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Stage 2 Detailed Site Investigation

Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564

259-271 Pacific Highway, Lindfield, NSW

Report Number 610.14433-R4

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Ku-ring-gai Council

818 Pacific Highway

Gordon NSW 2072

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259-271 Pacific Highway, Lindfield, NSW

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Executive Summary

SLR Consulting Pty Ltd (SLR) was engaged by Ku-ring-gai Council prepare a stage 2 detailed site investigation (DSI) for 259-271 Pacific Highway, Lindfield, NSW (the site).

The assessment was undertaken in accordance with SLR's offer of services dated 27 July 2015, (ref: 610.14433 Offer of Services 20150727).

SLR understood the following:

- The site is the subject of potential redevelopment, comprising a mix of high density residential units, ground floor residential / child care, and basement car parking;
- A stage 1 preliminary site investigation (PSI) was undertaken for the site by SLR in February 2015; and
- A stage 2 detailed site investigation (DSI) was required by Council, to address the recommendations contained in the stage 1 PSI report.

The objectives of this project were to:

- Assess the potential for unacceptable human health exposure risks to be present in the identified areas of environmental concern, in the context of land contamination and a high density residential, ground floor child care / residential and basement car parking (across a large portion of the site) land use scenario;
- Provide advice on the suitability of the site (in the context of land contamination) for the proposed land use scenario; and
- Provide recommendations for additional investigation, management or remediation of the site (if warranted).

It is noted that the proposed development is only at master planning stage and detailed concept / architectural plans were not available at the time of undertaking this investigation.

SLR undertook the following scope of work to address the project objectives:

- a desktop review;
- soil sampling and laboratory analysis; and
- data assessment and reporting.

SLR understands an application for an exception from the need for an excavation permit under section139 (4)of the Heritage Act 1977 for geotechnical and environmental works at 259-271 Pacific Highway, Lindfield NSW, was endorsed by the Office of Environment and Heritage on 19 November 2015. As part of Council's compliance with the endorsed application, monitoring of the soil sampling component of the DSI works on 6 December 2015, was undertaken by archaeologist Ngaire Richardson from Future Past heritage consultants.

Based on a review of the available desktop search data, observations made during fieldwork, and the results of sample laboratory analysis (in the context of the proposed masterplan redevelopment land use scenario at the site), SLR makes the following conclusions:

- The detected concentrations of the identified contaminants of potential concern in soils in the areas of environmental concern on the site, are considered unlikely to present an unacceptable soil vapour or vapour intrusion human health exposure risk;

Executive Summary

- The detected concentrations of the identified contaminants of potential concern in soils in the areas of environmental concern on the site, are considered unlikely to present an unacceptable direct contact human health exposure risk, with the exception of lead at sampling point TP01 and TP07, and carcinogenic PAH (as benzo(a)pyrene TEQ) at sampling points TP01, TP06, TP07 and HA06;
- The potential for unacceptable contamination human health exposure risks to be present in uncharacterised fill soils in the vicinity of sampling points HA01, HA04 and HA06, cannot be precluded;
- It is considered that the site could be made suitable for the proposed land use scenario, subject to:
    - further assessment and management/remediation (if warranted) of identified lead and carcinogenic PAH impacts in soil, taking into consideration future detailed design of the proposed development;
    - addressing uncertainty around fill material in the vicinity of sampling points HA01, HA04 and HA06, taking into consideration future detailed design of the proposed development, and the limitations of undertaking further investigations while underground services are still present in the vicinity of HA06;
- In the event that management and/or remediation of lead or carcinogenic PAH in soils is required, there are well established and industry accepted methods available for addressing this form of contamination. Management and/or remediation options could include in-situ containment, ex-situ containment, or offsite disposal;
- Hazardous materials including but not limited to asbestos, that may be present in structures on the site, should be appropriately managed / removed, and appropriate clearances obtained from a suitably experienced occupational hygienist or environmental consultant, before demolition of those structures. This will assist in mitigating potential for future land contamination to occur during demolition, which can happen if hazardous materials are not managed appropriately; and
- Further contamination assessment works at the site should be undertaken by a suitable experienced environmental consultant.

This report must be read in conjunction with the limitations set out in Section 13 of this report.

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1 INTRODUCTION

1.1 Background

SLR Consulting Pty Ltd (SLR) was engaged by Ku-ring-gai Council prepare a stage 2 detailed site investigation (DSI) for 259-271 Pacific Highway, Lindfield, NSW (the site).

The assessment was undertaken in accordance with SLR's offer of services dated 27 July 2015, (ref: 610.14433 Offer of Services 20150727).

SLR understood the following:

- The site is the subject of potential redevelopment, comprising a mix of high density residential units, ground floor residential / child care, and basement car parking;
- A stage 1 preliminary site investigation (PSI) was undertaken for the site by SLR in February 2015; and
- A stage 2 detailed site investigation (DSI) was required by Council, to address the recommendations contained in the stage 1 PSI report.

1.2 Objectives

The objectives of this project were to:

- Assess the potential for unacceptable human health exposure risks to be present in the identified areas of environmental concern, in the context of land contamination and a high density residential, ground floor child care / residential and basement car parking (across a large portion of the site) land use scenario;
- Provide advice on the suitability of the site (in the context of land contamination) for the proposed land use scenario; and
- Provide recommendations for additional investigation, management or remediation of the site (if warranted).

It is noted that the proposed development is only at master planning stage and detailed concept / architectural plans were not available at the time of undertaking this investigation.

1.3 Scope of Work

SLR undertook the following scope of work to address the project objectives:

- a desktop review;
- soil sampling and laboratory analysis; and
- data assessment and reporting.

SLR understands an application for an exception from the need for an excavation permit under section139 (4)of the Heritage Act 1977 for geotechnical and environmental works at 259-271 Pacific Highway, Lindfield NSW, was endorsed by the Office of Environment and Heritage on 19 November 2015. As part of Council's compliance with the endorsed application, monitoring of the soil sampling component of the DSI works on 6 December 2015, was undertaken by archaeologist Ngaire Richardson from Future Past heritage consultants.

2 SITE IDENTIFICATION

The locality of the site is presented in Figure 1.

The site is legally identified as Lot 1, 2 and 3 in DP212617 and Lot 8 in DP660564.

The site is irregular in shape and occupies an area of approximately 5,852m^2.

The layout of the site is presented in Figure 2.

A detail and level survey of the site is presented in Appendix A.

3 SITE SETTING

3.1 Geology

The Geological Survey of NSW Sydney 1:100,000 Geological Series Sheet 9130 Edition 1 (1983) indicates that the site is underlain with Triassic Ashfield Shale, comprised of black to dark grey shale and laminite.

3.2 Topography

The topography is generally flat with some localised undulations, and east facing slopes. The site is located at an approximate elevation of 95m to 105m Australian height datum (AHD).

3.3 Hydrogeology

The nearest surface water courses to the site are considered to be Sugarbag Creek (located approximately 950m to the south west) and Gordon Creek (located approximately 750m to the north east).

Based on the regional topography and the location of nearby water bodies, it is considered that groundwater flow at the site is likely to be towards the east and north.

A search of the NSW Natural Resources Atlas (NSW-NRS, www.nratlas.nsw.gov.au) conducted on 4 February 2015 did not identify any registered groundwater works features within the search area (500m radius of the site).

3.4 Acid Sulfate Soils

The Department of Land and Water Conservation (DLWC) acid sulfate soil (ASS) risk map for Hornsby / Mona Vale (Edition 2) indicates that the map class description for the site is “no known occurrence”, meaning acid sulfate soils are not known or expected to occur in these environments. The environmental risk associated with this map class description is “land management activities are not likely to be affected by acid sulfate soil materials”.

No further assessment of acid sulfate soil risk for this site is considered warranted.

4 PREVIOUS CONTAMINATION ASSESSMENTS

The following contamination assessment related reports were available for review as part of this investigation:

- SLR Consulting 2015, 'Stage 1 Preliminary Site Investigation, Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564, 259-271 Pacific Highway, Lindfield, NSW' dated 20 February 2015, ref: 610.14433-R3.

A summary of this report is presented in Section 4.1.

4.1 SLR (2015)

The objectives of this project were to:

- Make an assessment of the likelihood of contamination to be present on the site, as a result of past and present land use activities;
- Provide preliminary recommendations on further contamination assessment, management or remediation works (if required).

SLR undertook the following scope of work to address the project objectives:

- a desktop review;
- a site walkover; and
- data assessment and reporting.

Based on the results of the desktop review and site walkover, SLR identified a number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) for the site.

Based on a review of the available desktop search data and observations made during the site walkover, SLR makes the following conclusions and recommendations:

- There is a moderate likelihood of unacceptable contamination to be present on the site, as a result of past and present land use activities;
- Further assessment would be required to assess the suitability of the site for future land uses. The further assessment would likely require intrusive soil sampling using a targeted sampling point approach to address the identified areas of environmental concern; and
- Likely future land use options should be identified prior to undertaking further assessment works, to enable appropriate human and environmental health exposure scenarios to be considered during those assessment works.

5 CONCEPTUAL SITE MODEL

5.1 Areas of Environmental Concern and Contaminants of Potential Concern

A review of available site history data and observations made during the site walkover indicated a number of areas of environmental concern (AEC) and contaminants of potential concern (COPC) may be present on the site. These AEC and COPC are presented in Table 1 and Figure 3.

Table 1 Areas of Environmental Concern and Contaminants of Potential Concern

ID	AEC	Activity of Concern	Contaminants of Potential Concern
AEC01	Tennis court and immediate surrounds	Uncontrolled filling	Hydrocarbons, metals, asbestos, aesthetics
AEC02	Horse shoe area of apartment building	Uncontrolled filling	Hydrocarbons, metals, asbestos, aesthetics
AEC03	Former building footprint	Demolition	Metals, asbestos and aesthetics
AEC04	Former building footprint	Demolition	Metals, asbestos and aesthetics
AEC05	Lot 8	Former commercial activities (Dairy Farmers, blacksmith and ice storage)	Hydrocarbons, metals, asbestos, aesthetics

5.2 Receptors and Pathways

5.2.1 Proposed Land Use Scenario

It is understood that the proposed redevelopment concept for the site includes the following:

- Two to three basement levels of vehicle parking across the majority of the site footprint;
- High density residential units; and
- A ground floor child care facility.

Based on this redevelopment concept, it is considered reasonable to adopt a 'low density residential' land use exposure scenario with access to soils (to accommodate the more sensitive land use of child care facility), for a contamination exposure assessment.

5.2.2 Human Health – Direct Contact

It is considered appropriate to assess whether a direct contact exposure risk for low density residential occupants may be present on the site.

5.2.3 Human Health – Inhalation / Vapour Intrusion

It is considered appropriate to assess whether an inhalation (vapour intrusion) exposure risk for low density residential occupants may be present on the site.

5.2.4 Aesthetics

No visual evidence of widespread or significant staining was observed on the hardstand surface of the site. While it is considered that the ground floor development concept would prevent receptor visual exposure to potential sub surface visual aesthetic impacts, an assessment for the presence of malodorous sub surface soils on the site should be made.

5.2.5 Ecological – Terrestrial Ecosystems

NEPC (1999) requires a pragmatic risk-based approach should be taken in applying ecological investigation and screening levels in residential and commercial / industrial land use settings.

It is noted that the redevelopment concept will include demolition of existing site improvements, excavation of two to three basement levels across the majority of the site and construction of multi-storey buildings across much of the site, which will likely result in removal of a large portion of current soils on site to depths of six to nine metres below current ground level. It is therefore considered that this limits the environmental values that require consideration (i.e. support of plant growth) in the context of current site soils. It is also noted that SLR (2015) reported that no evidence of phytotoxic impact was observed on site.

Further assessment of unacceptable risk to terrestrial ecosystems is considered not warranted.

5.2.6 Drinking Water

There are no registered drinking water bores in the area and a reticulated drinking water is present in the area that the site is located in.

Further assessment of this groundwater value at the site is considered not warranted.

5.2.7 Recreational Water Use

The nearest hydraulically down gradient surface water for the site is considered to be Alexandra Canal.

There are no surface water bodies present on the site. It is considered likely that groundwater on the site would flow towards the east and/or north, towards the surface water body of Gordon Creek, which is unlikely to be used for swimming, boating or wading.

SLR considers that Gordon Creek is unlikely to be used for primary or secondary recreation purposes and is therefore not considered to be an environmental value.

Further assessment of recreational water use as a groundwater value is considered not warranted.

5.2.8 Agricultural (Irrigation and Stock Watering)

There are no registered groundwater bores onsite or down gradient of the site, registered for agricultural use. Regional urban development is considered likely to prevent agricultural activities being undertaken both on site and on surrounding land.

Further assessment of this groundwater value is considered not warranted.

5.2.9 Aquatic Ecosystems

The nearest likely aquatic ecosystem down gradient of the site is approximately 750m away (Gordon Creek, considered to be a freshwater environment in the upstream portion). Given the likely nature of potential contamination at the site and the significant distance of Gordon Creek from the site, it is considered that Gordon Creek is unlikely to be a material receptor of potential groundwater contamination from this site.

Further assessment of this groundwater value is considered not warranted.

6 DATA QUALITY OBJECTIVES

Data quality objectives (DQO) have been developed using the seven step processes described in

- NSW DEC 2006, Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (2nd edition).

6.1 Step 1 – State the Problem

The objectives are to:

- Assess the potential for unacceptable human health exposure risks to be present in the identified areas of environmental concern, in the context of land contamination and a high density residential, ground floor child care / residential and basement car parking land use scenario;
- Provide advice on the suitability of the site (in the context of land contamination) for the proposed land use scenario; and
- Provide recommendations for additional investigation, management or remediation of the site (if warranted).

The main problems are:

- How should relevant site media be assessed;
- What sampling layout should be used; and
- What contaminants should be analysed for and by what method to be useful for assessment.

6.2 Step 2 – Identify the Decision

The decisions that need to be made during this project include:

- Is the field and laboratory analytical data suitable for assessing the quality of the media being assessed;
- Does contamination in soils on the site present an unacceptable exposure risk for the adopted land use scenario; and
- Is the site suitable (in the context of land contamination) for the proposed redevelopment concept.

6.3 Step 3 – Identify Inputs to the Decision

The primary inputs to assessing the above include:

- the site history made available;
- location, distribution and intervals of sampling at the site;
- data collected during the assessment, including field measurements, field observations and laboratory analysis results;
- outcomes of the assessment of the quality of collected data;
- adopted exposure risk assessment criteria.

Exposure risk assessment criteria will be adopted from:

- National Environment Protection Council (NEPC) 1999, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM), as amended in 2013'.
- Friebel, E & Nadebaum, P 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report No. 10'.

6.3.1 Human Health - Direct Contact

The relevant direct contact:

- Health-Based Investigation Levels (HILs) for low density residential in Table 1A (1) in NEPC (1999); and
- Health Screening Levels (HSL) for low density residential listed in Table B4 of Friebel, E & Nadebaum, P (2011);

are adopted for this assessment.

6.3.2 Human Health – Inhalation / Vapour Intrusion

For the proposed land use exposure scenario, the relevant soil HSL for vapour intrusion listed in Table 1A (3) in NEPC (1999), are adopted for this assessment.

Should evidence of petroleum hydrocarbon contamination be identified in site soils (e.g. significant odours, elevated PID readings), then assessment of soil vapour intrusion risk should be considered (against soil vapour HSLs for vapour intrusion in Table 1A(5) in NEPC (1999)).

6.3.3 Human Health – Asbestos

NEPC (1999) provides health screening levels for asbestos contamination in soil, which are based on specific land use exposure scenarios, for three forms of asbestos: bonded asbestos containing material (ACM), friable asbestos (FA) and asbestos fines (AF). These health screening levels are provided in Table 2.

Table 2 Health Screening Levels for asbestos contamination in soil

Form of asbestos	Health Screening Level (W/W)			
	Residential A	**Residential B**	**Recreational C**	**Commercial/Industrial**
ACM	0.01%	0.04%	0.02%	0.05%
FA and AF	0.001%			
All forms of asbestos	No visible asbestos in surface soil			

The laboratory method for analysis of asbestos in bulk materials is based on AS 4964-2004. Consequently, a practical quantification limit equal to or less than 0.001% by weight is not adopted and the limit is 0.1g/kg (equivalent to 0.01% w/w). For the purposes of this project, criteria of “no visible asbestos containing materials in surface soils (top 10cm)” and “no asbestos fibres detected in samples using trace analysis techniques” has been adopted as initial screening criteria.

6.3.4 Petroleum Hydrocarbon Compounds – Management Limits

NEPC (1999) advises that management limits for petroleum hydrocarbon compounds need to be considered to minimise the potential effects of:

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

For the proposed land use exposure scenario, the management limits for commercial / industrial in Table 1 B(7) of NEPC (1999), are adopted for this project. Specific management limits (relevant to soil texture) will be adopted based on field assessment of predominant soil types encountered during intrusive investigations i.e. coarse grain (sands) versus fine grain (silts and clays).

6.3.5 Aesthetics

NEPC (1999) requires that aesthetic quality of accessible soils be considered even if testing suggests that the concentrations of contaminants of concern are within acceptable limits.

No specific numerical guidelines have been assigned for aesthetics. However the NEPM 2013 indicates that professional judgement with regard to quantity, type and distribution of foreign material and/or odours in relation to the specific land use and its sensitivity should be employed.

The following circumstances are considered likely to trigger further aesthetic assessment:

- highly malodorous soils or extracted groundwater (e.g. strong residual petroleum hydrocarbon odours, hydrogen sulphide in soil or extracted groundwater, organo-sulfur compounds);
- hydrocarbon sheen on surface water;
- discoloured chemical deposits or soil staining with chemical waste other than of a very minor nature;
- large monolithic deposits of otherwise low risk material, e.g. gypsum as powder or plasterboard, cement kiln dust;
- presence of putrescible refuse including material that may generate hazardous levels of methane; and
- soils containing residue from animal burial.

There are no specific numeric aesthetic guidelines, however site assessment requires balanced

- consideration of the quantity, type and distribution of foreign material or odours in relation to the
- specific land use and its sensitivity. For example, higher expectations for soil quality would apply to
- residential properties with gardens compared with industrial settings.

General assessment considerations will include:

- that chemically discoloured soils or large quantities of various types of inert refuse particularly if unsightly, may cause ongoing concern to site users;
- the depth of the materials, including chemical residues, in relation to the final surface of the site; and
- the need for, and practicality of, any long-term management of foreign material.

In some cases, documentation of the nature and distribution of the foreign material may be sufficient to address concerns relating to potential land use restrictions.

In arriving at a balanced assessment, the presence of small quantities of non-hazardous inert material and low odour residue (for example, weak petroleum hydrocarbon odours) that will decrease over time will not be a cause of concern or limit the use of a site in most circumstances. Similarly, sites with large quantities of well-covered known inert materials that present no health hazard such as brick fragments and cement wastes (for example, broken cement blocks) will be of low concern for the proposed land use scenario.

However, caution will be applied when assessing large quantities of various fill types and demolition rubble are present.

6.4 Step 4 – Define the Study Boundaries

6.4.1 Spatial Boundaries

The horizontal boundary of the project is defined by the boundary of the site.

The vertical boundary of the project for soils is defined by the depth of potentially impacted material.

