	Field duplicate of BH15 0.1-0.3							<0.2	<0.5	<1	<2	<1	<3		<25	<25	<50	<50	<100	<100		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	NIL (+)VE	<0.5

Bold value indicates exceedance of nominated criteria

Yes | Y | Indicates Failure of Tier 1 Risk Screening

Table B2 - Laboratory Analytical Results of Soil for Heavy Metals, OCPs, OPPs, PCBs, Phenols and VOCs

Heavy metals (8)

Sample Location	Sample Depth	Sample Description	Arsenic	ASLP - Arsenic	Cadmium	Chromium (hexavalent)	Copper	Lead	Mercury	Nickel	Zinc
NEPM HIL for Soil Contaminants Residential B			500		150	500	30000	1200	120	1200	60000
NEPM HIL for Soil Contaminants Commercial/Industrial D			3000		900	3600	240000	1500	730	6000	400000
ANZECC (2000) 95% protection Value For the Concentration of As(III) in Fresh Water				24							
NEPM EIL for Soil in Areas of ecological significance			40			137	90	470		38	250
NEPM EIL for Soil in Urban residential/public open space			100			267	210	1100		179	560
NEPM EIL for Soil in Commercial/industrial			160			367	305	1800		299	760
Units			mg/kg	µg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Method detection limit (MDL)			4	1	0.4	1	1	1	0.1	1	1
8 Lord Street											
BH1	0.2-0.35	Fill - Grey, Silty Sand & Gravel	<4		<0.4	13	32	15	<0.1	4	27
BH1	0.5-0.7	Fill - Grey, Silty Sand & Gravel, ash and charcoal fragments	25		1	11	31	61	0.2	11	790
BH1	1.0-1.2	Natural - Light Grey Sand	<4		<0.4	<1	<1	<1	<0.1	<1	8
BH1	2.0-2.2	Natural - Brown - Yellow/Orange Sand	160	53							
BH2	0.3-0.45	Fill - Grey/Brown, Silty Sand & Gravel	<4		<0.4	7	4	17	<0.1	<1	14
BH2	1.0-1.2	Fill - Dark Grey/Brown, Silty Sand & Gravel	6	6	<0.4	7	23	51	<0.1	5	130
BH2	1.35-1.55	Natural - Light Grey Sand	<4	<1	<0.4	<1	1	<1	<0.1	<1	8
BH3	0.2-0.35	Fill - Grey/Brown/Red, Silty Sand & Gravel	8		<0.4	7	16	17	<0.1	4	10
BH3	2.1-2.3	Natural - Brown to Grey/Brown Sand	<4	2	<0.4	3	<1	2	<0.1	1	8
BH4	0.3-0.5	Fill - Dark Grey/Brown Silty Gravelly Sand	<4		0.4	18	51	2	<0.1	160	45
BH4	1.3-1.45	Fill / Reworked Natural - Grey/Brown Silty Sand with organic content	18	11	<0.4	20	13	20	<0.1	12	120
BH4	2.0-2.2	Natural - Grey/Brown Sand	<4	6	<0.4	2	<1	2	<0.1	<1	2
BH5	0.22-0.42	Fill - Grey/Brown, Silty Sand & Gravel	11		<0.4	6	16	42	<0.1	4	85
BH5	0.7-0.9	Fill - Grey/Brown, Silty Sand & Gravel, ash and charcoal fragments	13		<0.4	6	8	19	<0.1	2	58
BH5	1.2-1.4	Natural - Brown to Grey/Yellow Sand	8		<0.4	5	<1	2	<0.1	2	2
BH5	2.0-2.2	Natural - Brown to Grey/Yellow Sand	<4	15							
BH6	0.3-0.5	Fill - Grey/Brown, Silty Sand & Gravel, brick and ash fragments	23		<0.4	20	57	58	0.1	10	110
BH6	0.8-1.0	Fill - Grey/Brown, Silty Sand & Gravel, brick and ash fragments	9	10	<0.4	7	22	33	<0.1	4	58
BH6	1.4-1.6	Natural - Brown/Yellow Sand	45	68	<0.4	3	5	8	<0.1	2	23
BH7	0.15-0.3	Fill - Dark Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	13		<0.4	25	71	87	<0.1	7	100
BH7	1.0-1.2	Fill - Dark Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	38	9							
BH7	2.0-2.2	Natural - Light Grey Sand	<4		<0.4	<1	<1	1	<0.1	<1	30
BH8	0.3-0.5	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment	8		<0.4	10	29	30	0.1	11	82
BH9	0.2-0.35	Fill - Grey/Brown, Silty Sand & Gravel ash and charcoal fragments	15		<0.4	12	29	39	0.1	10	80
BH9	0.7-0.9	Fill - Grey/Brown, Silty Sand & Gravel ash and charcoal fragments	8	12							
BH10	0.05-0.2	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment	8		<0.4	23	37	31	<0.1	20	110
BH10	1.35-1.55	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment	<4		<0.4	3	13	6	<0.1	12	38
BH10	2.1-2.25	Natural - Grey to Grey/Brown Sand	<4		<0.4	1	4	12	<0.1	<1	92
BH11	0.2-0.35	Fill - Grey/Brown Silty Sand & Gravel, brick and concrete fragment	<4		<0.4	5	11	26	0.1	5	44
BH11	1.9-2.1	Natural - Brown to Grey/Yellow	<4	6							
BH12	0.2-0.4	Fill - Light Grey - Grey/Brown Silty Sand and Gravel	<4		<0.4	8	5	12	<0.1	6	27
BH12	2.0-2.2	Natural - Brown to Brown/Yellow Sand, organic content	10	32	<0.4	2	1	1	<0.1	<1	79
EIL	0.6-0.8	Natural - Grey/Brown Silty Sand with organic content	10		1	77	25	110	0.1	9	150
B1	-	Field duplicate of BH5 0.22-0.42	17		<0.4	7	22	48	<0.1	4	120
11-13 Lord Street											
BH13	0.2-0.4	Fill - Grey/Brown Silty Sand & Gravel, ash and charcoal fragment	<4		<0.4	8	4	25	<0.1	4	24
BH13	1.0-1.2	Fill - Grey/Brown Silty Sand & Gravel, ash and charcoal fragment	13	13							
BH13	2.0-2.2	Natural - Grey/Brown Sand, organic content	<4	9							
BH14	0.25-0.4	Fill - Dark Grey/Brown Silty Gravelly Sand	<4		<0.4	8	5	11	<0.1	4	21
BH15	0.1-0.3	Fill - Grey/Brown Silty Sand, Clay and Gravel, ash and charcoal fragment	<4		<0.4	10	5	12	<0.1	8	27
BH15	1.2-1.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	16		<0.4	14	79	140	<0.1	12	71
BH15	2.8-3.0	Natural - Light Grey/Yellow Sand	<4		<0.4	<1	<1	<1	<0.1	1	<1
BH16	0.4-0.6	Fill - Grey/Brown Silty Sand and Gravel	<4		<0.4	8	12	11	<0.1	5	20
BH17	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	8	4	16	<0.1	4	25
BH17	1.0-1.2	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	7		1	16	100	61	0.1	16	170
BH17	2.1-2.3	Natural - Light Grey Sand	<4		<0.4	<1	3	1	<0.1	<1	61
BH19	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel	16		0.5	9	26	39	<0.1	12	230
BH20	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	4		<0.4	6	14	15	<0.1	5	34
BH20	1.0-1.2	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	5	4							
BH20	1.8-2.0	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	3	18	12	<0.1	12	25
BH20	2.0-2.2	Natural - Grey Sand	<4	<1							
BH21	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	6	6	19	<0.1	3	10
BH22	0.3-0.5	Fill - Grey Silty Sand & Gravel, brick and concrete fragments	<4		<0.4	7	18	14	<0.1	5	43
BH23	0.2-0.4	Fill - Light Grey Silty Sand & Gravel, brick and concrete fragments	<4		<0.4	9	3	9	<0.1	7	16
BH24	0.2-0.4	Fill - Grey Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	8	30	14	<0.1	5	46
BH24	1.55-1.8	Natural - Light Grey Sand	<4		<0.4	<1	<1	2	<0.1	<1	2
BH25	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, concrete, brick and ash fragment	17		2	10	360	150	0.2	21	880
BH26	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	5	40	31	<0.1	7	57
BH26	1.5-1.8	Natural - Brown to Yellow/Orange Sand	16	100							
BH27	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel	<4		<0.4	6	11	18	<0.1	4	35
BH28	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	5		<0.4	11	17	17	<0.1	6	38
BH29	0.1-0.3	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	11	17	8	<0.1	28	33
BH29	0.6-0.8	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	19	15							
BH30	0.2-0.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		<0.4	12	5	12	<0.1	7	27
BH30	0.85-1.0	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4		2	8	15	38	<0.1	8	89
B2	-	Field duplicate of BH15 0.1-0.3									