6.4.2 Temporal Boundaries

The temporal boundaries of investigation works will be limited by:

- natural daylight working hours; and
- levels of precipitation which, in the opinion of the environmental consultant, prevents adequate visual observations to be made.

6.5 Step 5 – Develop a Decision Rule

The decision rules for the project will be as follows:

- If the results of the laboratory analytical data and field data quality assessment are acceptable (i.e. comply with the procedures, requirements and limits set out in Section 6.6, then the data will be considered suitable for the purposes of the project. Data will be assessed for completeness, comparability, representativeness, precision and accuracy.
- If the results of the laboratory analytical data are within the adopted assessment criteria and fieldwork observations are acceptable, then the level of contamination in the media assessed will be considered an acceptable exposure risk.

Specifically, a series of if/then statements specific to each area requiring assessment, is presented in Table 3.

Table 3 Decision Rule If/Then Statements

ID	Decision Rule If/Then Statements
AEC01	If analytical results and field observations are less than adopted assessment criteria, then contamination related exposure risks are considered acceptable.
AEC02	If analytical results and field observations are less than adopted assessment criteria, then contamination related exposure risks are considered acceptable.
AEC03	If analytical results and field observations are less than adopted assessment criteria, then contamination related exposure risks are considered acceptable.
AEC04	If analytical results and field observations are less than adopted assessment criteria, then contamination related exposure risks are considered acceptable.
AEC05	If analytical results and field observations are less than adopted assessment criteria, then contamination related exposure risks are considered acceptable.

If the results of laboratory analytical data exceed the adopted assessment criteria or the fieldwork observations are unacceptable, then the level of contamination in the media assessed may require further assessment, management or remediation.

6.6 Step 6 – Specify Acceptable Limits on Decision Errors

There are two types of error:

- deciding that contamination on the site is an acceptable risk for the proposed land use when it is not; and
- deciding that contamination on the site is not an acceptable risk for the proposed land use when it is.

The assessment will aim to conclude with 95% confidence that media in the identified areas of environmental concern do not present an unacceptable risk. Consequently, the 95% upper confidence limit (UCL) statistic will be used to assess the mean concentrations of chemicals of potential concern in soil (where appropriate).

Confidence in the reliability of assessment methods (e.g. field observations, laboratory analysis and data review) will be based on appropriate levels of qualification and/or experience in the personnel undertaking the relevant task.

The data quality indicators set out in Table 4 will be used to assess data for completeness, comparability, representativeness, precision and accuracy.

Table 4 Data Quality Indicators

Completeness	
Field Considerations	*Laboratory Considerations*
All critical locations sampled	All critical samples analysed in accordance with the data quality objectives
All samples collected (from grid and at depth)	All analytes analysed in accordance with the data quality objectives
SOPs appropriate and complied with	Appropriate methods and LORs
Experienced sampler	Sample documentation complete
Documentation correct	Sample holding times complied with
Comparability	
Field Considerations	*Laboratory Considerations*
Same SOPs used on each occasion	Sample analytical methods used (including clean-up)
Experienced sampler	Sample LORs (justify/quantify if different)
Climatic conditions	Same laboratories (justify/quantify if different)
(temperature, rainfall, wind)	Same units (justify/quantify if different)
Same types of samples collected (filtered, size fractions)	
Representativeness	
Field Considerations	*Laboratory Considerations*
Appropriate media sampled in accordance with the data quality objectives	All samples analysed in accordance with the data quality objectives
All media identified in data quality objectives sampled	

Precision	
Field Considerations	*Laboratory Considerations*
SOPs appropriate and complied with	Analysis of: • laboratory and inter-laboratory duplicates • field duplicates • laboratory-prepared volatile trip spikes
Accuracy (bias)	
Field Considerations	*Laboratory Considerations*
SOPs appropriate and complied with	Analysis of: • field blanks • rinsate blanks • reagent blanks • method blanks • matrix spikes • matrix spike duplicates • surrogate spikes • reference materials • laboratory control samples • laboratory-prepared spikes

6.7 Step 7 – Optimise the Design for Obtaining Data

6.7.1 Sampling Frequency and Locations

The site covers an area of approximately 5,800m^2. NSW EPA 1995, 'Contaminated Sites: Sampling Design Guidelines' recommends a minimum of fifteen systematic sampling points to characterise a site of this size. However, given the identified AEC for the site are considered to cover just under two thirds of the site, a reduced sampling point density of thirteen sampling points with a bias towards the identified AEC, is considered appropriate.

6.7.2 Sampling Methodology

6.7.2.1 Soil Test Pits and Boreholes

Test pits and boreholes will be excavated/drilled on site in accordance with the methodology presented in Table 5. Methodology and target depths are based on a number of factors including:

- Contaminant laydown mechanisms;
- Contaminant types;

- Likely depth of contamination; and
- Constraints of plant and equipment.

Table 5 Proposed Soil Borehole Drilling Summary

Sampling Point ID	Sampling Method	Target Depth
TP01 – TP08	Track mounted hydraulic excavator	Up to 1.5m below ground surface or 0.3m into natural material, whichever occurs first
HA01	Hand auger	Up to 1.5m below ground surface or 0.3m into natural material, whichever occurs first
HA02 – HA05	Concrete corer and hand auger	Up to 1.5m below ground surface or 0.3m into natural material, whichever occurs first

6.7.2.2 Soil Sampling

Soil samples will be collected from each sampling point at the surface and then at regular depths thereafter, or where there is evidence of contamination or a change in soil lithology. Materials encountered during sampling will be logged in general accordance with the Unified Soil Classification System (UCS).

6.7.3 Soil Headspace Screening

Soil samples will be screened in the field for ionisable volatile organic compounds (VOC) using a calibrated photo-ionisation detector (PID). Screening results will be recorded on the relevant log.

6.7.4 Photographic Records

Photographs of test pits and other features of interest relevant to the assessment will be taken.

6.7.5 Location Records

The location of each sampling point will be recorded by hand on a site plan.

6.7.6 Sample Identification, Storage and Transport Procedures

Samples will be identified using unique sampling point identifiers and sample depth intervals (e.g. HA03/0.6-0.8 or TP01/0.0-0.2).

Samples will be placed in laboratory prepared containers and zip lock bags, as appropriate. The sample containers will then be placed directly into an insulated chest containing ice, for transportation to the NATA accredited analytical laboratory with the chain of custody (COC) form recording the following information:

- project job number;
- date of sampling;
- sample identifier;
- sample matrix and container type;
- preservation methods used;
- analysis requirements for each sample;
- turnaround times required for analysis; and

- names and signatures of sender and receiving laboratory.

A copy of the chain of custody will be kept in the job file. Samples will be transported to the laboratory with sufficient time to perform analysis within the applicable holding period.

The proposed sample storage and preservation requirements for the likely contaminants of potential concern are presented in Table 6.

Table 6 Soil Sample Storage and Preservation Requirements

Analyte	Sample Volume and Container Type	Sample Container Preservative	Storage and Transport
TRH C6-C10	1 x 250mL glass	Nil	Ice and insulated container
TRH >C10-C40	1 x 250mL glass	Nil	Ice and insulated container
BTEX	1 x 250mL glass	Nil	Ice and insulated container
VOC	1 x 250mL glass	Nil	Ice and insulated container
PAH	1 x 250mL glass	Nil	Ice and insulated container
Phenol	1 x 250mL glass	Nil	Ice and insulated container
PCB	1 x 250mL glass	Nil	Ice and insulated container
OCP	1 x 250mL glass	Nil	Ice and insulated container
Metals	1 x 250mL glass	Nil	Ice and insulated container
Asbestos	1 x 50-100g zip lock bag	Nil	Nil

6.7.7 Laboratory Analysis

Selected samples will be scheduled for analysis, based on identified contaminants of potential concern for the AEC that the sampling point is located in, field observations and headspace screening results, up to the quantities presented in Table 7.

Table 7 Laboratory Analytical Quantities

Sampling Point ID	TRH/BTEX	PAH	OCP	Metals	Asbestos
TP01		1	1	2	1
TP02	1	2		1	1
TP03	1	1		2	1
TP04			1	2	1
TP05	1	2		2	1
TP06	1	3		2	1
TP07	1	2	1	3	1
TP08	1	3	1	2	1
HA01	1	1	1	2	1
HA02		1		2	1
HA03	1	2		3	1
HA04	1	1		2	1
HA05				2	1

In the event that field screening of soil samples identifies a potential for contamination to be present beyond that which can be assessed with the analytical quantities nominated in Table 7, analysis of additional soil samples (or additional analytes) will be considered.

6.7.8 Fieldwork Quality Assurance / Quality Control

6.7.8.1 Decontamination Procedures

Non-disposable sampling equipment will be decontaminated before and between sampling events to reduce the potential for cross contamination to occur between samples. Decontamination will include the following procedure:

- washing non-disposable sampling equipment in a solution of phosphate free detergent (e.g. Decon 90) and potable water; and
- rinsing with distilled water.

6.7.8.2 Intra-laboratory Duplicates

Intra-laboratory field duplicates will be collected on an average frequency of one sample per twenty samples collected (5%), with a minimum of one per batch (excluding samples collected for asbestos analysis). The analytical results of the two spilt samples will be compared to assess the precision of the sampling protocol, and provide an indication of variability in the sample source. The relative percentage difference (RPD) acceptance limits will be:

- No limit analytical results <10 times LOR
- 50% analytical results 10-20 times LOR
- 30% analytical results >20 times LOR

The RPD exceedances (if any) will be assessed to determine whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

6.7.8.3 Inter-Laboratory Duplicates

Inter-laboratory field duplicates will be collected on an average frequency of one sample per twenty samples collected (5%) with a minimum of one per batch (excluding samples collected for asbestos analysis). The analytical results of the two spilt samples will be compared to assess the precision of the sampling protocol, and provide an indication of variability in the sample source. The relative percentage difference (RPD) acceptance limits will be:

- No limit analytical results <10 times LOR
- 50% analytical results 10-20 times LOR
- 30% analytical results >20 times LOR

The environmental consultant will assess RPD exceedances (if any) and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

6.7.8.4 Rinsate Samples

A rinsate sample will be collected and analysed for each day of field work carried out, where non-disposable sampling equipment has been used. The rinsate sample will be analysed for generally the same contaminants of potential concern that the samples are being analysed for (excluding asbestos).

The acceptance limit shall be the detected concentrations of the contaminants of concern analysed for in the sample, are less than the applicable LOR. The environmental consultant will assess the significance of the acceptance limit exceedance and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

6.7.8.5 Trip Blanks

Trip blanks will be used and analysed for a batch of samples provided to the laboratory, where the contaminants being analysed for, are volatile in nature (e.g. BTEX or TPH C_6-C_{10}). The trip blank will be analysed for BTEX.

The acceptance limit shall be the detected concentrations of BTEX in the trip blank, are less than the applicable LOR. The environmental consultant will assess the significance of acceptance limit exceedances and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

6.7.8.6 Trip Spikes

Trip spikes will be used and analysed for a batch of samples provided to the laboratory, where the contaminants being analysed for, are volatile in nature (e.g. BTEX or TPH C_6-C_{10}). The trip spike will be analysed for BTEX.

The acceptance limit shall be the BTEX recoveries in the trip spike are between 60% and 140%. The environmental consultant will assess the significance of acceptance limit exceedances and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

6.7.9 Laboratory Quality Assurance / Quality Control

6.7.9.1 Laboratory Selection

The primary and secondary laboratories used for this project will be NATA-accredited for the analyses being undertaken.

6.7.9.2 Laboratory Data Quality Indicators

The laboratory data quality will be assessed by checking the following:

- laboratory methods used are NATA accredited;
- laboratory limits of reporting are less than adopted assessment criteria;
- samples are extracted and analysed within holding times; and
- results of method blanks, surrogate, lab control sample, spike recoveries relative percentage differences (RPDs) between primary and duplicate laboratory samples.

Data Quality Indicators (DQI) that will be adopted for quality control samples are presented in Table 8.

Table 8 Laboratory Data Quality Indicators

Type of Quality Control Sample	Control Limit	
Method Blank	Analytical result < LOR	
Surrogate % Recovery	50% - %150%	
Labe Control Sample % Recovery	70% - 130%	
Spike % Recovery	70% - 130% for inorganics 60% - 140% for organics	
RPD	No limit 50% 30%	Analytical results <10 times LOR Analytical results 10-20 times LOR Analytical results >20 times LOR

Should the results of a laboratory quality control sample exceed the relevant adopted control limit, the laboratory will be requested assess the significance of the exceedance on the quality of the laboratory analytical data for the relevant batch. The environmental consultant will assess the significance of the control limit exceedance and whether the project DQO's can still be addressed. If not, then further sampling and/or analysis may be required.

6.7.9.3 Laboratory Limits of Reporting, Analytical Methods and Holding Times

Laboratory limits of reporting, analytical methods and holding times are presented in Table 9.

Table 9 Limits of Reporting, Methods and Holding Times

Analyte	Limit of Reporting (mg/kg)	Method	Holding Time
BTEX and TRH C6-C10	0.2-0.5	USEPA 5030, 8260B and 8020	14 days
TRH >C10-C40	20-100	USEPA 8015B & C	14 days
PAH	0.1-0.2	USEPA 8270	14 days
VOC	0.1-0.5mg/kg	USEPA8260	14 days
OCP	0.2	USEPA 8081	14 days
PCB	0.2	USEPA 8270	14 days
Phenol	0.1	APHA 4500 P	14 days
Metals	1	USEPA 200	6 months
OCP	0.2	USEPA 8081	14 days
Asbestos	Presence / Absence	AS4964:2004	No limit

6.8 Reporting

A stage 2 detailed site investigation report will be prepared in accordance with the relevant sections of NSW OEH 2011, 'Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites', and will include the following:

- Executive summary;
- Scope of work;
- Site identification;
- Site history summary;
- Site condition and surrounding environment summary;
- Information on geology and hydrogeology;
- Field and laboratory analytical data;
- Field and laboratory data QA/QC assessment;
- Site characterisation; and
- Conclusions and recommendations.

7 FIELDWORK

7.1 Soil Sampling

Soil sampling was undertaken on 6 December 2015. A total of thirteen soil sampling points were set out for the site (TP01 to TP07 and HA01 to HA06).

Test pits were excavated by Ken Coles Excavations Pty Ltd, using a tracked 3.5 tonne hydraulic excavator fitted with a 300mm wide bucket.

Soil bores were drilled by SLR Consulting using a stainless steel hand auger. Concrete core drilling (where required) was undertaken by Concut (NSW) Pty Ltd.

Soil samples were collected from surface soils (or directly beneath the slab), and at regular intervals thereafter, or where there was visual or olfactory evidence of contamination observed.

Collected samples were placed into laboratory prepared jars (with Teflon lined lids) and zip lock bags. Jars and bags were labelled with a project number, sampling point and depth interval, and the date. Samples were placed in insulated containers with ice during storage on site and transport to the laboratory.

The location of each sampling point was recorded on a site plan and these locations are presented in Figure 4.

7.2 Site Specific Geology

Observations of soils encountered at each borehole location were recorded and are presented in logs in Appendix B.

7.2.1 Fill Material

Fill material (including topsoils) was encountered in boreholes to depths ranging from 0.3m below ground level to at least 1.1m below ground level.

Details of fill soils encountered are included in the test pit and borehole logs presented in Appendix B. Fill soils encountered in boreholes were primarily comprised of silty SAND, clayey SAND, CLAY, gravelly SAND, gravelly CLAY and silty GRAVEL.

Anthropogenic materials encountered in the fill material generally included ash, slag gravels, sandstone gravels, trace glass, trace metal, trace concrete.

7.2.2 Natural Material

Natural material was encountered in test pits starting at depths ranging from 0.3m to 1.1m below ground surface.

Details of natural materials encountered are included in the test pit and bore hole logs presented in Appendix B. Natural materials encountered in test pits were primarily comprised of CLAY and silty CLAY.

7.3 Odours

Olfactory evidence of odours in soil during the sampling works, were not encountered.

7.4 Staining

Visual evidence of staining in the soil samples collected was not observed.

7.5 Groundwater

Visual evidence of groundwater in the boreholes drilled was not encountered.

7.6 Potential Asbestos Containing Materials

Visual evidence of potential asbestos containing materials (ACM) in the soil samples collected was not encountered.

7.7 Headspace Screening

Headspace screening was undertaken on the samples collected and the results are presented in the test pit and borehole logs in Appendix B. Headspace screening results generally ranged from 0.0ppm to 6.3ppm. The results of the headspace screening indicated a low to negligible potential for ionisable volatile organic compounds to be present in the soils encountered.

8 LABORATORY ANALYSIS

A selection of soil samples were scheduled for laboratory analysis, based on field observations and the contaminants of potential concern identified for the relevant areas of environmental concern (refer to Section 6.7.7).

Copies of the laboratory certificates of analysis are presented in Appendix C.

Tabulated laboratory analytical results are presented in Table LR1.

9 QUALITY ASSURANCE / QUALITY CONTROL

9.1 Fieldwork

9.1.1 Sampling

The sampling was undertaken

- in accordance with SLR's standard operating procedures (SOP). These procedures are based on accepted industry practice for projects of this kind; and
- by a suitably experienced SLR environmental consultant (Craig Cowper);

It is noted that sampling point TP08 (proposed to be a test pit) was changed to a borehole (HA06) as a due to nature and extent of underground services in the vicinity of this sampling point.

The appropriate media (soil) was sampled.

All critical soil sampling points were sampled.

Target sampling depths were achieved at each sampling point, with the exception of sampling points HA01 (auger refusal at 0.5), HA04 (auger refusal at 0.6m) and HA06 (auger refusal at 1.1m). Natural material was not encountered at these three sampling points. The potential for uncharacterised fill material to be present at these sampling points, cannot be precluded.

9.1.2 Sample Identification, Storage and Transport

Soil samples were placed in acid rinsed glass jars with Teflon lined lids and zip lock plastic bags, and stored in skies with ice, for transportation to the analytical laboratory, under chain of custody (COC) protocol. The following information was recorded on the COC:

- project job number;
- date of sampling;
- sample identifier;
- sample matrix and container type;
- preservation methods used;
- analysis requirements for each sample;
- turnaround times required for analysis; and
- names and signatures of sender and receiving laboratory.

Sample receipt advice from the receiving laboratories confirmed that the samples were received chilled (or an attempt to chill the samples was made).

A copy of the chain of custody documentation is presented in Appendix C for both the primary laboratory and the secondary laboratory.

9.1.3 Field Duplicates

A total of 30 primary soil samples were schedule for chemical analysis for the project.

Two intra-laboratory duplicates were collected and analysed (a rate of 7% which addresses the minimum acceptance criterion of 5%).

Two inter-laboratory duplicates were collected and analysed (a rate of 7% which addresses the minimum acceptance criterion of 5%).

The parent / duplicate sample relationships and associated laboratory analytical data, is presented in Table LR3.

The relative percentage difference (RPD) between the parent sample and duplicates analysed, were within the RPD acceptance criteria, with the following exceptions:

- DUP01 (parent sample TP07/0.0-0.2) had exceeding RPDs for copper and nickel. These exceedances of the adopted RPD assessment criteria are considered likely attributable to heterogeneity within the discrete fill soil sample (rather than sampling or laboratory analysis error), as the samples were not able to be homogenised prior to splitting, due to the potential for volatile contaminants to be present in this AEC. The concentrations of copper and nickel both the parent and duplicate samples, we were well below the adopted investigation criteria for this project; and
- DUP01A (parent sample TP07/0.0-0.2) had exceeding RPDs for arsenic, copper and lead. These exceedances of the adopted RPD assessment criteria are considered likely attributable to heterogeneity within the discrete fill soil sample (rather than sampling or laboratory analysis error), as the samples were not able to be homogenised prior to splitting, due to the potential for volatile contaminants to be present in this AEC. The concentrations of copper and nickel both the parent and duplicate samples, we were well below the adopted investigation criteria for this project.