OCPs, PCBs, OPPs, Phenols, VOCs, Physicochemical properties

Sample Location	Sample Depth	HCB	Heptachlor	Aldrin	Heptachlor Epoxide	gamma-Chlordane	alpha-chlordane	Endosulfan I	Endosulfan II	pp-DDE	Dieldrin	Endrin	pp-DDD	pp-DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor	DDT, DDE+DDD	Aldrin + Dieldrin	Total PCB's	Total OPPs	Total Phenolics	Total VOCs	pH	CEC	Clay Content
NEPM HIL for Soil Contaminants Residential B			10			90		400				20				400	500	600	10	1						
NEPM HIL for Soil Contaminants Commercial/Industrial D			50			530		2000				100				2000	2500	3600	45	7						
NEPM EIL for Soil in Areas of ecological significance																		3								
NEPM EIL for Soil in Urban residential/public open space																		180								
NEPM EIL for Soil in Commercial/industrial																		640								
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		cmol/kg	%
Method detection limit (MDL)		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	5	-	-	1	-
BH1	0.5-0.7																						ND			
BH2	0.3-0.45	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.2	ND	ND	<5				
BH4	0.3-0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.2	ND	ND	<5				
BH6	0.3-0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.2	ND	ND	<5				
BH8	0.3-0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.2	ND	ND	<5				
BH10	1.35-1.55																						ND			
EIL	0.6-0.8																							7.6	14	1
BH15	1.2-1.4																						ND			
BH16	0.4-0.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.2	ND	ND	<5				
BH20	1.8-2.0																						ND			
BH22	0.3-0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.2	ND	ND	<5				
BH25	0.2-0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	0.3	ND	ND	<5				
BH30	0.85-1.0																						ND			

Exceeds NEPM HIL for Soil Contaminants Residnetial B

Exceeds NEPM HIL for Soil Contaminants Commercial/Industrial D

Exceeds NEPM EIL for Soil Contaminants in Areas of Ecological Significance for 8 Lord Street and Urban residential/public open space for 11-13 Lord Street

Exceeds ANZECC (2000) 95% protection Value For the Concentration of As(III) in Fresh Water