9.1.4 Trip Spike and Trip Blank

One trip spike and one trip blank was used during the fieldwork and scheduled for BTEXN analysis. The spike and blank sample were receipted by the laboratory. Both the spike and blank were subsequently misplaced by the laboratory and were not able to be analysed.

Samples were stored and transported from the site to the laboratory using industry standard methods (in an insulated container with ice). A review of sample receipt advice indicated that the samples were received at a temperature of 6.9^{o}C. Based on this information, SLR considers that the sample preservation procedures were adequate and the potential for volatile losses from the soil samples during transport and storage is considered to be low to negligible.

A review of the laboratory analytical results indicated that volatile contaminants (e.g. BTEX and VOC) were not unexpectedly detected in the soil samples. The detection of TRH >C10-C16 in sample BH04/1.8-2.0 was not unexpected, given the observation of hydrocarbon odour in this sample and the elevated PID result for this sample. Based on this information, SLR considers that the potential for cross contamination of volatile contaminants between samples, during storage and transport, was negligible.

9.1.5 Rinsate Blanks

A rinsate blank sample (RB01) was collected off the hand auger head and submitted for laboratory analysis. The analyte concentrations in the rinsate sample were less than the laboratory limit of reporting, indicating that decontamination procedures of non-disposable sampling equipment were adequate. The results of the rinsate analysis are presented in Appendix C.

9.1.6 Calibration

One photoionisation detector (PID) was used during the fieldwork. A copy of the daily calibration record for the PID is presented in Appendix D.

9.2 Laboratory

Copies of the laboratory certificates of analysis, data quality objective reports, sample receipt advice and chain of custody records for the primary and secondary laboratories are presented in Appendix C.

The results of an assessment of laboratory analytical data quality indicate that:

- Laboratory analysis of the samples was undertaken by NATA accredited environmental testing laboratories (SGS Environmental, Alexandria NSW and Eurofins MGT, Lane Cove West NSW);
- The identified contaminants of potential concern were analysed for;
- The laboratory analytical methods and laboratory limits of reporting were appropriate for the objective of this project;
- The laboratory analytical methods and laboratory limits of reporting were consistent between the primary and secondary analytical laboratories;
- The same analytical laboratory was used for analysing all primary samples;
- The same analytical laboratory was used for analysing all secondary samples;
- Samples were extracted and analysed within applicable laboratory holding times;
- The laboratory sample surrogate recoveries were within laboratory acceptance criteria;
- The laboratory method blank analytical results were less than the laboratory limit of reporting;
- The relative percentage differences (RPD) between samples and laboratory prepared duplicates, were within the laboratories adopted acceptance criteria, with the following exceptions:
    - two metal analytes in SGS batch SE146852. The laboratory reported that these exceedances failed acceptance criteria due to sample heterogeneity;
- The laboratory control sample recoveries were within the laboratory's adopted acceptance criteria;
- The laboratory matrix spike recoveries were within the laboratory's adopted acceptance criteria, with the following exceptions:
    - Two PAH analytes in SGS batch SE146852. The laboratory reported that recovery failed acceptance criteria due to sample heterogeneity.

A copy of the laboratory data quality indicators is presented in Appendix C.

9.3 Data Quality Indicators

The assessment of field and laboratory data was compared to the data quality indicators adopted for the project. This assessment is presented in Table 10.

Table 10 Data Quality Indicator Assessment Results

Completeness		
Field Considerations	*Laboratory Considerations*	*Comment*

All critical locations sampled All samples collected (from grid and at depth) SOPs appropriate and complied with Experienced sampler Documentation correct	All critical samples analysed in accordance with the data quality objectives All analytes analysed in accordance with the data quality objectives Appropriate methods and LORs Sample documentation complete Sample holding times complied with	Acceptable
Comparability		
Field Considerations	*Laboratory Considerations*	*Comment*
Same SOPs 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) Sample LORs (justify/quantify if different) Same laboratories (justify/quantify if different) Same units (justify/quantify if different)	Acceptable
Representativeness		
Field Considerations	*Laboratory Considerations*	*Comment*
Appropriate media sampled in accordance with the data quality objectives All media identified in DQO sampled	All samples analysed in accordance with the data quality objectives	Acceptable
Precision		
Field Considerations	*Laboratory Considerations*	*Comment*
SOPs appropriate and complied with	Analysis of: • laboratory and inter laboratory duplicates • field duplicates • laboratory-prepared volatile trip spikes	Acceptable
Accuracy (bias)		
Field Considerations	*Laboratory Considerations*	*Comment*

SOPs appropriate and complied with	Analysis of: • field blanks • rinsate blanks • reagent blanks • method blanks • matrix spikes • matrix spike duplicates • surrogate spikes • reference materials • laboratory control samples • laboratory-prepared spikes	Acceptable

The data is therefore considered to be adequately complete, comparable, representative, precise and accurate for the purpose of interpretation within the objective of this project. However, it is noted that the potential for uncharacterised fill material to be present at sampling points HA01, HA04 and HA06 cannot be precluded. This uncertainty must be considered when drawing conclusions about the contamination status of the site.

10 DISCUSSION

A laboratory analytical data summary table for this investigation is presented in the attached Table LR1. The data contained in that summary table has been used for the purposes of assessing the contamination status of the site, in the context of the proposed land use scenario.

10.1 Human Health - Direct Contact Exposure Risks (Soils)

10.1.1 BTEX

The concentrations of benzene, toluene, ethyl benzene and xylenes in the site investigation samples analysed were less than the adopted investigation criteria.

Further assessment, management or remediation of BTEX direct contact exposure risks in soil at the site is considered not warranted.

10.1.2 TRH

The concentrations of TRH C6-C10, TRH >C10-C16, TRH >C16-C34 and TRH >C34-C40 in the site investigation samples analysed were less than the adopted investigation criteria.

Further assessment, management or remediation of TRH direct contact exposure risks in soil at the site is considered not warranted.

10.1.3 PAH

The concentrations of relevant PAH compounds in the site investigation samples analysed were less than the adopted investigation criteria, with the exception of carcinogenic PAH as benzo(a)pyrene TEQ (tier 1 screening criterion of 3 mg/kg) in:

- 3.8mg/kg in sample TP01/0.0-0.2;
- 3.1mg/kg in sample TP06/0.5-0.7;
- 3.5mg/kg in sample TP07/0.7-0.9; and
- 3.5mg/kg in sample HA06/0.5-0.7.

It is noted that carcinogenic PAH (including a range of PAH compounds) was detected in sample HA03/0.7-0.9. This sample was collected from inferred natural material. However, the presence of PAH compounds could indicate that the inferred natural material may have been fill material.

Further assessment, management or remediation of PAH compounds direct contact exposure risks in soil at the site is considered warranted.

10.1.4 Organochlorine Pesticides (OCP)

The concentrations of relevant OCP compounds in the site investigation samples analysed were less than the adopted investigation criteria.

Further assessment, management or remediation of OCP compounds direct contact exposure risks in soil at the site is considered not warranted.

10.1.5 Metals

The concentrations of metals in the site investigation samples analysed were less than the adopted investigation criteria, with the exception of lead (Tier 1 screening criterion of 300mg/kg) in the following samples:

- 400mg/kg in TP01/0.0-0.2; and
- 340mg/kg in TP07/0.7-0.9.

Further assessment, management or remediation of lead direct contact risks in soil at the site is considered warranted.

10.1.6 Asbestos

No respirable fibres were detected in the samples analysed using trace analysis techniques.

Further assessment, management or remediation of asbestos in soils at the site is considered not warranted.

10.2 Human Health – Vapour Intrusion (Soils)

10.2.1 Soil Sample Ionisable Volatile Organic Compounds

The results of the headspace screening indicated a low potential for ionisable volatile organic compounds to be present in the soils encountered.

10.2.2 BTEX

The concentrations of benzene, toluene, ethyl benzene and xylenes in the site investigation samples analysed were less than the adopted investigation criteria.

Further assessment, management or remediation of BTEX vapour intrusion risks in soil at the site is considered not warranted.

10.2.3 TRH

The concentrations of TRH C6-C10 (F1) and TRH >C10-C16 (F2) in the site investigation samples analysed were less than the adopted investigation criteria.

Further assessment, management or remediation of TRH vapour intrusion risks in soil at the site is considered not warranted.

10.3 TRH Management Limits (Soils)

The concentrations of TRH C6-C10, TRH >C10-C16, TRH >C16-C34 and TRH >C34-C40 in the site investigation samples analysed were less than the adopted management limit investigation criteria).

On this basis, further assessment, management or remediation of TRH in the context of

- The formation of observable light non-aqueous phase liquid (LNAPL);
- Fire and explosive hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services by hydrocarbons,

is considered not warranted.

10.4 Aesthetics (Soils)

Evidence of widespread or significant staining, buried wastes, odour or potential asbestos containing materials, was not observed in the soils encountered during drilling works. Further assessment, management or remediation of these potential aesthetic impacts on site is considered not warranted.

11 CONCLUSIONS AND RECOMMENDATIONS

Based on a review of the available desktop search data, observations made during fieldwork, and the results of sample laboratory analysis (in the context of the proposed masterplan redevelopment land use scenario at the site), SLR makes the following conclusions:

- The detected concentrations of the identified contaminants of potential concern in soils in the areas of environmental concern on the site, are considered unlikely to present an unacceptable soil vapour or vapour intrusion human health exposure risk;
- The detected concentrations of the identified contaminants of potential concern in soils in the areas of environmental concern on the site, are considered unlikely to present an unacceptable direct contact human health exposure risk, with the exception of lead at sampling point TP01 and TP07, and carcinogenic PAH (as benzo(a)pyrene TEQ) at sampling points TP01, TP06, TP07 and HA06;
- The potential for unacceptable contamination human health exposure risks to be present in uncharacterised fill soils in the vicinity of sampling points HA01, HA04 and HA06, cannot be precluded;
- It is considered that the site could be made suitable for the proposed land use scenario, subject to:
    - further assessment and management/remediation (if warranted) of identified lead and carcinogenic PAH impacts in soil, taking into consideration future detailed design of the proposed development;
    - addressing uncertainty around fill material in the vicinity of sampling points HA01, HA04 and HA06, taking into consideration future detailed design of the proposed development, and the limitations of undertaking further investigations while underground services are still present in the vicinity of HA06;
- In the event that management and/or remediation of lead or carcinogenic PAH in soils is required, there are well established and industry accepted methods available for addressing this form of contamination. Management and/or remediation options could include in-situ containment, ex-situ containment, or offsite disposal;
- Hazardous materials including but not limited to asbestos, that may be present in structures on the site, should be appropriately managed / removed, and appropriate clearances obtained from a suitably experienced occupational hygienist or environmental consultant, before demolition of those structures. This will assist in mitigating potential for future land contamination to occur during demolition, which can happen if hazardous materials are not managed appropriately; and
- Further contamination assessment works at the site should be undertaken by a suitable experienced environmental consultant.

This report must be read in conjunction with the limitations set out in Section 13 of this report.

12 REFERENCES

Friebel, E & Nadebaum, P 2011, 'Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 2: Application document', CRC CARE Technical Report No. 10.

National Environment Protection Council (NEPC) 1999a, 'Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure (NEPM) as amended in May 2013'.

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SLR Consulting 2015, 'Stage 1 Preliminary Site Investigation, Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564, 259-271 Pacific Highway, Lindfield, NSW' dated 20 February 2015, ref: 610.14433-R3.

13 LIMITATIONS

This report is for the exclusive use of Ku-ring-gai Council. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting.

This report has been prepared based on the scope of services (see below). SLR Consulting cannot be held responsible to the Client and/or others for any matters outside the agreed scope of services. Other parties should not rely upon this report and should make their own enquiries and obtain independent advice in relation to such matters.

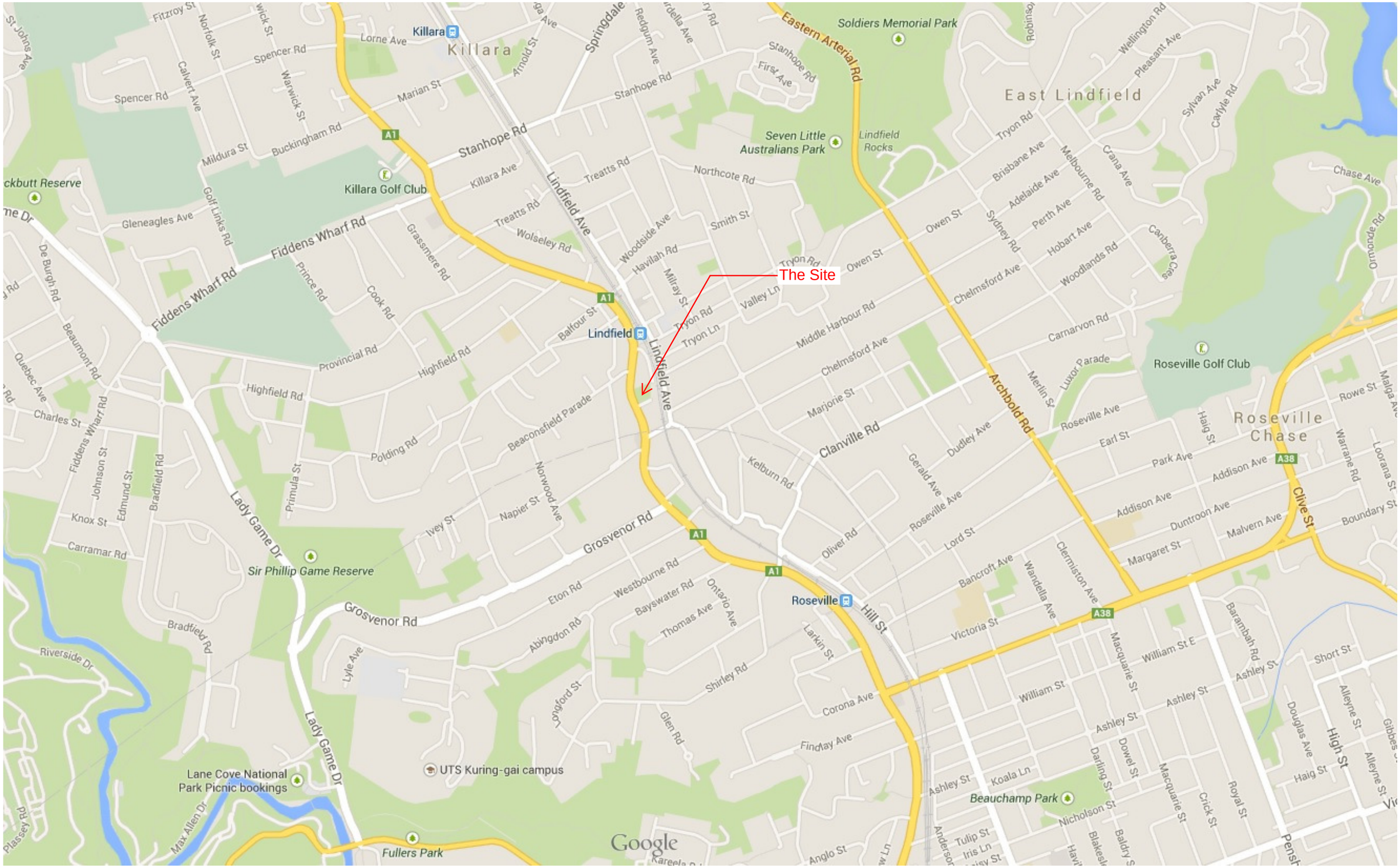
This report has been prepared by SLR Consulting with reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected (data, surveys, analyses, designs, plans and other information), which has been accepted in good faith as being accurate and valid.

It should be noted that many investigations are based upon an assessment of potentially contaminating processes which may have occurred historically on the site. This assessment is based upon historical records associated with the site. Such records may be inaccurate, absent or contradictory. In addition documents may exist which are not readily available for public viewing.

Except where it has been stated in this report, SLR Consulting has not verified the accuracy or completeness of the data relied upon. Statements, opinions, facts, information, conclusions and/or recommendations made in this report ("conclusions") are based in whole or part on the data obtained, those conclusions are contingent upon the accuracy and completeness of the data. SLR Consulting cannot be held liable should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to SLR Consulting leading to incorrect conclusions.

Should the report be reviewed for any reason, the report must be reviewed in its entirety and in conjunction with the associated Scope of Services. It should be understood that where a report has been developed for a specific purpose, for example a due diligence report for a property vendor, it may not be suitable for other purposes such as satisfying the needs of a purchaser or assessing contamination risks for classifying the site. The report should not be applied for any purpose other than that originally specified at the time the report was issued.

Report logs, figures, laboratory data, drawings, etc. are generated for this report by SLR consultants (unless otherwise stated) based on their individual interpretation of the site conditions at the time the site visit was undertaken. Although SLR consultants undergo training to achieve a standard of field reporting, individual interpretation still varies slightly. Information should not under any circumstances be redrawn for inclusion in other documents or separated from this report in any way.



SLR	2 Lincoln Street, Lane Cove, NSW 2066 Australia	T: +61 2 9428 8100 sydney@slrconsulting.com www.slrconsulting.com	Stage 2 Detailed Site Investigation Ref: 610.14433.00300	Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564 259-271 Pacific Highway, Lindfield, NSW	16 December 2015	N Figure 1 Site Locality Plan

SLR	2 Lincoln Street, Lane Cove, NSW 2066 Australia	T: +61 2 9428 8100 sydney@slrconsulting.com www.slrconsulting.com	Stage 2 Detailed Site Investigation Ref: 610.14433.00300	Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564 259-271 Pacific Highway, Lindfield, NSW	16 December 2015	N	Figure 2 Site Layout Plan

SLR	2 Lincoln Street, Lane Cove, NSW 2066 Australia	T: +61 2 9428 8100 sydney@slrconsulting.com www.slrconsulting.com	Stage 2 Detailed Site Investigation Ref: 610.14433.00300	Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564 259-271 Pacific Highway, Lindfield, NSW	16 December 2015	N	Figure 3 Areas of Environmental Concern

SLR	2 Lincoln Street, Lane Cove, NSW 2066 Australia	T: +61 2 9428 8100 sydney@slrconsulting.com www.slrconsulting.com	Stage 2 Detailed Site Investigation Ref: 610.14433.00300	Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564 259-271 Pacific Highway, Lindfield, NSW	16 December 2015	N	Figure 4 Sampling Point Location Plan

SLR	2 Lincoln Street, Lane Cove, NSW 2066 Australia	T: +61 2 9428 8100 sydney@slrconsulting.com www.slrconsulting.com	Stage 2 Detailed Site Investigation Ref: 610.14433.00300	Lot 1, 2 & 3 in DP212617 and Lot 8 in DP660564 259-271 Pacific Highway, Lindfield, NSW	16 December 2015	N Figure 3 Exceedences of Adopted Investigation Levels

							Sample Name	SE146852.001	SE146852.002	SE146852.003	SE146852.004	SE146852.005	SE146852.006	SE146852.007	SE146852.008	SE146852.009	SE146852.010	SE146852.011	SE146852.012	SE146852.013	SE146852.014
							Description	TP01/0.0-0.2	TP01/0.3-0.5	TP02/0.0-0.2	TP02/0.3-0.5	TP03/0.0-0.2	TP03/0.3-0.5	TP04/0.0-0.2	TP04/0.3-0.5	TP05/0.0-0.2	TP05/0.4/0.6	TP06/0.0-0.2	TP06/0.5-0.7	TP06/1.1-1.3	TP07/0.0-0.2
							Sample Date	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015
							Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyte Name	**Units**	**Direct Contact HIL - Commercial / Industrial D (mg/kg)**	**Vapour Intrusion HSL D 0m to <1m (mg/kg)**	**Vapour Intrusion HSL D 1m to <2m (mg/kg)**	**Management Limits for TPH Fraction F1-F4 in soil (mg/kg)**	**Asbestos HSL (presence / absence)**	**Reporting Limit**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC in Soil																					
Benzene	mg/kg	100	0.5	0.5			0.1	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.
Toluene	mg/kg	14000	160	220			0.1	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.
Ethylbenzene	mg/kg	4500	55	NL			0.1	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.
m/p-xylene	mg/kg						0.2	N.A.	N.A.	<0.2	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2	N.A.	<0.2	N.A.	N.A.	N.A.
o-xylene	mg/kg						0.1	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.
Total Xylenes	mg/kg	12000	40	60			0.3	N.A.	N.A.	<0.3	N.A.	<0.3	N.A.	N.A.	N.A.	<0.3	N.A.	<0.3	N.A.	N.A.	N.A.
Total BTEX	mg/kg						0.6	N.A.	N.A.	<0.6	N.A.	<0.6	N.A.	N.A.	N.A.	<0.6	N.A.	<0.6	N.A.	N.A.	N.A.
Naphthalene	mg/kg	1400	3	NL			0.1	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.
TRH in Soil																					
Benzene (F0)	mg/kg	100	0.5	0.5			0.1	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.
TRH C6-C10	mg/kg	4400			700		25	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.
TRH C6-C10 minus BTEX (F1)	mg/kg		45	70			25	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.
TRH >C10-C16 (F2)	mg/kg	3300			1000		25	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.
TRH >C10-C16 (F2) - Naphthalene	mg/kg		110	240			25	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.	<25	N.A.	<25	N.A.	N.A.	N.A.
TRH >C16-C34 (F3)	mg/kg	4500			2500		90	N.A.	N.A.	<90	N.A.	<90	N.A.	N.A.	N.A.	<90	N.A.	<90	N.A.	N.A.	N.A.
TRH >C34-C40 (F4)	mg/kg	6300			10000		120	N.A.	N.A.	<120	N.A.	<120	N.A.	N.A.	N.A.	<120	N.A.	<120	N.A.	N.A.	N.A.
PAH in Soil																					
Naphthalene	mg/kg	1400					0.1	<0.1	N.A.	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	<0.1	N.A.
2-methylnaphthalene	mg/kg						0.1	<0.1	N.A.	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	<0.1	N.A.
1-methylnaphthalene	mg/kg						0.1	<0.1	N.A.	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	<0.1	N.A.
Acenaphthylene	mg/kg						0.1	**0.3**	N.A.	**0.1**	<0.1	**0.2**	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	**0.2**	<0.1	N.A.
Acenaphthene	mg/kg						0.1	<0.1	N.A.	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	<0.1	N.A.
Fluorene	mg/kg						0.1	<0.1	N.A.	<0.1	<0.1	<0.1	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	<0.1	<0.1	N.A.
Phenanthrene	mg/kg						0.1	**0.6**	N.A.	**0.9**	<0.1	**0.4**	N.A.	N.A.	N.A.	**0.1**	<0.1	<0.1	**0.4**	<0.1	N.A.
Anthracene	mg/kg						0.1	**0.2**	N.A.	**0.3**	<0.1	**0.1**	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	**0.2**	<0.1	N.A.
Fluoranthene	mg/kg						0.1	**2.5**	N.A.	**2.0**	<0.1	**1.6**	N.A.	N.A.	N.A.	**0.4**	<0.1	**0.1**	**1.9**	<0.1	N.A.
Pyrene	mg/kg						0.1	**2.4**	N.A.	**1.4**	<0.1	**1.4**	N.A.	N.A.	N.A.	**0.4**	<0.1	**0.1**	**1.9**	<0.1	N.A.
Benzo(a)anthracene	mg/kg						0.1	**2.0**	N.A.	**0.8**	<0.1	**1.1**	N.A.	N.A.	N.A.	**0.3**	<0.1	**0.1**	**1.6**	<0.1	N.A.
Chrysene	mg/kg						0.1	**1.7**	N.A.	**0.6**	<0.1	**0.9**	N.A.	N.A.	N.A.	**0.3**	<0.1	**0.1**	**1.3**	<0.1	N.A.
Benzo(b&j)fluoranthene	mg/kg						0.1	**2.5**	N.A.	**0.7**	<0.1	**1.2**	N.A.	N.A.	N.A.	**0.3**	<0.1	**0.1**	**1.8**	<0.1	N.A.
Benzo(k)fluoranthene	mg/kg						0.1	**1.4**	N.A.	**0.5**	<0.1	**0.9**	N.A.	N.A.	N.A.	**0.3**	<0.1	**0.1**	**1.2**	<0.1	N.A.
Benzo(a)pyrene	mg/kg						0.1	**2.8**	N.A.	**0.9**	<0.1	**1.6**	N.A.	N.A.	N.A.	**0.4**	<0.1	**0.1**	**2.3**	<0.1	N.A.
Indeno(1,2,3-cd)pyrene	mg/kg						0.1	**1.8**	N.A.	**0.6**	<0.1	**1.1**	N.A.	N.A.	N.A.	**0.3**	<0.1	**0.1**	**1.5**	<0.1	N.A.
Dibenzo(a&h)anthracene	mg/kg						0.1	**0.1**	N.A.	<0.1	<0.1	**0.1**	N.A.	N.A.	N.A.	<0.1	<0.1	<0.1	**0.2**	<0.1	N.A.
Benzo(ghi)perylene	mg/kg						0.1	**1.3**	N.A.	**0.4**	<0.1	**0.8**	N.A.	N.A.	N.A.	**0.2**	<0.1	<0.1	**1.1**	<0.1	N.A.
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)						0.2	**3.8**	N.A.	**1.2**	<0.2	**2.1**	N.A.	N.A.	N.A.	**0.5**	<0.2	<0.2	**3.1**	<0.2	N.A.
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	3					0.3	**3.8**	N.A.	**1.3**	<0.3	**2.1**	N.A.	N.A.	N.A.	**0.6**	<0.3	<0.3	**3.1**	<0.3	N.A.
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)						0.2	**3.8**	N.A.	**1.2**	<0.2	**2.1**	N.A.	N.A.	N.A.	**0.5**	<0.2	**0.2**	**3.1**	<0.2	N.A.
Total PAH (18)	mg/kg	300					0.8	**19**	N.A.	**9.2**	<0.8	**12**	N.A.	N.A.	N.A.	**2.8**	<0.8	**0.9**	**15**	<0.8	N.A.
OCP in Soil																					
Hexachlorobenzene (HCB)	mg/kg	10					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Alpha BHC	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Lindane	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Heptachlor	mg/kg	6					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Aldrin	mg/kg	6					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Dieldrin	mg/kg						0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2
Beta BHC	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Delta BHC	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Heptachlor epoxide	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Alpha Endosulfan	mg/kg	270					0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2
Beta Endosulfan	mg/kg						0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2
Gamma Chlordane	mg/kg	50					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Alpha Chlordane	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
trans-Nonachlor	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Dieldrin	mg/kg						0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2
Endrin	mg/kg	10					0.2	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2
o,p'-DDT	mg/kg	240					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
p,p'-DDT	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
o,p'-DDE	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
p,p'-DDE	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
o,p'-DDD	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
p,p'-DDD	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Endosulfan sulphate	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Endrin Aldehyde	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Methoxychlor	mg/kg	300					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Endrin Ketone	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Isodrin	mg/kg						0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Mirex	mg/kg	10					0.1	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1
Metals in Soil																					
Arsenic, As	mg/kg	100					3	**15**	**10**	**10**	N.A.	**4**	**6**	**3**	**5**	**3**	**8**	**45**	N.A.	**12**	**64**
Cadmium, Cd	mg/kg	20					0.3	**0.8**	<0.3	**0.8**	N.A.	**0.4**	<0.3	<0.3	<0.3	**0.3**	<0.3	**0.8**	N.A.	**0.3**	**0.3**
Chromium, Cr	mg/kg	100					0.3	**16**	**13**	**17**	N.A.	**14**	**15**	**14**	**15**	**13**	**8.4**	**18**	N.A.	**23**	**18**
Copper, Cu	mg/kg	6000					0.5	**57**	**10**	**20**	N.A.	**29**	**9.5**	**15**	**7.5**	**32**	**8.6**	**41**	N.A.	**7.9**	**16**
Lead, Pb	mg/kg	300					1	**400**	**21**	**140**	N.A.	**270**	**26**	**150**	**21**	**210**	**23**	**170**	N.A.	**31**	**79**
Nickel, Ni	mg/kg	400					0.5	**7.3**	**0.7**	**4.3**	N.A.	**3.0**	**1.0**	**2.0**	**1.7**	**2.5**	**0.5**	**40**	N.A.	**2.3**	**4.4**
Zinc, Zn	mg/kg	7400					0.5	**340**	**9.2**	**80**	N.A.	**110**	**12**	**31**	**31**	**61**	**21**	**800**	N.A.	**22**	**76**
Mercury	mg/kg	40					0.01	**0.27**	<0.01	**0.06**	N.A.	**0.31**	<0.01	**0.21**	<0.01	**0.30**	<0.01	**0.33**	N.A.	**0.01**	**0.03**
Asbestos in Soil																					
Asbestos Detected	No unit					Detect	0	No	N.A.	No	N.A.	No	N.A.	No	N.A.	No	N.A.	No	N.A.	N.A.	No

							SE146852.015	SE146852.016	SE146852.017	SE146852.018	SE146852.019	SE146852.020	SE146852.021	SE146852.022	SE146852.023	SE146852.024	SE146852.025	SE146852.026	SE146852.027	SE146852.028	SE146852.029
							TP07/0.7-0.9	TP07/0.9-1.1	HA01/0.0-0.2	HA01/0.3-0.5	HA02/0.0-0.2	HA02/0.2-0.4	HA03/0.05-0.2	HA03/0.4-0.6	HA03/0.7-0.9	HA04/0.05-0.2	HA04/0.2-0.4	HA05/0.05-0.2	HA05/0.2-0.4	HA06/0.0-0.2	HA06/0.5-0.7
							6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015	6-12-2015
							Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyte Name	**Units**	**Direct Contact HIL - Commercial / Industrial D (mg/kg)**	**Vapour Intrusion HSL D 0m to <1m (mg/kg)**	**Vapour Intrusion HSL D 1m to <2m (mg/kg)**	**Management Limits for TPH Fraction F1-F4 in soil (mg/kg)**	**Asbestos HSL (presence / absence)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC in Soil																					
Benzene	mg/kg	100	0.5	0.5			<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Toluene	mg/kg	14000	160	220			<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Ethylbenzene	mg/kg	4500	55	NL			<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
m/p-xylene	mg/kg						<0.2	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	<0.2
o-xylene	mg/kg						<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Total Xylenes	mg/kg	12000	40	60			<0.3	N.A.	<0.3	N.A.	N.A.	N.A.	N.A.	<0.3	N.A.	N.A.	<0.3	N.A.	N.A.	N.A.	<0.3
Total BTEX	mg/kg						<0.6	N.A.	<0.6	N.A.	N.A.	N.A.	N.A.	<0.6	N.A.	N.A.	<0.6	N.A.	N.A.	N.A.	<0.6
Naphthalene	mg/kg	1400	3	NL			<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
TRH in Soil																					
Benzene (F0)	mg/kg	100	0.5	0.5			<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
TRH C6-C10	mg/kg	4400			700		<25	N.A.	<25	N.A.	N.A.	N.A.	N.A.	<25	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH C6-C10 minus BTEX (F1)	mg/kg		45	70			<25	N.A.	<25	N.A.	N.A.	N.A.	N.A.	<25	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH >C10-C16 (F2)	mg/kg	3300			1000		<25	N.A.	<25	N.A.	N.A.	N.A.	N.A.	<25	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg		110	240			<25	N.A.	<25	N.A.	N.A.	N.A.	N.A.	<25	N.A.	N.A.	<25	N.A.	N.A.	N.A.	<25
TRH >C16-C34 (F3)	mg/kg	4500			2500		<90	N.A.	<90	N.A.	N.A.	N.A.	N.A.	<90	N.A.	N.A.	<90	N.A.	N.A.	N.A.	**98**
TRH >C34-C40 (F4)	mg/kg	6300			10000		<120	N.A.	<120	N.A.	N.A.	N.A.	N.A.	<120	N.A.	N.A.	<120	N.A.	N.A.	N.A.	<120
PAH in Soil																					
Naphthalene	mg/kg	1400					<0.1	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
2-methylnaphthalene	mg/kg						<0.1	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
1-methylnaphthalene	mg/kg						<0.1	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Acenaphthylene	mg/kg						**0.2**	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	**0.3**
Acenaphthene	mg/kg						<0.1	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	<0.1
Fluorene	mg/kg						<0.1	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	**0.1**
Phenanthrene	mg/kg						**0.5**	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	**0.1**	N.A.	N.A.	N.A.	**1.4**
Anthracene	mg/kg						**0.2**	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	**0.3**
Fluoranthene	mg/kg						**2.1**	<0.1	**0.2**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.3**	N.A.	**0.1**	N.A.	N.A.	N.A.	**3.1**
Pyrene	mg/kg						**1.9**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.2**	N.A.	**0.1**	N.A.	N.A.	N.A.	**2.8**
Benzo(a)anthracene	mg/kg						**1.6**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.2**	N.A.	<0.1	N.A.	N.A.	N.A.	**2.0**
Chrysene	mg/kg						**1.4**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.2**	N.A.	**0.2**	N.A.	N.A.	N.A.	**1.5**
Benzo(b&j)fluoranthene	mg/kg						**2.1**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.2**	N.A.	**0.1**	N.A.	N.A.	N.A.	**1.6**
Benzo(k)fluoranthene	mg/kg						**1.4**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.2**	N.A.	<0.1	N.A.	N.A.	N.A.	**1.6**
Benzo(a)pyrene	mg/kg						**2.5**	**0.1**	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.3**	N.A.	**0.1**	N.A.	N.A.	N.A.	**2.6**
Indeno(1,2,3-cd)pyrene	mg/kg						**1.8**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.2**	**0.2**	N.A.	<0.1	N.A.	N.A.	N.A.	**1.7**
Dibenzo(a&h)anthracene	mg/kg						**0.2**	<0.1	<0.1	N.A.	N.A.	<0.1	N.A.	<0.1	<0.1	N.A.	<0.1	N.A.	N.A.	N.A.	**0.2**
Benzo(ghi)perylene	mg/kg						**1.3**	<0.1	**0.1**	N.A.	N.A.	<0.1	N.A.	**0.1**	**0.2**	N.A.	<0.1	N.A.	N.A.	N.A.	**1.2**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)						**3.5**	<0.2	<0.2	N.A.	N.A.	<0.2	N.A.	**0.3**	**0.4**	N.A.	<0.2	N.A.	N.A.	N.A.	**3.5**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	3					**3.5**	<0.3	<0.3	N.A.	N.A.	<0.3	N.A.	**0.4**	**0.5**	N.A.	<0.3	N.A.	N.A.	N.A.	**3.5**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)						**3.5**	**0.2**	**0.2**	N.A.	N.A.	<0.2	N.A.	**0.3**	**0.5**	N.A.	<0.2	N.A.	N.A.	N.A.	**3.5**
Total PAH (18)	mg/kg	300					**17**	<0.8	**1.0**	N.A.	N.A.	<0.8	N.A.	**1.5**	**2.1**	N.A.	<0.8	N.A.	N.A.	N.A.	**21**
OCP in Soil																					
Hexachlorobenzene (HCB)	mg/kg	10					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Alpha BHC	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Lindane	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Heptachlor	mg/kg	6					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Aldrin	mg/kg	6					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Dieldrin	mg/kg						N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.
Beta BHC	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Delta BHC	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Heptachlor epoxide	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Alpha Endosulfan	mg/kg	270					N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.
Beta Endosulfan	mg/kg						N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.
Gamma Chlordane	mg/kg	50					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Alpha Chlordane	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
trans-Nonachlor	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Dieldrin	mg/kg						N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.
Endrin	mg/kg	10					N.A.	N.A.	<0.2	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.2	N.A.
o,p'-DDT	mg/kg	240					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
p,p'-DDT	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
o,p'-DDE	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
p,p'-DDE	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
o,p'-DDD	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
p,p'-DDD	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Endosulfan sulphate	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Endrin Aldehyde	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Methoxychlor	mg/kg	300					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Endrin Ketone	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Isodrin	mg/kg						N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Mirex	mg/kg	10					N.A.	N.A.	<0.1	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<0.1	N.A.
Metals in Soil																					
Arsenic, As	mg/kg	100					**8**	**10**	**5**	**6**	**9**	**13**	**15**	**8**	**11**	**3**	**4**	**4**	**6**	**6**	**9**
Cadmium, Cd	mg/kg	20					**0.7**	<0.3	**0.4**	<0.3	**0.5**	<0.3	**0.4**	**0.6**	**0.7**	<0.3	<0.3	**0.4**	<0.3	**0.5**	**1.0**
Chromium, Cr	mg/kg	100					**21**	**19**	**13**	**11**	**17**	**19**	**22**	**18**	**20**	**17**	**17**	**14**	**14**	**16**	**18**
Copper, Cu	mg/kg	6000					**45**	**7.4**	**40**	**12**	**12**	**5.9**	**38**	**29**	**48**	**58**	**34**	**85**	**10**	**77**	**47**
Lead, Pb	mg/kg	300					**340**	**41**	**58**	**24**	**87**	**24**	**58**	**89**	**170**	**26**	**77**	**16**	**15**	**77**	**210**
Nickel, Ni	mg/kg	400					**5.6**	**2.0**	**5.9**	**4.9**	**4.1**	**1.3**	**13**	**11**	**9.3**	**38**	**18**	**49**	**4.0**	**40**	**9.8**
Zinc, Zn	mg/kg	7400					**230**	**26**	**79**	**32**	**89**	**14**	**41**	**120**	**190**	**46**	**56**	**88**	**9.4**	**160**	**220**
Mercury	mg/kg	40					**0.15**	**0.02**	**0.09**	**0.02**	**0.07**	<0.01	**0.08**	**0.07**	**0.07**	**0.12**	**0.11**	**0.02**	<0.01	**0.04**	**0.10**
Asbestos in Soil																					
Asbestos Detected	No unit					Detect	N.A.	N.A.	N.A.	No	No	N.A.	No	N.A.	N.A.	No	N.A.	N.A.	No	No	N.A.