Table B3 - Groundwater Laboratory Analytical Results

sga Environmental

Sample Description	Sample Date	Heavy Metals	Arsenic	Cadmium	Chromium	Chromium (III)	Chromium (VI)	Copper	Lead	Mercury	Nickel	Zinc	Aluminium	Bicarbonate	Total Alkalinity as CaCO3	Total Recoverable Hydrocarbons	TPH C6 - C10	TRH C6 - C10 less BTEX - F1	TRH >C10 - C16	TRH >C10 - C16 less Naphthalene - F2	TRH >C16 - C34	TRH >C34 - C40	Monocyclic Aromatic Hydrocarbons (MAHs)	Benzene	Toluene
NEPM HSL-D for Vapour Intrusion 2m to <4m sand, silt, clay (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	6,NL,NL	-	NL,NL,NL	-	-		5,30,30	NL,NL,NL
NEPM HSL-D for Vapour Intrusion 4m to <8m sand, silt, clay (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	6,NL,NL	-	NL,NL,NL	-	-		5,30,30	NL,NL,NL
NEPM HSL-D for Vapour Intrusion + 8m sand, silt, clay (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	7,NL,NL	-	NL,NL,NL	-	-		5,30,35	NL,NL,NL
NEPM HSL-B for Vapour Intrusion 2m to <4m sand, silt, clay (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	1,6,NL	-	1,NL,NL	-	-		0.8,4,5	NL,NL,NL
NEPM HSL-B for Vapour Intrusion 4m to <8m sand, silt, clay (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	1,6,NL	-	1,NL,NL	-	-		0.8,5,5	NL,NL,NL
NEPM HSL-B for Vapour Intrusion + 8m sand, silt, clay (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	1,6,NL	-	1,NL,NL	-	-		0.9,5,5	NL,NL,NL
Saturation Concentration (mg/L)			-	-	-	-	-	-	-	-	-	-	-		-		-	9.0	-	3.0	-	-		59	61
ANZECC (2000) 95% protection - Fresh Water			13.0[a]	0.2	1.0[b]	-	1	1.4	3.4	0.6	11	8	55				-	-	-	-	-	-		950	180
ANZECC (2000) 95% protection - Marine Water			4.5[a]	0.7	27.4[b]	27	4.4	1.3	4.4	0.1b	70	15	55				-	-	-	-	-	-		950	180[c]
Australian Drinking Water Guidelines (2011)			10	2	-	-	50	1,000[a]	10	1	20	3,000	200[a]				-	-	-	-	-	-		-	800[c]
Agricultural Water (irrigation)			100	10	100	-	-	200	2000	2	200	2,000	5000				-	-	-	-	-	-		-	-
Method detection limit (MDL)			**1**	**0.1**	**1**	**5**	**5**	**1**	**1**	**0.05**	**1**	**1**	**10**				**10**	**10**	**50**	**50**	**100**	**100**		**1**	**1**
Units			**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**mg/L**		**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**		**ug/L**	**ug/L**
8 Lord Street																									
MW2	11/12/2014		69	<0.1	<1			<1	<1	<0.05	<1	<1	110		120		<10	<10	<50	<50	<100	<100		<1	<1
MW4	11/12/2014		31	<0.1	<1			<1	<1	<0.05	<1	<1	30		140		<10	<10	<50	<50	<100	<100		<1	<1
MW6	11/12/2014		120	<0.1	2			<1	<1	<0.05	<1	67	<10		190		<10	<10	61	61	<100	<100		<1	<1
MW8	11/12/2014		5	0.1	23	21	<5	<1	<1	<0.05	<1	10	10		67		<10	<10	<50	<50	<100	<100		<1	<1
11-13 Lord Street																									
MW16	11/12/2014		1	<0.1	2			<1	<1	<0.05	<1	15	90		86		<10	<10	<50	<50	<100	<100		<1	<1
MW20	11/12/2014		12	<0.1	<1			<1	<1	<0.05	<1	3	20		93		<10	<10	<50	<50	<100	<100		<1	<1
MW25	11/12/2014		<1	<0.1	1			<1	<1	<0.05	<1	13	170		52		<10	<10	<50	<50	<100	<100		<1	<1
MW27	11/12/2014		<1	<0.1	<1			1	<1	<0.05	<1	20	70		63		<10	<10	<50	<50	<100	<100		<1	<1
FD1	11/12/2014		1	<0.1	2			<1	<1	<0.05	<1	16	-				<10	<10	<50	<50	<100	<100		<1	<1

All units in µg/L
ND = not detected
FD01 is a duplicate sample of MW16
(a) criteria for arsenic V
(b) criteria for chromium VI
(c) from 2004 Australian Drinking Water Guidelines
(d) Dutch intervention guidelines for mineral oil
(e) criteria for chromium III
(f) ANZECC 2000 low reliability criteria

Exceeds ANZECC (2000) 95% protection - Fresh Water Criteria
Exceeds ANZECC (2000) 95% protection - Marine Water Criteria
Exceeds ANZECC (2000) 95% protection - Fresh and Marine Water Criteria
Exceeds the Australian Drinking Water Guidelines

Table B3 - Groundwater Laboratory Analytical Results

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Sample Description	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)&(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total PAHs	OCPs	Total OCPs	OPPs	Total OPPs	PCBs	Total PCB's	Phenolics	Total Phenolics	VOCs	Total VOCs
NEPM HSL-D for Vapour Intrusion 2m to <4m sand, silt, clay (mg/L)			NL,NL,NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
NEPM HSL-D for Vapour Intrusion 4m to <8m sand, silt, clay (mg/L)			NL,NL,NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
NEPM HSL-D for Vapour Intrusion + 8m sand, silt, clay (mg/L)			NL,NL,NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
NEPM HSL-B for Vapour Intrusion 2m to <4m sand, silt, clay (mg/L)			NL,NL,NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
NEPM HSL-B for Vapour Intrusion 4m to <8m sand, silt, clay (mg/L)			NL,NL,NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
NEPM HSL-B for Vapour Intrusion + 8m sand, silt, clay (mg/L)			NL,NL,NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
Saturation Concentration (mg/L)			0.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
ANZECC (2000) 95% protection - Fresh Water			16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
ANZECC (2000) 95% protection - Marine Water			70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
Australian Drinking Water Guidelines (2011)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
Agricultural Water (irrigation)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-		-		-		-		-
Method detection limit (MDL)			1	1	1	1	1	1	1	1	1	1	2	1	1	1	1			-		-		-		-		-
Units			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L
8 Lord Street																												
MW2	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
MW4	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
MW6	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
MW8	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
11-13 Lord Street																												
MW16	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
MW20	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
MW25	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
MW27	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND
FD1	11/12/2014		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	NIL (+)VE		ND		ND		ND		ND		ND

All units in µg/L
ND = not detected
FD01 is a duplicate sample of MW16
(a) criteria for arsenic V
(b) criteria for chromium VI
(c) from 2004 Australian Drinking Water Guidelines
(d) Dutch intervention guidelines for mineral oil
(e) criteria for chromium III
(f) ANZECC 2000 low reliability criteria

Exceeds ANZECC (2000) 95% protection - Fresh Water Criteria
Exceeds ANZECC (2000) 95% protection - Marine Water Criteria
Exceeds ANZECC (2000) 95% protection - Fresh and Marine Water Criteria
Exceeds the Australian Drinking Water Guidelines

Table B3 - Groundwater Laboratory Analytical Results

Environmental

	Ethylbenzene	m & p-Xylenes	o-Xylene	Total Xylene
NEPM HSL-D for Vapour Intrusion 2m to <4m sand, silt, clay (mg/L)	NL,NL,NL	-	-	NL,NL,NL
NEPM HSL-D for Vapour Intrusion 4m to <8m sand, silt, clay (mg/L)	NL,NL,NL	-	-	NL,NL,NL
NEPM HSL-D for Vapour Intrusion + 8m sand, silt, clay (mg/L)	NL,NL,NL	-	-	NL,NL,NL
NEPM HSL-B for Vapour Intrusion 2m to <4m sand, silt, clay (mg/L)	NL,NL,NL	-	-	NL,NL,NL
NEPM HSL-B for Vapour Intrusion 4m to <8m sand, silt, clay (mg/L)	NL,NL,NL	-	-	NL,NL,NL
NEPM HSL-B for Vapour Intrusion + 8m sand, silt, clay (mg/L)	NL,NL,NL	-	-	NL,NL,NL
Saturation Concentration (mg/L)	3.9	-	-	21
ANZECC (2000) 95% protection - Fresh Water	-	200	350	-
ANZECC (2000) 95% protection - Marine Water	5[e]	75[f]	350	-
Australian Drinking Water Guidelines (2011)	-	-	-	600[c]
Agricultural Water (irrigation)	-	-	-	-
Method detection limit (MDL)	1	2	1	
Units	ug/L	ug/L	ug/L	ug/L
Sample Description / **Sample Date**				
8 Lord Street				
MW2 / 11/12/2014	<1	<2	<1	<3
MW4 / 11/12/2014	<1	<2	<1	<3
MW6 / 11/12/2014	<1	<2	<1	<3
MW8 / 11/12/2014	<1	<2	<1	<3
11-13 Lord Street				
MW16 / 11/12/2014	<1	<2	<1	<3
MW20 / 11/12/2014	<1	<2	<1	<3
MW25 / 11/12/2014	<1	<2	<1	<3
MW27 / 11/12/2014	<1	<2	<1	<3
FD1 / 11/12/2014	<1	<2	<1	<3

All units in µg/L
ND = not detected
FD01 is a duplicate sample of MW16
(a) criteria for arsenic V
(b) criteria for chromium VI
(c) from 2004 Australian Drinking Water Guidelines
(d) Dutch intervention guidelines for mineral oil
(e) criteria for chromium III
(f) ANZECC 2000 low reliability criteria

Exceeds ANZECC (2000) 95% protection - Fresh Water Criteria
Exceeds ANZECC (2000) 95% protection - Marine Water Criteria
Exceeds ANZECC (2000) 95% protection - Fresh and Marine Water Criteria
Exceeds the Australian Drinking Water Guidelines

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Table B4 - Summary of Preliminary Waste Classification Results

Heavy Metals

Nominated Site Criteria	Date Sampled	Lithology Sampled	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	TCLP - Arsenic	TCLP - Cadmium	TCLP - Chromium	TCLP - Lead	TCLP - Mercury	TCLP - Nickel
General Solid Waste CT1			100	20	100		100	4	40							
General Solid Waste SCC1 used with TCLP			500	100	1900		1500	50	1050							
General Solid Waste Maximum TCLP1											5	1	5	5	0.2	2
Restricted Solid Waste CT2			400	80	400		400	16	160							
Restricted Solid Waste SCC2 used with TCLP			2000	400	7600		6000	200	4200							
Restricted Solid Waste Maximum TCLP2											20	4	20	20	0.8	8
Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Method Detection Limit (MDL)			4	0.4	1	1	1	0.1	1	1	0.05	0.01	0.01	0.03	0.0005	0.02
Sample Location	**Date Sampled**	**Lithology Sampled**														
BH1 (2-12 Lords Street)	0.5-0.7	Fill - Grey, Silty Sand & Gravel, ash and charcoal fragments	25	1	11	31	61	0.2	11	200						
BH10 (2-12 Lords Street)	1.35-1.55	Fill - Grey/Brown Silty Sand & Gravel, brick, concrete, ash and charcoal fragment	<4	<0.4	3	12	6	<0.1	12	36	<0.05	<0.01	<0.01	<0.03	<0.0005	<0.02
BH05 (11-13 Lord Street)	1.2-1.4	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	16	<0.4	14	79	140	<0.1	12	71						
BH26 (11-13 Lord Street)	1.8-2.0	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4	<0.4	3	19	12	<0.1	12	20						
BH02 (11-13 Lord Street)	0.65-1.0	Fill - Grey/Brown Silty Sand and Gravel, ash and charcoal fragment	<4	2	8	15	38	<0.1	8	88	<0.05	<0.01	<0.01	0.03	0.0037	0.02