							SE146852.030
							HA06/0.9-1.1
							6-12-2015
							Soil
Analyte Name	**Units**	**Direct Contact HIL - Commercial / Industrial D (mg/kg)**	**Vapour Intrusion HSL D 0m to <1m (mg/kg)**	**Vapour Intrusion HSL D 1m to <2m (mg/kg)**	**Management Limits for TPH Fraction F1-F4 in soil (mg/kg)**	**Asbestos HSL (presence / absence)**	**Result**
VOC in Soil							
Benzene	mg/kg	100	0.5	0.5			N.A.
Toluene	mg/kg	14000	160	220			N.A.
Ethylbenzene	mg/kg	4500	55	NL			N.A.
m/p-xylene	mg/kg						N.A.
o-xylene	mg/kg						N.A.
Total Xylenes	mg/kg	12000	40	60			N.A.
Total BTEX	mg/kg						N.A.
Naphthalene	mg/kg	1400	3	NL			N.A.
TRH in Soil							
Benzene (F0)	mg/kg	100	0.5	0.5			N.A.
TRH C6-C10	mg/kg	4400			700		N.A.
TRH C6-C10 minus BTEX (F1)	mg/kg		45	70			N.A.
TRH >C10-C16 (F2)	mg/kg	3300			1000		N.A.
TRH >C10-C16 (F2) - Naphthalene	mg/kg		110	240			N.A.
TRH >C16-C34 (F3)	mg/kg	4500			2500		N.A.
TRH >C34-C40 (F4)	mg/kg	6300			10000		N.A.
PAH in Soil							
Naphthalene	mg/kg	1400					<0.1
2-methylnaphthalene	mg/kg						<0.1
1-methylnaphthalene	mg/kg						<0.1
Acenaphthylene	mg/kg						<0.1
Acenaphthene	mg/kg						<0.1
Fluorene	mg/kg						<0.1
Phenanthrene	mg/kg						**0.6**
Anthracene	mg/kg						**0.1**
Fluoranthene	mg/kg						**1.5**
Pyrene	mg/kg						**1.3**
Benzo(a)anthracene	mg/kg						**0.9**
Chrysene	mg/kg						**0.8**
Benzo(b&j)fluoranthene	mg/kg						**0.9**
Benzo(k)fluoranthene	mg/kg						**0.7**
Benzo(a)pyrene	mg/kg						**1.3**
Indeno(1,2,3-cd)pyrene	mg/kg						**0.8**
Dibenzo(a&h)anthracene	mg/kg						**0.1**
Benzo(ghi)perylene	mg/kg						**0.6**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)						**1.8**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	3					**1.8**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)						**1.8**
Total PAH (18)	mg/kg	300					**9.7**
OCP in Soil							
Hexachlorobenzene (HCB)	mg/kg	10					N.A.
Alpha BHC	mg/kg						N.A.
Lindane	mg/kg						N.A.
Heptachlor	mg/kg	6					N.A.
Aldrin	mg/kg	6					N.A.
Dieldrin	mg/kg						N.A.
Beta BHC	mg/kg						N.A.
Delta BHC	mg/kg						N.A.
Heptachlor epoxide	mg/kg						N.A.
Alpha Endosulfan	mg/kg	270					N.A.
Beta Endosulfan	mg/kg						N.A.
Gamma Chlordane	mg/kg	50					N.A.
Alpha Chlordane	mg/kg						N.A.
trans-Nonachlor	mg/kg						N.A.
Dieldrin	mg/kg						N.A.
Endrin	mg/kg	10					N.A.
o,p'-DDT	mg/kg	240					N.A.
p,p'-DDT	mg/kg						N.A.
o,p'-DDE	mg/kg						N.A.
p,p'-DDE	mg/kg						N.A.
o,p'-DDD	mg/kg						N.A.
p,p'-DDD	mg/kg						N.A.
Endosulfan sulphate	mg/kg						N.A.
Endrin Aldehyde	mg/kg						N.A.
Methoxychlor	mg/kg	300					N.A.
Endrin Ketone	mg/kg						N.A.
Isodrin	mg/kg						N.A.
Mirex	mg/kg	10					N.A.
Metals in Soil							
Arsenic, As	mg/kg	100					N.A.
Cadmium, Cd	mg/kg	20					N.A.
Chromium, Cr	mg/kg	100					N.A.
Copper, Cu	mg/kg	6000					N.A.
Lead, Pb	mg/kg	300					N.A.
Nickel, Ni	mg/kg	400					N.A.
Zinc, Zn	mg/kg	7400					N.A.
Mercury	mg/kg	40					N.A.
Asbestos in Soil							
Asbestos Detected	No unit					Detect	N.A.

		Sample Name	SE146852.005	SE146852.032	RPD (%)	S15-De08707	RPD (%)		SE146852.014	SE146852.031	RPD (%)	S15-De08707	RPD (%)
		Description	TP03/0.0-0.2	DUP02		DUP02A			TP07/0.0-0.2	DUP01		DUP01A	
		Sample Date	6-12-2015	6-12-2015		6-12-2015			6-12-2015	6-12-2015		6-12-2015	
		Matrix	Soil	Soil		Soil			Soil	Soil		Soil	
Analyte Name	**Units**	**Reporting Limit**	**Result**	**Result**					**Result**	**Result**			
PAH in Soil													
Naphthalene	mg/kg	0.1	<0.1	<0.1	#VALUE!	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	#VALUE!	-	#VALUE!		N.A.	N.A.	-	N.A.	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	#VALUE!	-	#VALUE!		N.A.	N.A.	-	N.A.	-
Acenaphthylene	mg/kg	0.1	0.2	0.1	67	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	#VALUE!	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
Fluorene	mg/kg	0.1	<0.1	<0.1	#VALUE!	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
Phenanthrene	mg/kg	0.1	0.4	0.3	29	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
Anthracene	mg/kg	0.1	0.1	<0.1	#VALUE!	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
Fluoranthene	mg/kg	0.1	1.6	1.4	13	1.7	6		N.A.	N.A.	-	N.A.	-
Pyrene	mg/kg	0.1	1.4	1.3	7	1.8	25		N.A.	N.A.	-	N.A.	-
Benzo(a)anthracene	mg/kg	0.1	1.1	1.0	10	1.1	0		N.A.	N.A.	-	N.A.	-
Chrysene	mg/kg	0.1	0.9	0.9	0	1.3	36		N.A.	N.A.	-	N.A.	-
Benzo(b&j)fluoranthene	mg/kg	0.1	1.2	1.2	0	1.6	29		N.A.	N.A.	-	N.A.	-
Benzo(k)fluoranthene	mg/kg	0.1	0.9	0.8	12	1.3	36		N.A.	N.A.	-	N.A.	-
Benzo(a)pyrene	mg/kg	0.1	1.6	1.4	13	1.7	6		N.A.	N.A.	-	N.A.	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.1	1.1	0	0.9	20		N.A.	N.A.	-	N.A.	-
Dibenzo(a&h)anthracene	mg/kg	0.1	0.1	0.1	0	<0.5	#VALUE!		N.A.	N.A.	-	N.A.	-
Benzo(ghi)perylene	mg/kg	0.1	0.8	0.8	0	1.2	40		N.A.	N.A.	-	N.A.	-
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	2.1	2.0	5	2.2	5		N.A.	N.A.	-	N.A.	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	2.1	2.0	5	2.5	17		N.A.	N.A.	-	N.A.	-
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	2.1	2.0	5	2.7	25		N.A.	N.A.	-	N.A.	-
Total PAH (18)	mg/kg	0.8	12	10	18	13	8		N.A.	N.A.	-	N.A.	-
Metals in Soil													
Arsenic, As	mg/kg	3	4	N.A.	-	N.A.	-		64	63	2	93	**37**
Cadmium, Cd	mg/kg	0.3	0.4	N.A.	-	N.A.	-		0.3	0.4	29	<0.4	#VALUE!
Chromium, Cr	mg/kg	0.3	14	N.A.	-	N.A.	-		18	19	5	16	12
Copper, Cu	mg/kg	0.5	29	N.A.	-	N.A.	-		16	32	**67**	63	**119**
Lead, Pb	mg/kg	1	270	N.A.	-	N.A.	-		79	73	8	46	**53**
Nickel, Ni	mg/kg	0.5	3.0	N.A.	-	N.A.	-		4.4	8.3	**61**	5.0	13
Zinc, Zn	mg/kg	0.5	110	N.A.	-	N.A.	-		76	100	27	77	1
Mercury	mg/kg	0.01	0.31	N.A.	-	N.A.	-		0.03	0.06	67	<0.05	#VALUE!

DETAIL SURVEY

No	SPECIES	HEIGHT	DIA	CROWN SPREAD
28	Pistacia chinensis	5		5
29	Pistacia chinensis	6	-	6
30	Callistemon salignus	5		3
64	Nyssa sylvatica	3		2
65	Chamaecyparis obtusa 'Crippsii'	4		3
66	Magnolia X soulangiana	3		3
67	Chamaecyparis obtusa 'Crippsii'	3		3
68	Chamaecyparis spp	3		3
93	Liriodendron tulipifera	6		6
94	Camellia sasanqua rowX10	5-7		3-5
96	Chamaecyparis spp	3		3
97	Magnolia X soulangiana	3		3
98	Chamaecyparis obtusa 'Crippsii'	4		3
99	Prunus cerosifera 'Nigra'	2,5		2,5
100	Prunus cerosifera 'Nigra'	3		3
136	Camellia sasanqua	4		4

No	SPECIES	HEIGHT	DIA	CROWN SPREAD
137	Pittosporum crassifolium	4		4
138	Vitex trifolia 'Purpurea'	4		4
139	Pittosporum crassifolium	4		4
200	Acer buergeranum	3		2
205	Fraxinus oxycarpa 'Raywoodi	12		18x15
207	Alnus glutinosa	5		4
255	Fraxinus oxycarpa 'Raywoodi	10		12xB
256	Agonis flexuose	7		8x5
257	Diospyros kaki	9		12xB
258	Acmena smithii	9		15
282	Liquidambar styraciflua	12		14
321	Populus yunnanensis	8		8
322	Populus yunnanensis	8		8
323	Acer negundo	8		5
311	Callitris columellaris	12		2
312	Callistemon salignus	9		8

BITUMEN
PART CONVEYANCE No 721 BOOK 2269
95.23 m²
CHAIN WIRE FENCE
SEWER LINE
OVERHEAD ELECTRICITY
TABLE DRAIN
CULVERT
S.M.H.
TOILETS
NORTH SHORE RAILWAY
FENCE
SENIOR CITIZENS RESOURCE CENTRE
FLOOR R.L. 100.52
ROOF 103.47
RIDGE RL 109.78
GROUND FL RL 102.88
TWO STOREY K.O.P.W.A. UNITS
FLOOR SPACE HATCHED 267 m² PER LEVEL
FOOTPRINT 326 m²
UPPER FLOOR R.L. 105.58
RAMP UP
TENNIS COURT
CONCRETE
PATHWAY
SANDSTONE FLAGGING
BATTER
RETAINING WALL
KERB & GUTTER
STAFF PARKING
NO PARKING
TENNIS SHED
ROOF 108.52
UPPER FLOOR R.L. 105.17
GROUND FLOOR R.L. 102.97
PART D.P. 89249
3645 m²
TOP GUTTER R.L. 110.89
TOP PARAPET R.L. 112.19
ROOF R.L. 110.76
SCUDERIA VELOCE MOTORS
Nº 295-303
SHOWROOM FLOOR R.L. 109.86
Nº 283
TOP OF ROOF R.L. 108.93
LINDFIELD LIBRARY
FLOOR 104.32
ROOF 107.89
D.P. 917.9 m²
NO PARKING STAFF ONLY
BITUMEN
212617
783 m²
2
508.9 m²
FLOOR LEVEL 105.58
KU-RING-GAI CENTRE FOR SENIORS
Nº 259
RIDGE R.L. 108.29
EAVE R.L. 108.07
EAVE R.L. 108.42
EDGE OF BITUMEN
DISABLED
2HR 8.00AM-6PM MON-FRI 8.00-12.00 SAT.
CONCRETE GAS MAIN KERB PATH GUTTER
PACIFIC HIGHWAY
RIDGE R.L. 116.18
EAVE R.L. 119.76

No.	DATE	AMENDMENTS	INITIALS
1	11-4-90	BOUNDARIES, DIMENSIONS & AREAS (SUBJECT TO FINAL SURVEY)	
2	16-4-90	SERVICES - GAS, WATER, SEWER, TELEPHONE, ELECTRICITY, DRAINAGE	
3	20-4-90	FLOOR SPACE AND FOOTPRINT AREAS	
4	29-10-92	CAR SPACES AND PARKING SIGNS. 10 MARKED SPACES.	

NOTES

ORIGIN OF LEVELS SSM 36397 R.L. 104.06 PROV. (SUBJECT TO VERIFICATION BY DEPARTMENT OF LANDS.)

UNDERGROUND SERVICES HAVE NOT BEEN EXPOSED AND THEIR LEVEL AND LOCATION SHOULD BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION

REDUCTION RATIO
PLAN 1: 200
CROSS SECTION 1:
LONG. SECT. HOR. 1:
VERT. 1:

APPROVED
MUNICIPAL ENGINEER
/ /19

RECOMMENDED FOR APPROVAL
DESIGN ENGINEER
/ /19

SURVEYED H.D.W.
DATUM A.H.D.
DESIGNED
LEVEL BOOK 503
TRACED JAY
CHECKED
/ /19

DIMENSIONS ARE IN METRES UNLESS NOTED

0 10 20 30 40 50 60 70 80 90 100 150 200 250 300mm

KU - RING - GAI MUNICIPAL COUNCIL

DETAIL SURVEY
265-271 PACIFIC HWY LINDFIELD

SHEET 1 OF

PLAN No. 90-036

TEST PIT AND BOREHOLE LOGS

SLR Consulting Australia Pty Ltd
2 Lincoln Street
Lane Cove NSW
Telephone: 9428 8100
Fax: 9427 8200

TEST PIT NUMBER TP01

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX						**TOPSOIL:** silty SAND, fine to medium grained, brown, trace organics, dry, loose becoming dense with depth.	PID = 4.6ppm	No odour or staining.
			0.5		CL	**CLAY:** medium plasticity, orange/brown, moist, friable.	PID = 1.9ppm	No odour or staining.
			1.0			Borehole TP01 terminated at 0.6m		
			1.5					

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TEST PIT NUMBER TP02

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX						**TOPSOIL:** silty SAND, brown/grey, find to medium grained, dry, loose, trace ash/slag.	PID = 0.0ppm	No odour or staining.
			0.5		CL	**CLAY:** medium plasticity, red/brown, stiff, moist.	PID = 1.3ppm	No odour or staining.
			1.0			Borehole TP02 terminated at 0.7m		
			1.5					

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TEST PIT NUMBER TP03

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX						**TOPSOIL:** silty SAND, fine to medium grained, brown, dry, loose, trace ironstone gravel at 0.1m.	PID = 2.1ppm	No odour or staining. DUP02 + DUP02A.
			0.5		CL	**CLAY:** brown, medium plasticity, dry, stiff.	PID = 2.1ppm	No odour or staining.
			1.0			Borehole TP03 terminated at 0.8m		
			1.5					

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TEST PIT NUMBER TP04

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX						**TOPSOIL:** silty SAND, fine to medium grained, brown, dry, dense, trace organics.	PID = 3.3ppm	No odour or staining.
			0.5		CL	**CLAY:** medium plasticity, moist, stiff to very stiff. Becoming friable and dry.	PID = 1.2ppm	No odour or staining.
			1.0			Borehole TP04 terminated at 0.7m		
			1.5					

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TEST PIT NUMBER TP05

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX						**TOPSOIL:** silty SAND, fine to medium grained, brown, trace shale gravel, some organics.	PID = 4.3ppm	No odour or staining.
					CL	**CLAY:** medium plasticity, brown, very stiff, trace organics with some red mottles.		
			0.5				PID = 1.2ppm	No odour or staining
						Borehole TP05 terminated at 0.8m		
			1.0					
			1.5					
			2.0					

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TEST PIT NUMBER TP06

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX						**FILL:** Clayey SAND, fine to medium grained, brown, trace sandstone gravels, moist, dense.	PID = 6.3ppm	No odour or staining.
			0.5			**FILL:** CLAY, medium plasticity, brown, trace ash, moist, firm to stiff.	PID = 2.4ppm	No odour or staining.
			1.0		CL	**CLAY:** brown, medium plasticity, moist, stiff.	PID = 0.0ppm	No odour or staining.
			1.5			Borehole TP06 terminated at 1.8m		
			2.0					

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TEST PIT NUMBER TP07

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

EXCAVATION CONTRACTOR Ken Coles **SLOPE** --- **BEARING** ---

EQUIPMENT Yanmar 3.5T **TEST PIT LOCATION** _____

TEST PIT SIZE 300mm **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
EX			0.5			**FILL:** CLAY, medium plasticity, brown with some red mottles.	PID = 1.6ppm	No odour or staining. Trace glass at 0.2m, DUP01 + DUP01A
						With trace ash.	PID = 3.6ppm	
			1.0		CL	**CLAY:** medium plasticity, brown, moist, firm to stiff.	PID = 0.7ppm	No odour or staining.
			1.5			Borehole TP07 terminated at 1.4m		
			2.0					

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BOREHOLE NUMBER HA01

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** --- **DATUM** ---

DRILLING CONTRACTOR SLR Consulting Australia Pty Ltd **SLOPE** 90° **BEARING** ---

EQUIPMENT Hand Auger (Stainless Steel) **HOLE LOCATION** ---

HOLE SIZE 82mm (150mm core) **LOGGED BY** CAC **CHECKED BY** CM

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
HA						**FILL:** silty SAND, fine to medium grained, brown, dry, loose, trace slag.	PID = 2.4ppm	No odour or staining.
			0.5			**FILL:** Gravelly SAND, fine to medium grained, brown/yellow, dense, trace metal, trace concrete.	PID = 3.1ppm	No odour or staining.
			1.0			Borehole HA01 terminated at 0.5m		Auger refusal.
			1.5					
			2.0					

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BOREHOLE NUMBER HA02

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** --- **DATUM** ---

DRILLING CONTRACTOR SLR Consulting Australia Pty Ltd **SLOPE** 90° **BEARING** ---

EQUIPMENT Hand Auger (Stainless Steel) **HOLE LOCATION** ---

HOLE SIZE 82mm (150mm core) **LOGGED BY** CAC **CHECKED BY** CM

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
HA						**TOPSOIL:** Silty SAND, brown, trace organics, dry, loose.	PID = 1.3ppm	No odour or staining.
					CL	**CLAY:** medium plasticity, brown, dry, very stiff.	PID = 1.6ppm	No odour or staining.
			0.5					
						Borehole HA02 terminated at 0.7m		Target depth.
			1.0					
			1.5					
			2.0					

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BOREHOLE NUMBER HA03

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

DRILLING CONTRACTOR SLR Consulting Australia Pty Ltd **SLOPE** 90° **BEARING** ---

EQUIPMENT Hand Auger (Stainless Steel) **HOLE LOCATION** _____

HOLE SIZE 82mm (150mm core) **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
DT						**ASPHALT**		.
HA			0.5			**FILL:** Gravelly CLAY, medium plasticity, brown/orange, moist, firm, some ash.	PID = 3.1ppm	No odour or staining.
							PID = 4.2ppm	No odour or staining.
			1.0		SC	**Silty CLAY** medium plasticity, brown, moist, soft to firm.	PID = 2.3ppm	No odour or staining,
			1.5			Borehole HA03 terminated at 1.1m		
			2.0					