Total Petroleum Hydrocarbons (TPH) / Monocyclic Aromatic Hydrocarbons (MAHs)

Nominated Site Criteria	TPH C6 - C9	TPH C10 - C14	TPH C15 - C28	TPH >C29 - C36	TPH C10-C36	Benzene	Toluene	Ethyl Benzene	m, p - Xylene	o - Xylene	Total Xylene	Styrene	Isopropylbenzene	n-Propylbenzene	1,3,5-Trimethylbenzene	tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	4-Isopropyltoluene	n-Butylbenzene
General Solid Waste CT1	N/A				N/A	10	288	600			1000	60								
General Solid Waste SCC1 used with TCLP	650				10000	18	518	1080			1800	108								
General Solid Waste Maximum TCLP1	N/A				N/A															
Restricted Solid Waste CT2	N/A				N/A	40	1152	2400			4000	240								
Restricted Solid Waste SCC2 used with TCLP	2600				40000	72	2073	4320			7200	432								
Restricted Solid Waste Maximum TCLP2	N/A				N/A															
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Method Detection Limit (MDL)	25	50	100	100	100	0.2	0.5	1	2	1	-	1	1	1	1	1	1	1	1	1
BH1 (2-12 Lords Street)	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<2	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH10 (2-12 Lords Street)	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<2	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH05 (11-13 Lord Street)	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<2	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH26 (11-13 Lord Street)	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<2	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1
BH02 (11-13 Lord Street)	<25	<50	<100	<100	<100	<0.2	<0.5	<1	<2	<1	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1

Polycyclic Aromatic Hydrocarbons (PAHs) / Volatile Organic Compounds

Nominated Site Criteria	Total PAHs	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b)&(k)fluoranthene	Benzo(a)pyrene	TCLP - Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Total VOCs
General Solid Waste CT1	N/A												0.8					
General Solid Waste SCC1 used with TCLP	200												10					
General Solid Waste Maximum TCLP1	N/A													0.04				
Restricted Solid Waste CT2	N/A												3.2					
Restricted Solid Waste SCC2 used with TCLP	800												23					
Restricted Solid Waste Maximum TCLP2	N/A													0.16				
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg
Method Detection Limit (MDL)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.001	0.5	0.5	0.5	
BH1 (2-12 Lords Street)	33	<0.1	<0.1	0.2	0.1	2.8	0.6	6.5	5.9	2.4	2.7	4.5	2.7	<0.001	1.7	0.3	1.9	ND
BH10 (2-12 Lords Street)	0.24	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.001	<0.1	<0.1	<0.1	ND
BH05 (11-13 Lord Street)	0.43	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.2	0.06	<0.001	<0.1	<0.1	<0.1	ND
BH26 (11-13 Lord Street)	1.8	<0.1	<0.1	<0.1	<0.1	1.3	<0.1	0.1	0.1	<0.1	0.3	<0.2	<0.05	<0.001	<0.1	<0.1	<0.1	ND
BH02 (11-13 Lord Street)	NIL	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.001	<0.1	<0.1	<0.1	ND

Appendix E: Data Quality Objectives

Data Quality Objectives and Data Quality Indicators

Systematic planning and verification is deemed critical for the successful implementation of a DSI to ensure that the data collected is reliable and representative. A process for establishing data quality objectives (DQOs) for an investigation has been defined by the United States Environmental Protection Agency (US EPA). That process has been adopted in AS4482.1-2005 and referenced in NEPM 2013.

DQOs ensure that:

- The study objectives are set;
- Appropriate types of data are collected (based on contemporary land use and CoPC); and
- The tolerance levels are set for potential decision making errors.

The DQO process is a seven-step iterative planning approach used to plan for environmental data collection activities. It provides a systematic approach for defining the criteria that a data collection design should satisfy, including when, where and how to collect samples or measurements, determination of tolerable decision error rates and the number of samples or measurements that should be collected. The seven-step process for this investigation is discussed and summarised below.

Step 1 - State the Problem

There is the potential for contaminants to be present within soil at the site (in areas not assessed to date), at concentrations that may pose a risk to human health and the environment for a medium-density residential land use.

Furthermore, should a significant amount of time (i.e. 6 months) elapse prior to re-development of the site, a review of groundwater conditions is recommended to confirm the findings of the KPMG SCA 2014 report.

Step 2 - Identify the Decisions

The decisions to be made based on the results of the DSI will be as follows:

- Is soil or groundwater at the site impacted by CoPC and if so, what is the vertical and lateral extent of impact?
- Are the findings of the DSI consistent with the KPMG SCA 2014 report?
- Is there a potential unacceptable risk to human health or the environment from CoPC in soils or groundwater and if so, does the site require remediation works and/or a site management plan?

Step 3 - Identify Inputs in the Decision

The inputs required to make the above decisions will be as follows:

- Site setting and available background information;
- Selection of appropriate Tier 1 soil and groundwater assessment criteria;
- Visual observations; and
- Field and laboratory analytical results.

Step 4 - Define Boundaries of the Study

The geographical limits appropriate for the data collection and decision making in the proposed DSI will comprise the boundaries of the site (soil assessment) and the lateral extent of the groundwater monitoring well network (for groundwater) as shown in KPMG SGA Figure 2 in Appendix C.

Step 5 - Develop a Decision Rule

The purpose of this step is to define the parameter of interest, specify the action level and combine the outputs of the previous DQO steps into an 'if/then' decision rule that defines the conditions that would cause the decision maker to choose alternative actions.

If the levels of contaminants in soil and groundwater are below the adopted assessment criteria, the risk to human health or the environment from CoPC can be considered to be low.

If concentrations of CoPC in soil exceed the adopted assessment criteria, consideration for statistical analysis of the dataset should be undertaken to support the need or otherwise for further risk assessment, remediation or site management. These decision rules include the 95% upper confidence limit (UCL) of the mean contaminant concentration being less than the adopted site assessment criteria, the standard deviation being less than 50% and no individual concentration being in excess of 250% of the site assessment criteria (for similar soil types).

Should groundwater concentrations exceed the adopted assessment criteria, further investigation may be necessary to delineate the plume and/or assess the risk to identified receptors.

Step 6 - Specify Limits on Decision Errors

The acceptable limits on decision errors and the manner of addressing possible decision errors will be developed based on the data quality indicators (DQIs) of:

- Accuracy: a quantitative measure of the closeness of reported data to the true value;
- Comparability: a qualitative parameter expressing the confidence with which one data set can be compared with another;
- Completeness: a measure of the amount of useable data (expressed as %) from a data collection activity;
- Representativeness: the confidence (expressed qualitatively) that data are representative of each media present on the site; and
- Precision: a quantitative measure of the variability (or reproducibility) of data.

The field and laboratory DQIs to be adopted are outlined in below.

Step 7 - Optimise the Design

The purpose of this step is to identify a resource-effective data collection design for generating data that satisfies the DQOs.

This scope of work for the proposed DSI has been designed considering a review of previous reports and refinement of the CSM. The resource effective data collection design that is expected to satisfy the DQOs is described in detail in latter sections.

The methodology for the DSI will be reviewed at critical times during the project and amended where necessary based on site conditions, unexpected finds, professional judgement and liaison with DEXUS.

To ensure the design satisfies the DQOs, DQIs (for accuracy, comparability, completeness, precision and reproducibility) have been established to set acceptance limits on field methodologies and laboratory data collected.

Data Quality Indicators

A summary of the field and laboratory DQIs for the proposed DSI are provided in Table E1.

Table E1: Data Quality Indicators (DQIs)

Field Considerations	Laboratory Considerations	Comments
Accuracy (bias)		
Work instructions (WI) are appropriate and have been complied with.	Analysis of: • Trip blanks; • Rinsate blanks; • Reagent blanks; • Method blanks; • Matrix spikes; • Surrogate spikes; • Reference material; • Laboratory control samples; and • Laboratory-prepared spikes.	Bias introduced: • By chemicals during handling or transport; • From contaminated equipment; • From contaminated reagent; • During laboratory analysis; • During laboratory preparation and analysis (may be high or low); • During laboratory preparation and analysis (may be high or low); • Precision of preparation of analytical method; • Precision of preparation of analytical method; and • During collection/transport (may be high or low).
Comparability		
Same WIs used on each occasion. Experienced sampler. Climatic conditions (temperature, rainfall, wind). Same types of samples collected (filtered, size fractions).	Sample analytical methods used (including clean-up). Laboratory practical quantification limits (PQLs) (justify / quantify if different). Same laboratories (justify / quantify if different). Same units (justify / quantify if different).	Same approach to sampling (WIs, holding times). Quantify influence from climatic or physical conditions. Samples collected, preserved, handled in same manner (filtered, same containers).
Completeness		
Critical locations sampled. WIs appropriate and complied with. Experienced sampler. Documentation correct.	Critical samples analysed in accordance with the tender response. Analytes sampled in accordance with scope of works. Appropriate methods and PQLs. Sample documentation correct. Sample holding times complied with.	The required percentage completeness should be specified in the scope of works. Required data must be obtained from critical samples and CoPC. Incompleteness is influenced by: • Field performance problems (access problems, difficulties on site, damage); • Laboratory performance problems (Matrix interference, invalid holding times); and • Matrix problems.

Table E1: Data Quality Indicators (DQIs)

Field Considerations	Laboratory Considerations	Comments
Representativeness		
Appropriate media sampled according to the SAQP. Media in the SAQP sampled.	Samples analysed according to the SAQP.	Samples must be collected to reflect characteristics of each medium. Sample analysis must reflect properties of field samples. Homogeneity of the samples. Appropriate collection, handling, storage and preservation. Detection of laboratory artefacts, e.g. contamination blanks.
Precision		
WIs appropriate and complied with	Analysis of: • Laboratory and inter-laboratory duplicates • Field duplicates	Measured by the coefficient of variance or standard deviation of the mean or Relative Percentage. Field duplicates measure field and laboratory precision Difference (RPD) calculations. Variation in RPDs can be expected to be higher for organics, low concentrations (<5 x laboratory PQL) or non-homogenous samples.

Acceptable limits adopted for data quality indicators are outlined in Table E2.