BOREHOLE / TEST PIT 610.14433.00300 BORE LOGS.GPJ GINT STD AUSTRALIA.GDT 9-12-15

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BOREHOLE NUMBER HA04

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** --- **DATUM** ---

DRILLING CONTRACTOR SLR Consulting Australia Pty Ltd **SLOPE** 90° **BEARING** ---

EQUIPMENT Hand Auger (Stainless Steel) **HOLE LOCATION** ---

HOLE SIZE 82mm (150mm core) **LOGGED BY** CAC **CHECKED BY** CM

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
DT						**ASPHALT**		
HA						**FILL:** Clayey SAND, fine to medium grained, grey/yellow, moist, dense.	PID = 1.2ppm	No odour or staining.
						FILL: Gravelly CLAY, grey and orange, moist, stiff.	PID = 2.4ppm	No odour or staining.
			0.5					
			1.0			Borehole HA04 terminated at 0.6m		Hand auger refusal.
			1.5					
			2.0					

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BOREHOLE NUMBER HA05

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** --- **DATUM** ---

DRILLING CONTRACTOR SLR Consulting Australia Pty Ltd **SLOPE** 90° **BEARING** ---

EQUIPMENT Hand Auger (Stainless Steel) **HOLE LOCATION** ---

HOLE SIZE 82mm (150mm core) **LOGGED BY** CAC **CHECKED BY** CM

NOTES ---

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
DT						**ASPHALT**		.
HA						**FILL:** Clayey SAND, fine to medium grained, grey/yellow, trace igneous gravels, moist.	PID = 4.3 ppm	No odour or staining.
					CL	**CLAY:** medium plasticity, red with grey mottles, moist, stiff.	PID = 1.2ppm	No odour or staining.
			0.5					
						Borehole HA05 terminated at 0.6m		
			1.0					
			1.5					
			2.0					

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BOREHOLE NUMBER HA06

CLIENT Ku-ring-gai Council **PROJECT NAME** DSI, 259-271 Pacific Highway, Lindfield

PROJECT NUMBER 610.14433.00300 **PROJECT LOCATION** 259-271 Pacific Highway, Lindfield

DATE STARTED 6-12-15 **COMPLETED** 6-12-15 **R.L. SURFACE** _____ **DATUM** _____

DRILLING CONTRACTOR SLR Consulting Australia Pty Ltd **SLOPE** 90° **BEARING** ---

EQUIPMENT Hand Auger (Stainless Steel) **HOLE LOCATION** _____

HOLE SIZE 82mm (150mm core) **LOGGED BY** CAC **CHECKED BY** CM

NOTES _____

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
HA						**FILL:** silty GRAVEL, grey, angular, dry, trace organics, trace glass.	PID = 0.0ppm	No odour or staining. Rail ballast?
						FILL: Sandy CLAY, medium plasticity, brown, moist, stiff.		
			0.5			With trace ash.	PID = 3.1ppm	No odour or staining.
			1.0			Becoming soft, with trace sandstone gravels, trace ironstone gravel.	PID = 3.0ppm	No odour or staining.
			1.5			Borehole HA06 terminated at 1.1m		Hand Auger refusal on unknown obstruction.
			2.0					

LABORATORY DOCUMENTATION

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Craig Cowper
Client	SLR CONSULTING AUSTRALIA PTY LTD
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Email	ccowper@slrconsulting.com
Project	**610.14433.00300 Linfield**
Order Number	**SGS PO 20112**
Samples	35

LABORATORY DETAILS

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Laboratory	SGS Alexandria Environmental
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SGS Reference	**SE146852 R0**
Date Received	7/12/2015
Date Reported	14/12/2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst/Hygiene Team Leader

VOC's in Soil [AN433/AN434] Tested: 8/12/2015

PARAMETER	UOM	LOR	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433/AN434/AN410] Tested: 8/12/2015

PARAMETER	UOM	LOR	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 8/12/2015

PARAMETER	UOM	LOR	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	**53**
TRH C29-C36	mg/kg	45	<45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210	<210

PARAMETER	UOM	LOR	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**70**
TRH C29-C36	mg/kg	45	<45	<45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	**98**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 8/12/2015

PARAMETER	UOM	LOR	TP01/0.0-0.2 SOIL - 6/12/2015 SE146852.001	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP02/0.3-0.5 SOIL - 6/12/2015 SE146852.004	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	0.3	0.1	<0.1	0.2	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.6	0.9	<0.1	0.4	0.1
Anthracene	mg/kg	0.1	0.2	0.3	<0.1	0.1	<0.1
Fluoranthene	mg/kg	0.1	2.5	2.0	<0.1	1.6	0.4
Pyrene	mg/kg	0.1	2.4	1.4	<0.1	1.4	0.4
Benzo(a)anthracene	mg/kg	0.1	2.0	0.8	<0.1	1.1	0.3
Chrysene	mg/kg	0.1	1.7	0.6	<0.1	0.9	0.3
Benzo(b&j)fluoranthene	mg/kg	0.1	2.5	0.7	<0.1	1.2	0.3
Benzo(k)fluoranthene	mg/kg	0.1	1.4	0.5	<0.1	0.9	0.3
Benzo(a)pyrene	mg/kg	0.1	2.8	0.9	<0.1	1.6	0.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.8	0.6	<0.1	1.1	0.3
Dibenzo(a&h)anthracene	mg/kg	0.1	0.1	<0.1	<0.1	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	1.3	0.4	<0.1	0.8	0.2
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	3.8	1.2	<0.2	2.1	0.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	3.8	1.3	<0.3	2.1	0.6
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	3.8	1.2	<0.2	2.1	0.5
Total PAH (18)	mg/kg	0.8	19	9.2	<0.8	12	2.8

PARAMETER	UOM	LOR	TP05/0.4/0.6 SOIL - 6/12/2015 SE146852.010	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011	TP06/0.5-0.7 SOIL - 6/12/2015 SE146852.012	TP06/1.1-1.3 SOIL - 6/12/2015 SE146852.013	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	0.2
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0.4	<0.1	0.5
Anthracene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	0.2
Fluoranthene	mg/kg	0.1	<0.1	0.1	1.9	<0.1	2.1
Pyrene	mg/kg	0.1	<0.1	0.1	1.9	<0.1	1.9
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.1	1.6	<0.1	1.6
Chrysene	mg/kg	0.1	<0.1	0.1	1.3	<0.1	1.4
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.1	1.8	<0.1	2.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	1.2	<0.1	1.4
Benzo(a)pyrene	mg/kg	0.1	<0.1	0.1	2.3	<0.1	2.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.1	1.5	<0.1	1.8
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	0.2	<0.1	0.2
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	1.1	<0.1	1.3
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	<0.2	3.1	<0.2	3.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	3.1	<0.3	3.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	0.2	3.1	<0.2	3.5
Total PAH (18)	mg/kg	0.8	<0.8	0.9	15	<0.8	17

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 8/12/2015 (continued)

PARAMETER	UOM	LOR	TP07/0.9-1.1 SOIL - 6/12/2015 SE146852.016	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017	HA02/0.2-0.4 SOIL - 6/12/2015 SE146852.020	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022	HA03/0.7-0.9 SOIL - 6/12/2015 SE146852.023
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	0.2	<0.1	0.2	0.3
Pyrene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.2
Benzo(a)anthracene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.2
Chrysene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.2
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.2
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.2
Benzo(a)pyrene	mg/kg	0.1	0.1	0.1	<0.1	0.2	0.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.1	<0.1	0.2	0.2
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.1	<0.1	0.1	0.2
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	<0.2	<0.2	0.3	0.4
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	0.4	0.5
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.2	0.2	<0.2	0.3	0.5
Total PAH (18)	mg/kg	0.8	<0.8	1.0	<0.8	1.5	2.1

PARAMETER	UOM	LOR	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029	HA06/0.9-1.1 SOIL - 6/12/2015 SE146852.030	DUP02 SOIL - 6/12/2015 SE146852.032
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	0.3	<0.1	0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.1	1.4	0.6	0.3
Anthracene	mg/kg	0.1	<0.1	0.3	0.1	<0.1
Fluoranthene	mg/kg	0.1	0.1	3.1	1.5	1.4
Pyrene	mg/kg	0.1	0.1	2.8	1.3	1.3
Benzo(a)anthracene	mg/kg	0.1	<0.1	2.0	0.9	1.0
Chrysene	mg/kg	0.1	0.2	1.5	0.8	0.9
Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	1.6	0.9	1.2
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	1.6	0.7	0.8
Benzo(a)pyrene	mg/kg	0.1	0.1	2.6	1.3	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	1.7	0.8	1.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	0.2	0.1	0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	1.2	0.6	0.8
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	<0.2	3.5	1.8	2.0
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	3.5	1.8	2.0
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	3.5	1.8	2.0
Total PAH (18)	mg/kg	0.8	<0.8	21	9.7	10

OC Pesticides in Soil [AN400/AN420] Tested: 8/12/2015

PARAMETER	UOM	LOR	TP01/0.0-0.2 SOIL - 6/12/2015 SE146852.001	TP04/0.0-0.2 SOIL - 6/12/2015 SE146852.007	TP07/0.0-0.2 SOIL - 6/12/2015 SE146852.014	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017	HA06/0.0-0.2 SOIL - 6/12/2015 SE146852.028
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 10/12/2015

PARAMETER	UOM	LOR	TP01/0.0-0.2 SOIL - 6/12/2015 SE146852.001	TP01/0.3-0.5 SOIL - 6/12/2015 SE146852.002	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP03/0.3-0.5 SOIL - 6/12/2015 SE146852.006
Arsenic, As	mg/kg	3	15	10	10	4	6
Cadmium, Cd	mg/kg	0.3	0.8	<0.3	0.6	0.4	<0.3
Chromium, Cr	mg/kg	0.3	16	13	17	14	15
Copper, Cu	mg/kg	0.5	57	10	20	29	9.5
Lead, Pb	mg/kg	1	400	21	140	270	26
Nickel, Ni	mg/kg	0.5	7.3	0.7	4.3	3.0	1.0
Zinc, Zn	mg/kg	0.5	340	9.2	80	110	12

PARAMETER	UOM	LOR	TP04/0.0-0.2 SOIL - 6/12/2015 SE146852.007	TP04/0.3-0.5 SOIL - 6/12/2015 SE146852.008	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009	TP05/0.4/0.6 SOIL - 6/12/2015 SE146852.010	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011
Arsenic, As	mg/kg	3	3	5	3	8	45
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	<0.3	0.8
Chromium, Cr	mg/kg	0.3	14	15	13	8.4	18
Copper, Cu	mg/kg	0.5	15	7.5	32	8.6	41
Lead, Pb	mg/kg	1	150	21	210	23	170
Nickel, Ni	mg/kg	0.5	2.0	1.7	2.5	0.5	40
Zinc, Zn	mg/kg	0.5	31	31	61	21	800

PARAMETER	UOM	LOR	TP06/1.1-1.3 SOIL - 6/12/2015 SE146852.013	TP07/0.0-0.2 SOIL - 6/12/2015 SE146852.014	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015	TP07/0.9-1.1 SOIL - 6/12/2015 SE146852.016	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017
Arsenic, As	mg/kg	3	12	64	8	10	5
Cadmium, Cd	mg/kg	0.3	0.3	0.3	0.7	<0.3	0.4
Chromium, Cr	mg/kg	0.3	23	18	21	19	13
Copper, Cu	mg/kg	0.5	7.9	16	45	7.4	40
Lead, Pb	mg/kg	1	31	79	340	41	58
Nickel, Ni	mg/kg	0.5	2.3	4.4	5.6	2.0	5.9
Zinc, Zn	mg/kg	0.5	22	76	230	26	79

PARAMETER	UOM	LOR	HA01/0.3-0.5 SOIL - 6/12/2015 SE146852.018	HA02/0.0-0.2 SOIL - 6/12/2015 SE146852.019	HA02/0.2-0.4 SOIL - 6/12/2015 SE146852.020	HA03/0.05-0.2 SOIL - 6/12/2015 SE146852.021	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022
Arsenic, As	mg/kg	3	6	9	13	15	8
Cadmium, Cd	mg/kg	0.3	<0.3	0.5	<0.3	0.4	0.6
Chromium, Cr	mg/kg	0.3	11	17	19	22	18
Copper, Cu	mg/kg	0.5	12	12	5.9	38	29
Lead, Pb	mg/kg	1	24	87	24	58	89
Nickel, Ni	mg/kg	0.5	4.9	4.1	1.3	13	11
Zinc, Zn	mg/kg	0.5	32	89	14	41	120

Total Recoverable Metals in Soil by ICPOES [AN040/AN320] Tested: 10/12/2015 (continued)

PARAMETER	UOM	LOR	HA03/0.7-0.9 SOIL - 6/12/2015 SE146852.023	HA04/0.05-0.2 SOIL - 6/12/2015 SE146852.024	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025	HA05/0.05-0.2 SOIL - 6/12/2015 SE146852.026	HA05/0.2-0.4 SOIL - 6/12/2015 SE146852.027
Arsenic, As	mg/kg	3	11	3	4	4	6
Cadmium, Cd	mg/kg	0.3	0.7	<0.3	<0.3	0.4	<0.3
Chromium, Cr	mg/kg	0.3	20	17	17	14	14
Copper, Cu	mg/kg	0.5	48	58	34	85	10
Lead, Pb	mg/kg	1	170	26	77	16	15
Nickel, Ni	mg/kg	0.5	9.3	38	18	49	4.0
Zinc, Zn	mg/kg	0.5	190	46	56	88	9.4

PARAMETER	UOM	LOR	HA06/0.0-0.2 SOIL - 6/12/2015 SE146852.028	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029	DUP01 SOIL - 6/12/2015 SE146852.031
Arsenic, As	mg/kg	3	6	9	63
Cadmium, Cd	mg/kg	0.3	0.5	1.0	0.4
Chromium, Cr	mg/kg	0.3	16	18	19
Copper, Cu	mg/kg	0.5	77	47	32
Lead, Pb	mg/kg	1	77	210	73
Nickel, Ni	mg/kg	0.5	40	9.8	8.3
Zinc, Zn	mg/kg	0.5	160	220	100

Mercury in Soil [AN312] Tested: 11/12/2015

PARAMETER	UOM	LOR	TP01/0.0-0.2 SOIL - 6/12/2015 SE146852.001	TP01/0.3-0.5 SOIL - 6/12/2015 SE146852.002	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP03/0.3-0.5 SOIL - 6/12/2015 SE146852.006
Mercury	mg/kg	0.01	0.27	<0.01	0.06	0.31	<0.01

PARAMETER	UOM	LOR	TP04/0.0-0.2 SOIL - 6/12/2015 SE146852.007	TP04/0.3-0.5 SOIL - 6/12/2015 SE146852.008	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009	TP05/0.4/0.6 SOIL - 6/12/2015 SE146852.010	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011
Mercury	mg/kg	0.01	0.21	<0.01	0.30	<0.01	0.33

PARAMETER	UOM	LOR	TP06/1.1-1.3 SOIL - 6/12/2015 SE146852.013	TP07/0.0-0.2 SOIL - 6/12/2015 SE146852.014	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015	TP07/0.9-1.1 SOIL - 6/12/2015 SE146852.016	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017
Mercury	mg/kg	0.01	0.01	0.03	0.15	0.02	0.09

PARAMETER	UOM	LOR	HA01/0.3-0.5 SOIL - 6/12/2015 SE146852.018	HA02/0.0-0.2 SOIL - 6/12/2015 SE146852.019	HA02/0.2-0.4 SOIL - 6/12/2015 SE146852.020	HA03/0.05-0.2 SOIL - 6/12/2015 SE146852.021	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022
Mercury	mg/kg	0.01	0.02	0.07	<0.01	0.08	0.07

PARAMETER	UOM	LOR	HA03/0.7-0.9 SOIL - 6/12/2015 SE146852.023	HA04/0.05-0.2 SOIL - 6/12/2015 SE146852.024	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025	HA05/0.05-0.2 SOIL - 6/12/2015 SE146852.026	HA05/0.2-0.4 SOIL - 6/12/2015 SE146852.027
Mercury	mg/kg	0.01	0.07	0.12	0.11	0.02	<0.01

PARAMETER	UOM	LOR	HA06/0.0-0.2 SOIL - 6/12/2015 SE146852.028	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029	DUP01 SOIL - 6/12/2015 SE146852.031
Mercury	mg/kg	0.01	0.04	0.10	0.06

Moisture Content [AN002] Tested: 8/12/2015

PARAMETER	UOM	LOR	TP01/0.0-0.2 SOIL - 6/12/2015 SE146852.001	TP01/0.3-0.5 SOIL - 6/12/2015 SE146852.002	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP02/0.3-0.5 SOIL - 6/12/2015 SE146852.004	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005
% Moisture	%w/w	0.5	16	16	16	20	15

PARAMETER	UOM	LOR	TP03/0.3-0.5 SOIL - 6/12/2015 SE146852.006	TP04/0.0-0.2 SOIL - 6/12/2015 SE146852.007	TP04/0.3-0.5 SOIL - 6/12/2015 SE146852.008	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009	TP05/0.4/0.6 SOIL - 6/12/2015 SE146852.010
% Moisture	%w/w	0.5	23	12	21	12	20

PARAMETER	UOM	LOR	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011	TP06/0.5-0.7 SOIL - 6/12/2015 SE146852.012	TP06/1.1-1.3 SOIL - 6/12/2015 SE146852.013	TP07/0.0-0.2 SOIL - 6/12/2015 SE146852.014	TP07/0.7-0.9 SOIL - 6/12/2015 SE146852.015
% Moisture	%w/w	0.5	14	16	24	20	20

PARAMETER	UOM	LOR	TP07/0.9-1.1 SOIL - 6/12/2015 SE146852.016	HA01/0.0-0.2 SOIL - 6/12/2015 SE146852.017	HA01/0.3-0.5 SOIL - 6/12/2015 SE146852.018	HA02/0.0-0.2 SOIL - 6/12/2015 SE146852.019	HA02/0.2-0.4 SOIL - 6/12/2015 SE146852.020
% Moisture	%w/w	0.5	23	14	16	12	20

PARAMETER	UOM	LOR	HA03/0.05-0.2 SOIL - 6/12/2015 SE146852.021	HA03/0.4-0.6 SOIL - 6/12/2015 SE146852.022	HA03/0.7-0.9 SOIL - 6/12/2015 SE146852.023	HA04/0.05-0.2 SOIL - 6/12/2015 SE146852.024	HA04/0.2-0.4 SOIL - 6/12/2015 SE146852.025
% Moisture	%w/w	0.5	21	19	20	12	23

PARAMETER	UOM	LOR	HA05/0.05-0.2 SOIL - 6/12/2015 SE146852.026	HA05/0.2-0.4 SOIL - 6/12/2015 SE146852.027	HA06/0.0-0.2 SOIL - 6/12/2015 SE146852.028	HA06/0.5-0.7 SOIL - 6/12/2015 SE146852.029	HA06/0.9-1.1 SOIL - 6/12/2015 SE146852.030
% Moisture	%w/w	0.5	9.5	20	8.0	18	18

PARAMETER	UOM	LOR	DUP01 SOIL - 6/12/2015 SE146852.031	DUP02 SOIL - 6/12/2015 SE146852.032
% Moisture	%w/w	0.5	20	14

Fibre Identification in soil [AN602] Tested: 11/12/2015

PARAMETER	UOM	LOR	TP01/0.0-0.2 SOIL - 6/12/2015 SE146852.001	TP02/0.0-0.2 SOIL - 6/12/2015 SE146852.003	TP03/0.0-0.2 SOIL - 6/12/2015 SE146852.005	TP04/0.0-0.2 SOIL - 6/12/2015 SE146852.007	TP05/0.0-0.2 SOIL - 6/12/2015 SE146852.009
Asbestos Detected	No unit	-	No	No	No	No	No

PARAMETER	UOM	LOR	TP06/0.0-0.2 SOIL - 6/12/2015 SE146852.011	TP07/0.0-0.2 SOIL - 6/12/2015 SE146852.014	HA01/0.3-0.5 SOIL - 6/12/2015 SE146852.018	HA02/0.0-0.2 SOIL - 6/12/2015 SE146852.019	HA03/0.05-0.2 SOIL - 6/12/2015 SE146852.021
Asbestos Detected	No unit	-	No	No	No	No	No

PARAMETER	UOM	LOR	HA04/0.05-0.2 SOIL - 6/12/2015 SE146852.024	HA05/0.2-0.4 SOIL - 6/12/2015 SE146852.027	HA06/0.0-0.2 SOIL - 6/12/2015 SE146852.028
Asbestos Detected	No unit	-	No	No	No

VOCs in Water [AN433/AN434] Tested: 11/12/2015

PARAMETER	UOM	LOR	Trip Spike WATER - 6/12/2015 SE146852.033	Trip Blank WATER - 6/12/2015 SE146852.034
Benzene	µg/L	0.5	[75%]	<0.5
Toluene	µg/L	0.5	[74%]	<0.5
Ethylbenzene	µg/L	0.5	[84%]	<0.5
m/p-xylene	µg/L	1	[85%]	<1
o-xylene	µg/L	0.5	[86%]	<0.5
Total Xylenes	µg/L	1.5	-	<1.5
Total BTEX	µg/L	3	-	<3
Naphthalene	µg/L	0.5	-	<0.5

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 8/12/2015

PARAMETER	UOM	LOR	RB01 WATER - 6/12/2015 SE146852.035
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1
Pyrene	µg/L	0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(a&h)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 8/12/2015

PARAMETER	UOM	LOR	RB01 WATER - 6/12/2015 SE146852.035
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	<1
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	<1
Zinc, Zn	µg/L	5	<5

Mercury (dissolved) in Water [AN311/AN312] Tested: 11/12/2015

PARAMETER	UOM	LOR	RB01 WATER - 6/12/2015 SE146852.035
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).

AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Order Number	**SGS PO 20112**
Samples	13

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SGS Reference	**SE146852 R0**
Date Received	07 Dec 2015
Date Reported	14 Dec 2015

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

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ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification
SE146852.001	TP01/0.0-0.2	Soil	80g Clay, Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found Organic Fibres Detected
SE146852.003	TP02/0.0-0.2	Soil	63g Clay, Soil, Rocks	06 Dec 2015	No Asbestos Found
SE146852.005	TP03/0.0-0.2	Soil	50g Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found
SE146852.007	TP04/0.0-0.2	Soil	124g Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found Organic Fibres Detected
SE146852.009	TP05/0.0-0.2	Soil	78g Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found Organic Fibres Detected
SE146852.011	TP06/0.0-0.2	Soil	62g Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found
SE146852.014	TP07/0.0-0.2	Soil	52g Clay, Rocks	06 Dec 2015	No Asbestos Found
SE146852.018	HA01/0.3-0.5	Soil	70g Clay, Sand, Rocks	06 Dec 2015	No Asbestos Found
SE146852.019	HA02/0.0-0.2	Soil	50g Clay, Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found
SE146852.021	HA03/0.05-0.2	Soil	70g Clay, Soil, Rocks	06 Dec 2015	No Asbestos Found
SE146852.024	HA04/0.05-0.2	Soil	57g Clay, Soil, Rocks	06 Dec 2015	No Asbestos Found
SE146852.027	HA05/0.2-0.4	Soil	62g Clay, Rocks	06 Dec 2015	No Asbestos Found
SE146852.028	HA06/0.0-0.2	Soil	76g Clay, Sand, Soil, Rocks	06 Dec 2015	No Asbestos Found Organic Fibres Detected

METHOD SUMMARY

SE146852 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx . The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained hereon reflects the Company 's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

STATEMENT OF QA/QC PERFORMANCE

SE146852 R0

CLIENT DETAILS

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Client	SLR CONSULTING AUSTRALIA PTY LTD
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Email	ccowper@slrconsulting.com
Project	**610.14433.00300 Linfield**
Order Number	**SGS PO 20112**
Samples	35

LABORATORY DETAILS

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SGS Reference	**SE146852 R0**
Date Received	07 Dec 2015
Date Reported	16 Dec 2015

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Metals in Soil by ICPOES	1 item
	Total Recoverable Metals in Soil by ICPOES	1 item
Matrix Spike	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	2 items

SAMPLE SUMMARY

Sample counts by matrix	32 Soil, 3 Water	Type of documentation received	COC
Date documentation received	7/12/2015	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	6.9°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE146852 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
TP07/0.0-0.2	SE146852.014	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
HA01/0.3-0.5	SE146852.018	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
HA02/0.0-0.2	SE146852.019	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
HA03/0.05-0.2	SE146852.021	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
HA04/0.05-0.2	SE146852.024	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
HA05/0.2-0.4	SE146852.027	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091593	06 Dec 2015	07 Dec 2015	05 Dec 2016	11 Dec 2015	05 Dec 2016	14 Dec 2015

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01	SE146852.035	LB091595	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP01/0.3-0.5	SE146852.002	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP03/0.3-0.5	SE146852.006	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP04/0.3-0.5	SE146852.008	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP05/0.4/0.6	SE146852.010	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP06/1.1-1.3	SE146852.013	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP07/0.0-0.2	SE146852.014	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
TP07/0.9-1.1	SE146852.016	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA01/0.3-0.5	SE146852.018	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA02/0.0-0.2	SE146852.019	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA02/0.2-0.4	SE146852.020	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA03/0.05-0.2	SE146852.021	LB091568	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA03/0.7-0.9	SE146852.023	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA04/0.05-0.2	SE146852.024	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA05/0.05-0.2	SE146852.026	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA05/0.2-0.4	SE146852.027	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015
DUP01	SE146852.031	LB091641	06 Dec 2015	07 Dec 2015	03 Jan 2016	11 Dec 2015	03 Jan 2016	14 Dec 2015

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP01/0.3-0.5	SE146852.002	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP02/0.3-0.5	SE146852.004	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP03/0.3-0.5	SE146852.006	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP04/0.3-0.5	SE146852.008	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015

HOLDING TIME SUMMARY

SE146852 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Moisture Content (continued)

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP05/0.4/0.6	SE146852.010	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP06/0.5-0.7	SE146852.012	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP06/1.1-1.3	SE146852.013	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP07/0.0-0.2	SE146852.014	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
TP07/0.9-1.1	SE146852.016	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA01/0.3-0.5	SE146852.018	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA02/0.0-0.2	SE146852.019	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA02/0.2-0.4	SE146852.020	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA03/0.05-0.2	SE146852.021	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA03/0.7-0.9	SE146852.023	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA04/0.05-0.2	SE146852.024	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA05/0.05-0.2	SE146852.026	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA05/0.2-0.4	SE146852.027	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
HA06/0.9-1.1	SE146852.030	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
DUP01	SE146852.031	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015
DUP02	SE146852.032	LB091319	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	13 Dec 2015	10 Dec 2015

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP02/0.3-0.5	SE146852.004	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP05/0.4/0.6	SE146852.010	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/0.5-0.7	SE146852.012	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/1.1-1.3	SE146852.013	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.0-0.2	SE146852.014	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.9-1.1	SE146852.016	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA02/0.2-0.4	SE146852.020	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA03/0.7-0.9	SE146852.023	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.9-1.1	SE146852.030	LB091355	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
DUP02	SE146852.032	LB091355	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP02/0.3-0.5	SE146852.004	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP05/0.4/0.6	SE146852.010	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/0.5-0.7	SE146852.012	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/1.1-1.3	SE146852.013	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015

HOLDING TIME SUMMARY

SE146852 R0

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Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP07/0.0-0.2	SE146852.014	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.9-1.1	SE146852.016	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA02/0.2-0.4	SE146852.020	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA03/0.7-0.9	SE146852.023	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.9-1.1	SE146852.030	LB091355	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
DUP02	SE146852.032	LB091355	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01	SE146852.035	LB091364	06 Dec 2015	07 Dec 2015	13 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP01/0.3-0.5	SE146852.002	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP03/0.3-0.5	SE146852.006	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP04/0.3-0.5	SE146852.008	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP05/0.4/0.6	SE146852.010	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP06/1.1-1.3	SE146852.013	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP07/0.0-0.2	SE146852.014	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
TP07/0.9-1.1	SE146852.016	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
HA01/0.3-0.5	SE146852.018	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
HA02/0.0-0.2	SE146852.019	LB091457	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	11 Dec 2015
HA02/0.2-0.4	SE146852.020	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA03/0.05-0.2	SE146852.021	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA03/0.7-0.9	SE146852.023	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA04/0.05-0.2	SE146852.024	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA05/0.05-0.2	SE146852.026	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA05/0.2-0.4	SE146852.027	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015
DUP01	SE146852.031	LB091458	06 Dec 2015	07 Dec 2015	03 Jun 2016	10 Dec 2015	03 Jun 2016	14 Dec 2015

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB01	SE146852.035	LB091351	06 Dec 2015	07 Dec 2015	03 Jun 2016	08 Dec 2015	03 Jun 2016	09 Dec 2015

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP01/0.0-0.2	SE146852.001	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP02/0.0-0.2	SE146852.003	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP02/0.3-0.5	SE146852.004	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP04/0.0-0.2	SE146852.007	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015

HOLDING TIME SUMMARY

SE146852 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS “Field Sampling Guide for Containers and Holding Time” (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP05/0.4/0.6	SE146852.010	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/0.5-0.7	SE146852.012	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP06/1.1-1.3	SE146852.013	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.0-0.2	SE146852.014	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
TP07/0.9-1.1	SE146852.016	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA02/0.2-0.4	SE146852.020	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA03/0.7-0.9	SE146852.023	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.0-0.2	SE146852.028	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091353	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
HA06/0.9-1.1	SE146852.030	LB091355	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015
DUP02	SE146852.032	LB091355	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	14 Dec 2015

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP02/0.0-0.2	SE146852.003	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Trip Spike	SE146852.033	LB091562	06 Dec 2015	07 Dec 2015	13 Dec 2015	11 Dec 2015	20 Jan 2016	14 Dec 2015
Trip Blank	SE146852.034	LB091562	06 Dec 2015	07 Dec 2015	13 Dec 2015	11 Dec 2015	20 Jan 2016	14 Dec 2015

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP02/0.0-0.2	SE146852.003	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP03/0.0-0.2	SE146852.005	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP05/0.0-0.2	SE146852.009	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP06/0.0-0.2	SE146852.011	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
TP07/0.7-0.9	SE146852.015	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA01/0.0-0.2	SE146852.017	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA03/0.4-0.6	SE146852.022	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA04/0.2-0.4	SE146852.025	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015
HA06/0.5-0.7	SE146852.029	LB091359	06 Dec 2015	07 Dec 2015	20 Dec 2015	08 Dec 2015	17 Jan 2016	11 Dec 2015

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	TP01/0.0-0.2	SE146852.001	%	60 - 130%	106
	TP04/0.0-0.2	SE146852.007	%	60 - 130%	105
	TP07/0.0-0.2	SE146852.014	%	60 - 130%	103
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	103
	HA06/0.0-0.2	SE146852.028	%	60 - 130%	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	TP01/0.0-0.2	SE146852.001	%	70 - 130%	94
	TP02/0.0-0.2	SE146852.003	%	70 - 130%	94
	TP02/0.3-0.5	SE146852.004	%	70 - 130%	94
	TP03/0.0-0.2	SE146852.005	%	70 - 130%	96
	TP05/0.0-0.2	SE146852.009	%	70 - 130%	84
	TP05/0.4/0.6	SE146852.010	%	70 - 130%	92
	TP06/0.0-0.2	SE146852.011	%	70 - 130%	90
	TP06/0.5-0.7	SE146852.012	%	70 - 130%	94
	TP06/1.1-1.3	SE146852.013	%	70 - 130%	90
	TP07/0.7-0.9	SE146852.015	%	70 - 130%	88
	TP07/0.9-1.1	SE146852.016	%	70 - 130%	86
	HA01/0.0-0.2	SE146852.017	%	70 - 130%	88
	HA02/0.2-0.4	SE146852.020	%	70 - 130%	88
	HA03/0.4-0.6	SE146852.022	%	70 - 130%	92
	HA03/0.7-0.9	SE146852.023	%	70 - 130%	88
	HA04/0.2-0.4	SE146852.025	%	70 - 130%	86
	HA06/0.5-0.7	SE146852.029	%	70 - 130%	92
	HA06/0.9-1.1	SE146852.030	%	70 - 130%	86
	DUP02	SE146852.032	%	70 - 130%	94
d14-p-terphenyl (Surrogate)	TP01/0.0-0.2	SE146852.001	%	70 - 130%	104
	TP02/0.0-0.2	SE146852.003	%	70 - 130%	108
	TP02/0.3-0.5	SE146852.004	%	70 - 130%	112
	TP03/0.0-0.2	SE146852.005	%	70 - 130%	104
	TP05/0.0-0.2	SE146852.009	%	70 - 130%	98
	TP05/0.4/0.6	SE146852.010	%	70 - 130%	96
	TP06/0.0-0.2	SE146852.011	%	70 - 130%	94
	TP06/0.5-0.7	SE146852.012	%	70 - 130%	92
	TP06/1.1-1.3	SE146852.013	%	70 - 130%	100
	TP07/0.7-0.9	SE146852.015	%	70 - 130%	104
	TP07/0.9-1.1	SE146852.016	%	70 - 130%	94
	HA01/0.0-0.2	SE146852.017	%	70 - 130%	92
	HA02/0.2-0.4	SE146852.020	%	70 - 130%	100
	HA03/0.4-0.6	SE146852.022	%	70 - 130%	100
	HA03/0.7-0.9	SE146852.023	%	70 - 130%	102
	HA04/0.2-0.4	SE146852.025	%	70 - 130%	92
	HA06/0.5-0.7	SE146852.029	%	70 - 130%	102
	HA06/0.9-1.1	SE146852.030	%	70 - 130%	100
	DUP02	SE146852.032	%	70 - 130%	108
d5-nitrobenzene (Surrogate)	TP01/0.0-0.2	SE146852.001	%	70 - 130%	96
	TP02/0.0-0.2	SE146852.003	%	70 - 130%	102
	TP02/0.3-0.5	SE146852.004	%	70 - 130%	106
	TP03/0.0-0.2	SE146852.005	%	70 - 130%	96
	TP05/0.0-0.2	SE146852.009	%	70 - 130%	88
	TP05/0.4/0.6	SE146852.010	%	70 - 130%	106
	TP06/0.0-0.2	SE146852.011	%	70 - 130%	98
	TP06/0.5-0.7	SE146852.012	%	70 - 130%	100
	TP06/1.1-1.3	SE146852.013	%	70 - 130%	96
	TP07/0.7-0.9	SE146852.015	%	70 - 130%	100
	TP07/0.9-1.1	SE146852.016	%	70 - 130%	94
	HA01/0.0-0.2	SE146852.017	%	70 - 130%	92
	HA02/0.2-0.4	SE146852.020	%	70 - 130%	94
	HA03/0.4-0.6	SE146852.022	%	70 - 130%	92
	HA03/0.7-0.9	SE146852.023	%	70 - 130%	98

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d5-nitrobenzene (Surrogate)	HA04/0.2-0.4	SE146852.025	%	70 - 130%	88
	HA06/0.5-0.7	SE146852.029	%	70 - 130%	98
	HA06/0.9-1.1	SE146852.030	%	70 - 130%	100
	DUP02	SE146852.032	%	70 - 130%	102

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	RB01	SE146852.035	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	RB01	SE146852.035	%	40 - 130%	106
d5-nitrobenzene (Surrogate)	RB01	SE146852.035	%	40 - 130%	78

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	75
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	70
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	77
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	74
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	87
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	75
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	70
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	76
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	77
d4-1,2-dichloroethane (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	94
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	85
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	106
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	89
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	95
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	92
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	89
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	89
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	92
d8-toluene (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	92
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	83
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	104
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	89
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	102
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	91
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	85
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	86
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	93
Dibromofluoromethane (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	80
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	73
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	90
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	78
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	79
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	79
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	77
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	78
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	77

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	Trip Spike	SE146852.033	%	40 - 130%	103
	Trip Blank	SE146852.034	%	40 - 130%	114
d4-1,2-dichloroethane (Surrogate)	Trip Spike	SE146852.033	%	40 - 130%	102
	Trip Blank	SE146852.034	%	40 - 130%	113
d8-toluene (Surrogate)	Trip Spike	SE146852.033	%	40 - 130%	89
	Trip Blank	SE146852.034	%	40 - 130%	90
Dibromofluoromethane (Surrogate)	Trip Spike	SE146852.033	%	40 - 130%	105
	Trip Blank	SE146852.034	%	40 - 130%	120

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	75
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	70
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	77
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	74
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	87
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	75
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	70
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	76
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	77
d4-1,2-dichloroethane (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	94
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	85
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	106
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	89
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	95
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	92
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	89
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	89
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	92
d8-toluene (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	92
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	83
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	104
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	89
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	102
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	91
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	85
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	86
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	93
Dibromofluoromethane (Surrogate)	TP02/0.0-0.2	SE146852.003	%	60 - 130%	80
	TP03/0.0-0.2	SE146852.005	%	60 - 130%	73
	TP05/0.0-0.2	SE146852.009	%	60 - 130%	90
	TP06/0.0-0.2	SE146852.011	%	60 - 130%	78
	TP07/0.7-0.9	SE146852.015	%	60 - 130%	79
	HA01/0.0-0.2	SE146852.017	%	60 - 130%	79
	HA03/0.4-0.6	SE146852.022	%	60 - 130%	77
	HA04/0.2-0.4	SE146852.025	%	60 - 130%	78
	HA06/0.5-0.7	SE146852.029	%	60 - 130%	77

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB091595.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB091568.001	Mercury	mg/kg	0.01	<0.01
LB091641.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB091353.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB091353.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1
		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	106
		2-fluorobiphenyl (Surrogate)	%	-	114
		d14-p-terphenyl (Surrogate)	%	-	114
LB091355.001		Naphthalene	mg/kg	0.1	<0.1
		2-methylnaphthalene	mg/kg	0.1	<0.1
		1-methylnaphthalene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB091355.001		Acenaphthylene	mg/kg	0.1	<0.1
		Acenaphthene	mg/kg	0.1	<0.1
		Fluorene	mg/kg	0.1	<0.1
		Phenanthrene	mg/kg	0.1	<0.1
		Anthracene	mg/kg	0.1	<0.1
		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	100
		2-fluorobiphenyl (Surrogate)	%	-	92
		d14-p-terphenyl (Surrogate)	%	-	98