Table E2: Acceptable Limits of Data Quality Indicators

Item	Acceptable Limit
Analysis of blind (intra-laboratory) duplicates and split (inter-laboratory) duplicates	Rate of 1:20 primary samples for the same analysis of primary samples; Calculation of relative percentage differences between primary and duplicate samples, the results of which to be less than: • 80% (where the average concentration was 1-10 x laboratory PQL); • 50% (where the average concentration was 10-30 x laboratory PQL); and • 30% (where the average concentration was > 30 x laboratory PQL).
Analysis of rinsate blanks	Rate of one (1) sample per day of sampling; and Results less than the laboratory PQL.
Analysis of trip blanks	Rate of one (1) sample per batch; and Results less than the laboratory PQL.
Analysis of laboratory blanks, spikes, surrogates, reference and control samples	Laboratory specific
Laboratories and methods used	National Association of Testing Authorities accredited.
Sample PQLs	Results less than the adopted assessment criteria; justify/quantify if different.

Appendix F: Assessment Criteria

Soil Assessment Criteria

Soil health investigation levels (HILs), soil health screening levels (HSLs), ecological investigation levels (EILs), ecological screening levels (ESLs) and petroleum hydrocarbon management limits will be adopted from Schedule B1 of NEPM 2013 and CRCCARE 2011.

Health investigation levels

HILs are deemed applicable for assessing human health risk via all relevant exposure pathways of exposure for metals and organic substances. HILs are concentrations below which contaminants in soils are not considered to adversely affect human health. The adopted soil HILs are outlined in Table F1.

Table F1: Adopted Soil Health Investigation Levels[1]

Analyte	Residential B (mg/kg)
Arsenic	500
Cadmium	150
Chromium	500
Copper	30,000
Lead	1,200
Mercury	120
Nickel	1,200
Zinc	60,000
Carcinogenic PAHs (as BAP TEQ)[2]	4
Total PAHs	400
DDT+DDE+DDD	600
Aldrin and dieldrin	10
Chlordane	90
Endosulfan	400
Endrin	20
HCB	15
Heptachlor	10
HCB	15
Methoxychlor	500
PCBs	1
Phenol	45 000
2,4,5-T	900
2,4-D	1,600
MCPA	900
MCPB	900
Mecoprop	900
Picloram	6,600

[1] NEPM 2013

[2] Benzo(a)pyrene toxicity equivalent quotient (TEQ) is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its benzo(a)pyrene toxicity equivalence factor (TEF) and summing these products.

Health Screening Levels (HSLs)

Soil HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via vapour intrusion and inhalation. The HSLs depend on specific soil physicochemical properties, land use scenarios, and the characteristics of building structures. They apply to different soil types, and depths below surface to >4 m below ground level (m BGL). Criteria relevant to a sandy soil type and a depth of 0-1 m were selected based on the soils encountered during the KPMG SGA 2014 investigation. The adopted HSLs for assessment of soils for vapour intrusion are outlined in Table F2.

Table F2: Adopted Soil Health Screening Levels for Vapour Intrusion

Analyte	HSL A and HSL B: Low – high density residential (mg/kg)[1]	Intrusive Maintenance Worker (Shallow Trench) (mg/kg)[2]
Benzene	0.5	77
Toluene	160	NL
Ethylbenzene	55	NL
Xylenes	40	NL
Naphthalene	3	NL
TPH C_6-C_{10} less BTEX	45	-
TRH C_6-C_{10}	-	NL
TRH C_{10}-C_{16} - Naphthalene	110	NL
TRH >C_{10}-C_{16}	-	NL

[1] NEPM 2013

[2] CRCCARE 2011

Soil HSLs have also been adopted from CRCCARE 2011 to assess the exposure pathway of direct contact (oral ingestion, dermal contact and dust inhalation) for residential occupants and shallow trench workers (maximum trench depth of 1 m) and vapour intrusion for intrusive maintenance workers. The adopted soil HSLs for intrusive maintenance workers working in the shallow trenches for a vapour intrusion pathway are outlined in Table F2. Based on the soil conditions encountered during the KPMG SGA 2014 investigation, a sandy soil type and depth of 0-<2 m have been adopted for assessment purposes. The adopted soil HSLs for direct contact are outlined in Table F3.

Table F3: Adopted Soil Health Screening Levels for Direct Contact[1]

Analyte	HSL-B Residential (High-Density) (mg/kg)	Intrusive Maintenance Worker (mg/kg)
Benzene	140	1,100
Toluene	21,000	120,000
Ethylbenzene	5,900	85,000
Xylenes	17,000	130,000
Napthalene	2,200	29,000
TRH C_6-C_{10}	5,600	82,000
TRH >C_{10}-C_{16}	4,200	62,000
TRH >C_{16}-C_{34}	5,800	85,000
TRH >C_{34}-C_{40}	8,100	120,000

[1] NEPM 2013

Petroleum Hydrocarbon Management Limits

Petroleum hydrocarbon management limits are applicable to petroleum hydrocarbon compounds only. They are applicable as screening levels following evaluation of human health risks and are used to avoid or minimise the following potential effects of petroleum hydrocarbon contamination:

- Formation of observable light non-aqueous phase liquid (LNAPL);
- Fire and explosion hazards;
- Effects on buried infrastructure (i.e. penetration of, or damage to, in-ground services by hydrocarbons); and
- Aesthetics.

Management limits in coarse soils were conservatively adopted for this assessment as a conservative approach. The adopted management limits for TRH fractions are outlined in Table F4.

Table F4: Adopted TRH Management Limits[1]

Analyte	Residential, Parkland and Open Space (mg/kg)
TRH C_6-C_{10}	700
TRH >C_{10}-C_{16}	1,000
TRH >C_{16}-C_{34}	2,500
TRH >C_{34}-C_{40}	10,000

[1] NEPM 2013

Asbestos in soil

Asbestos contamination can occur in a range of forms, sizes and degrees of deterioration. NEPM 2013 divides asbestos contamination into the following:

- Asbestos Containing Materials (ACM) – Asbestos bound in a matrix, and is sound condition e.g. vinyl floor tiles, cement sheeting;
- Fibrous Asbestos (FA) – Friable asbestos material such as weathered ACM and loose fibrous material (insulation products); and
- Asbestos Fines (AF) – Free fibres of asbestos, small fibre bundles and ACM fragments that can pass through a 7mm x 7 mm sieve.

A criterion of the laboratory detection limit (<0.1 g/kg) has been adopted for asbestos.

Ecological Investigation Levels (EILs)

Ecological Investigation Levels (EILs) have been developed for selected metals and organic substances and are applicable for assessing risk to terrestrial ecosystems. EILs depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2 m of soil. Generic EILs for aged arsenic, fresh dichlorodiphenyltrichloroethane (DDT) and fresh naphthalene have been adopted. EILs will be calculated for copper, chromium (III), nickel, lead and zinc based on the sum of estimated conservative ambient background concentrations (ABC) and conservative added contaminant limits (ACL).

The ABC of a contaminant is the soil concentration in a specified locality that is the sum of the naturally occurring background level and the contaminant levels that have been introduced from diffuse or non-point sources by general anthropogenic activity not attributed to industrial, commercial, or agricultural activities, for example, motor vehicle emissions.

An added contaminant limit (ACL) is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required. ACLs are based on the soil characteristics of pH, cation exchange capacity (CEC) and clay content. A generic ACL will be adopted for lead while ACLs (based on a clay content, CEC and pH) will be calculated for chromium, copper, nickel and zinc.

The adopted EILs for this assessment are outlined in Table F5.

Table F5: Adopted Ecological Investigation Levels[1]

Analyte	Urban, Residential and Public Open Space (mg/kg)
Arsenic	100
DDT (fresh)	180
Naphthalene (fresh)	170
Chromium	TBC
Nickel	TBC
Lead	1,100
Copper	TBC
Zinc	TBC

[1] NEPM 2013

[2] TBC: to be confirmed following analytical results

Ecological Screening Levels (ESLs)

ESLs are concentrations of contaminants above which further appropriate investigation and evaluation will be required. They were developed for select petroleum hydrocarbons; they depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2 m of soil (NEPC, 2013). Based on the soil conditions encountered during the KPMG SGA 2014 investigation, ESLs for coarse grained soils have been adopted as outlined in Table F6.

Table F6: Adopted Ecological Screening Levels[1]

Analyte	Urban, Residential and Public Open Space (mg/kg)
TPH C_6-C_{10} less BTEX	180
TRH >C_{10} - C_{16} less Naphthalene	120
TRH >C_{16}-C_{34}	300
TRH >C_{34}-C_{40}	2,800
Benzene	50
Toluene	85
Ethylbenzene	70
Xylenes	105
Benzo(a)pyrene	0.7

[1] NEPM 2013

Groundwater Assessment Criteria

The adopted groundwater assessment criteria have been based on potential receptors and exposure pathways identified in the CSM and a review of relevant environmental values as referenced in Table F7.

Table F7: Values Considered and Adopted Groundwater Assessment Criteria

Value Considered	Reference for adopted Groundwater Assessment Criteria
Aquatic Ecosystems (Mill Pond)	GILs for Fresh Water (NEPM 2013); and Low Reliability Trigger Values (95% protection) (ANZECC & ARMCANZ 2000).
Aquatic Ecosystems (Botany Bay)	GILs for Fresh Water (NEPM 2013); and Low Reliability Trigger Values (95% protection) (ANZECC & ARMCANZ 2000).
Recreational Users of Botany Bay	Guidelines for Managing Risks in Recreational Water (GMRRW 2008)
Vapour Intrusion	Groundwater HSLs (NEPM 2013)

The groundwater criteria adopted for the assessment of groundwater are provided in Table F8.

Table F8: Summary of Adopted Groundwater Assessment Criteria (µg/L)

Contaminant	• Freshwater Aquatic Ecosystems [1#]	• Marine Water Ecosystems [1#]	• Vapour Intrusion[1]	• Recreation[2]
Arsenic	24	-	-	70
Cadmium	0.2	0.7	-	20
Chromium (VI)	1	4.4	-	500
Copper	1.4	1	-	20,000
Mercury	0.06	0.1	-	10
Lead	3.4	4.4	-	100
Nickel	11	7	-	200
Zinc	8	15	-	-
Benzene	950	500	0.8	10
Toluene	180*	180*	NL	8,000
Ethylbenzene	80*	5*	NL	3,000
Xylene-o	350	350*	-	-
Xylene-m	75*	75*	-	-
Xylene-p	200	200*	-	-
Xylenes (Total)	-	-	NL	6,000
Benzo(a)pyrene	0.2*	0.2*	-	0.1
Naphthalene	16	50	NL	-
Phenolics	320	-	-	-
TRH C_6-C_{10} less BTEX (F1)	-	-	1,000	-
TRH C_{10}-C_{16} – Naphthalene (F2)	-	-	1,000	-

1 NEPM 2013 (sand, 2-4m)
2 GMRRW 2008 (ten (10) times the drinking water guideline values adopted for health)
* Low Reliability Trigger Values (ANZECC 2000)
# Value for 95% protection
NL Not limiting