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB091364.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(a&h)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	92
		2-fluorobiphenyl (Surrogate)	%	-	88
		d14-p-terphenyl (Surrogate)	%	-	122

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB091457.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB091458.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB091351.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Trace Metals (Dissolved) in Water by ICPMS (continued)

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB091351.001	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB091353.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB091359.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	94
		d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	105
		Bromofluorobenzene (Surrogate)	%	-	92
	Totals	Total BTEX*	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB091562.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	128
		d4-1,2-dichloroethane (Surrogate)	%	-	122
		d8-toluene (Surrogate)	%	-	92
		Bromofluorobenzene (Surrogate)	%	-	109

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB091359.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	108

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146856.001	LB091595.014	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.011	LB091568.014	Mercury	mg/kg	0.01	0.33	0.34	45	3
SE146852.021	LB091568.024	Mercury	mg/kg	0.01	0.08	0.05	112	42
SE147051.002	LB091641.014	Mercury	mg/kg	0.01	<0.01	<0.01	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.008	LB091319.011	% Moisture	%w/w	0.5	21	21	35	2
SE146852.018	LB091319.022	% Moisture	%w/w	0.5	16	15	36	2
SE146852.028	LB091319.033	% Moisture	%w/w	0.5	8.0	8.0	43	0
SE146855.001	LB091319.039	% Moisture	%w/w	0.5	11	12	39	7

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.017	LB091353.028		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.004	LB091353.027	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — **Method: ME-(AU)-[ENV]AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.004	LB091353.027		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	4
SE146852.017	LB091353.028		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.1	135	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	0.2	0.3	72	50
			Pyrene	mg/kg	0.1	0.1	0.2	84	59
			Benzo(a)anthracene	mg/kg	0.1	0.1	0.2	97	67
			Chrysene	mg/kg	0.1	0.1	0.2	101	57
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.1	0.2	99	62
			Benzo(k)fluoranthene	mg/kg	0.1	0.1	0.2	104	52
			Benzo(a)pyrene	mg/kg	0.1	0.1	0.2	93	38
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.2	104	52
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.1	117	26
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	0.3	101	28
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	0.4	104	20
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.2	0.3	84	35
			Total PAH (18)	mg/kg	0.8	1.0	1.9	85	57
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	9
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
SE146859.008	LB091355.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.2	0.2	80	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	197	0
			Fluoranthene	mg/kg	0.1	0.5	0.5	50	8
			Pyrene	mg/kg	0.1	0.4	0.5	53	9
			Benzo(a)anthracene	mg/kg	0.1	0.3	0.3	63	10
			Chrysene	mg/kg	0.1	0.2	0.3	70	8
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.3	0.3	66	11
			Benzo(k)fluoranthene	mg/kg	0.1	0.2	0.2	75	9
			Benzo(a)pyrene	mg/kg	0.1	0.4	0.4	57	5
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.2	0.3	69	12
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.2	0.2	83	11
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	0.5	0.5	52	2
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	0.6	0.6	62	1
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	0.5	0.5	48	1
			Total PAH (18)	mg/kg	0.8	2.9	3.1	56	7
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146859.008	LB091355.014	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.009	LB091457.014		Arsenic, As	mg/kg	3	3	3	61	13
			Cadmium, Cd	mg/kg	0.3	0.3	0.4	112	12
			Chromium, Cr	mg/kg	0.3	13	13	34	0
			Copper, Cu	mg/kg	0.5	32	35	31	7
			Lead, Pb	mg/kg	1	210	270	30	22
			Nickel, Ni	mg/kg	0.5	2.5	2.6	50	2
			Zinc, Zn	mg/kg	0.5	61	67	33	10
SE146852.019	LB091457.024		Arsenic, As	mg/kg	3	9	16	38	56 ②
			Cadmium, Cd	mg/kg	0.3	0.5	0.4	98	22
			Chromium, Cr	mg/kg	0.3	17	15	33	10
			Copper, Cu	mg/kg	0.5	12	13	34	4
			Lead, Pb	mg/kg	1	87	93	31	7
			Nickel, Ni	mg/kg	0.5	4.1	4.0	42	1
			Zinc, Zn	mg/kg	0.5	89	90	32	1
SE146852.029	LB091458.014		Arsenic, As	mg/kg	3	9	8	42	14
			Cadmium, Cd	mg/kg	0.3	1.0	0.9	62	7
			Chromium, Cr	mg/kg	0.3	18	19	33	7
			Copper, Cu	mg/kg	0.5	47	36	31	28
			Lead, Pb	mg/kg	1	210	170	31	20
			Nickel, Ni	mg/kg	0.5	9.8	7.5	36	27
			Zinc, Zn	mg/kg	0.5	220	200	31	10
SE146859.008	LB091458.024		Arsenic, As	mg/kg	3	<3	<3	85	6
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.3	8.0	6.8	37	17
			Copper, Cu	mg/kg	0.5	8.4	7.9	36	6
			Lead, Pb	mg/kg	1	25	31	34	21
			Nickel, Ni	mg/kg	0.5	2.9	2.5	48	17
			Zinc, Zn	mg/kg	0.5	27	78	34	98 ②

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146852.017	LB091353.026		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146855.001	LB091359.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.6	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	50	4
			d8-toluene (Surrogate)	mg/kg	-	4.3	3.9	50	9
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	3.6	50	6
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE146855.001	LB091359.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.3	4.1	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091568.002	Mercury	mg/kg	0.01	0.18	0.2	70 - 130	88
LB091641.002	Mercury	mg/kg	0.01	0.19	0.2	70 - 130	97

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091353.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	100
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	100
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	95
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	105
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	85
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.15	40 - 130	96

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091353.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthylene	mg/kg	0.1	5.1	4	60 - 140	127
		Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	110
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	116
		Anthracene	mg/kg	0.1	4.9	4	60 - 140	121
		Fluoranthene	mg/kg	0.1	4.8	4	60 - 140	121
		Pyrene	mg/kg	0.1	4.5	4	60 - 140	112
		Benzo(a)pyrene	mg/kg	0.1	5.0	4	60 - 140	125
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100
LB091355.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthylene	mg/kg	0.1	5.1	4	60 - 140	127
		Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	110
		Phenanthrene	mg/kg	0.1	4.6	4	60 - 140	116
		Anthracene	mg/kg	0.1	4.9	4	60 - 140	121
		Fluoranthene	mg/kg	0.1	4.8	4	60 - 140	121
		Pyrene	mg/kg	0.1	4.5	4	60 - 140	112
		Benzo(a)pyrene	mg/kg	0.1	5.0	4	60 - 140	125
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	96
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	84
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091364.002		Naphthalene	µg/L	0.1	40	40	60 - 140	101
		Acenaphthylene	µg/L	0.1	45	40	60 - 140	113
		Acenaphthene	µg/L	0.1	44	40	60 - 140	110
		Phenanthrene	µg/L	0.1	48	40	60 - 140	120
		Anthracene	µg/L	0.1	49	40	60 - 140	124
		Fluoranthene	µg/L	0.1	51	40	60 - 140	128
		Pyrene	µg/L	0.1	48	40	60 - 140	121
		Benzo(a)pyrene	µg/L	0.1	50	40	60 - 140	124
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.5	0.5	40 - 130	92
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	µg/L	-	0.6	0.5	40 - 130	128

Total Recoverable Metals in Soil by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091457.002	Arsenic, As	mg/kg	3	53	50	80 - 120	106
	Cadmium, Cd	mg/kg	0.3	56	50	80 - 120	111
	Chromium, Cr	mg/kg	0.3	53	50	80 - 120	107
	Copper, Cu	mg/kg	0.5	53	50	80 - 120	106
	Lead, Pb	mg/kg	1	54	50	80 - 120	108
	Nickel, Ni	mg/kg	0.5	54	50	80 - 120	108
	Zinc, Zn	mg/kg	0.5	54	50	80 - 120	109
LB091458.002	Arsenic, As	mg/kg	3	52	50	80 - 120	105

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Total Recoverable Metals in Soil by ICPOES (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091458.002	Cadmium, Cd	mg/kg	0.3	55	50	80 - 120	110
	Chromium, Cr	mg/kg	0.3	53	50	80 - 120	105
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	104
	Lead, Pb	mg/kg	1	53	50	80 - 120	106
	Nickel, Ni	mg/kg	0.5	53	50	80 - 120	107
	Zinc, Zn	mg/kg	0.5	53	50	80 - 120	107

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091351.002	Arsenic, As	µg/L	1	21	20	80 - 120	103
	Cadmium, Cd	µg/L	0.1	21	20	80 - 120	104
	Chromium, Cr	µg/L	1	22	20	80 - 120	108
	Copper, Cu	µg/L	1	21	20	80 - 120	107
	Lead, Pb	µg/L	1	22	20	80 - 120	110
	Nickel, Ni	µg/L	1	21	20	80 - 120	107
	Zinc, Zn	µg/L	5	21	20	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091353.002		TRH C10-C14	mg/kg	20	43	40	60 - 140	108
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	100
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	88
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	75

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091359.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	83
		Toluene	mg/kg	0.1	2.4	2.9	60 - 140	82
		Ethylbenzene	mg/kg	0.1	2.5	2.9	60 - 140	86
		m/p-xylene	mg/kg	0.2	4.7	5.8	60 - 140	82
		o-xylene	mg/kg	0.1	2.3	2.9	60 - 140	79
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	85
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
		d8-toluene (Surrogate)	mg/kg	-	4.8	5	60 - 140	96
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	5	60 - 140	82

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091562.002	Monocyclic Aromatic	Benzene	µg/L	0.5	52	45.45	60 - 140	114
		Toluene	µg/L	0.5	52	45.45	60 - 140	114
		Ethylbenzene	µg/L	0.5	52	45.45	60 - 140	114
		m/p-xylene	µg/L	1	100	90.9	60 - 140	114
		o-xylene	µg/L	0.5	52	45.45	60 - 140	114
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.8	5	60 - 140	95
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.8	5	60 - 140	97
		d8-toluene (Surrogate)	µg/L	-	5.0	5	60 - 140	100
		Bromofluorobenzene (Surrogate)	µg/L	-	4.7	5	60 - 140	94

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB091359.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	89
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	72
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.7	5	60 - 140	93
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	105

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE146838.021	LB091595.004	Mercury	mg/L	0.0001	0.0076	<0.0001	0.008	95

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE146852.001	LB091568.004	Mercury	mg/kg	0.01	0.46	0.27	0.2	93
SE146852.022	LB091641.004	Mercury	mg/kg	0.01	0.30	0.07	0.2	111

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE146852.010	LB091353.029		Naphthalene	mg/kg	0.1	4.6	<0.1	4	116
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	4.6	<0.1	4	114
			Acenaphthene	mg/kg	0.1	4.3	<0.1	4	108
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.4	<0.1	4	110
			Anthracene	mg/kg	0.1	4.7	<0.1	4	119
			Fluoranthene	mg/kg	0.1	4.9	<0.1	4	122
			Pyrene	mg/kg	0.1	4.5	<0.1	4	112
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.2	<0.1	4	104
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	4.2	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.3	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.2	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	36	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	100
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	92
SE146852.032	LB091355.022		Naphthalene	mg/kg	0.1	5.0	<0.1	4	123
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	5.1	0.1	4	125
			Acenaphthene	mg/kg	0.1	5.1	<0.1	4	126
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	5.2	0.3	4	124
			Anthracene	mg/kg	0.1	4.9	<0.1	4	122
			Fluoranthene	mg/kg	0.1	7.1	1.4	4	141 ②
			Pyrene	mg/kg	0.1	6.1	1.3	4	120
			Benzo(a)anthracene	mg/kg	0.1	1.3	1.0	-	-
			Chrysene	mg/kg	0.1	1.1	0.9	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	1.7	1.2	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0.9	0.8	-	-
			Benzo(a)pyrene	mg/kg	0.1	8.4	1.4	4	173 ②
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	1.4	1.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	0.2	0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	1.0	0.8	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ	0.2	9.1	2.0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	9.1	2.0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	9.1	2.0	-	-
			Total PAH (18)	mg/kg	0.8	54	10	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	106
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	90

MATRIX SPIKE DUPLICATES

SE146852 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	NATA accreditation does not cover tthe performance of this service.
-	Sample not analysed for this analyte.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any other holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

This test report shall not be reproduced, except in full.

SAMPLE RECEIPT ADVICE

SE146852

CLIENT DETAILS

Contact	Craig Cowper
Client	SLR CONSULTING AUSTRALIA PTY LTD
Address	Lego Building, 2 Lincoln Street (PO Box 176 NSW LANECOVE 1595) LANECOVE NSW 2066
Telephone	02 9427 8100
Facsimile	02 9427 8200
Email	ccowper@slrconsulting.com
Project	**610.14433.00300 Linfield**
Order Number	**SGS PO 20112**
Samples	35

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 7/12/2015
Report Due	Mon 14/12/2015
SGS Reference	**SE146852**

SUBMISSION DETAILS

This is to confirm that 35 samples were received on Monday 7/12/2015. Results are expected to be ready by Monday 14/12/2015. Please quote SGS reference SE146852 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	32 Soil, 3 Water	Type of documentation received	COC
Date documentation received	7/12/2015	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	6.9°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS , all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document.
Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE146852

CLIENT DETAILS

Client SLR CONSULTING AUSTRALIA PTY LTD

Project 610.14433.00300 Linfield

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Metals in Soil by ICPOES	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	TP01/0.0-0.2	1	28	25	7	-	-	-
002	TP01/0.3-0.5	1	-	-	7	-	-	-
003	TP02/0.0-0.2	1	-	25	7	10	12	8
004	TP02/0.3-0.5	-	-	25	-	-	-	-
005	TP03/0.0-0.2	1	-	25	7	10	12	8
006	TP03/0.3-0.5	1	-	-	7	-	-	-
007	TP04/0.0-0.2	1	28	-	7	-	-	-
008	TP04/0.3-0.5	1	-	-	7	-	-	-
009	TP05/0.0-0.2	1	-	25	7	10	12	8
010	TP05/0.4/0.6	1	-	25	7	-	-	-
011	TP06/0.0-0.2	1	-	25	7	10	12	8
012	TP06/0.5-0.7	-	-	25	-	-	-	-
013	TP06/1.1-1.3	1	-	25	7	-	-	-
014	TP07/0.0-0.2	1	28	-	7	-	-	-
015	TP07/0.7-0.9	1	-	25	7	10	12	8
016	TP07/0.9-1.1	1	-	25	7	-	-	-
017	HA01/0.0-0.2	1	28	25	7	10	12	8
018	HA01/0.3-0.5	1	-	-	7	-	-	-
019	HA02/0.0-0.2	1	-	-	7	-	-	-
020	HA02/0.2-0.4	1	-	25	7	-	-	-
021	HA03/0.05-0.2	1	-	-	7	-	-	-
022	HA03/0.4-0.6	1	-	25	7	10	12	8
023	HA03/0.7-0.9	1	-	25	7	-	-	-
024	HA04/0.05-0.2	1	-	-	7	-	-	-

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE146852

CLIENT DETAILS

Client SLR CONSULTING AUSTRALIA PTY LTD

Project 610.14433.00300 Linfield

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Metals in Soil by ICPOES	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	HA04/0.2-0.4	1	-	25	7	10	12	8
026	HA05/0.05-0.2	1	-	-	7	-	-	-
027	HA05/0.2-0.4	1	-	-	7	-	-	-
028	HA06/0.0-0.2	1	28	-	7	-	-	-
029	HA06/0.5-0.7	1	-	25	7	10	12	8
030	HA06/0.9-1.1	-	-	25	-	-	-	-
031	DUP01	1	-	-	7	-	-	-
032	DUP02	-	-	25	-	-	-	-

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE146852

CLIENT DETAILS

Client SLR CONSULTING AUSTRALIA PTY LTD

Project 610.14433.00300 Linfield

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Moisture Content
001	TP01/0.0-0.2	1	1
002	TP01/0.3-0.5	-	1
003	TP02/0.0-0.2	1	1
004	TP02/0.3-0.5	-	1
005	TP03/0.0-0.2	1	1
006	TP03/0.3-0.5	-	1
007	TP04/0.0-0.2	1	1
008	TP04/0.3-0.5	-	1
009	TP05/0.0-0.2	1	1
010	TP05/0.4/0.6	-	1
011	TP06/0.0-0.2	1	1
012	TP06/0.5-0.7	-	1
013	TP06/1.1-1.3	-	1
014	TP07/0.0-0.2	1	1
015	TP07/0.7-0.9	-	1
016	TP07/0.9-1.1	-	1
017	HA01/0.0-0.2	-	1
018	HA01/0.3-0.5	1	1
019	HA02/0.0-0.2	1	1
020	HA02/0.2-0.4	-	1
021	HA03/0.05-0.2	1	1
022	HA03/0.4-0.6	-	1
023	HA03/0.7-0.9	-	1
024	HA04/0.05-0.2	1	1

CONTINUED OVERLEAF

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SAMPLE RECEIPT ADVICE

SE146852

CLIENT DETAILS

Client SLR CONSULTING AUSTRALIA PTY LTD

Project 610.14433.00300 Linfield

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury (dissolved) in Water	Moisture Content	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Trace Metals (Dissolved) in Water by ICPMS	VOCs in Water
025	HA04/0.2-0.4	-	-	1	-	-	-
026	HA05/0.05-0.2	-	-	1	-	-	-
027	HA05/0.2-0.4	1	-	1	-	-	-
028	HA06/0.0-0.2	1	-	1	-	-	-
029	HA06/0.5-0.7	-	-	1	-	-	-
030	HA06/0.9-1.1	-	-	1	-	-	-
031	DUP01	-	-	1	-	-	-
032	DUP02	-	-	1	-	-	-
033	Trip Spike	-	-	-	-	-	12
034	Trip Blank	-	-	-	-	-	12
035	RB01	-	1	-	21	7	-

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source: M630_SR_20151207145744.pdf page: 1 SGS Ref: SE146852_COC

CHAIN OF CUSTODY & ANALYSIS REQUEST

Page 1 of 4

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SLR Consulting	Project Name/No:	610.14433.00300 Lindfield
Address:	2 Lincoln Street	Purchase Order No:	SGS PO 20112 Eurofins PO 20113
	Lane Cove NSW 2066	Results Required By:	Standard Turnaround
		Telephone:	0400 882 269
Contact Name:	Craig Cowper	Facsimile:	02 9427 8200
		Email Results:	ccowper@slrconsulting.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10 TRH/BTEX/PAH/Metals	CL16 TRH / BTEX / PAH/Metals / Phenols	CL5 TRH/BTEX	CL5 TRH/BTEX/PAH/VOC	CL2 8 metals	PAH	OCP	Phenol (total)	VOC (8260)	Asbestos (Absence/Presence)	BTEX		B1 TRH/BTEX	8 metals	PAH	Notes
TP01/0.0-0.2	06/12/15	1		X	Ice	2					X	X	X			X						
TP01/0.3-0.5	06/12/15	2		X	Ice	2					X											
TP02/0.0-0.2	06/12/15	3		X	Ice	2	X									X						
TP02/0.3-0.5	06/12/15	4		X	Ice	2						X										
TP03/0.0-0.2	06/12/15	5		X	Ice	2	X									X						
TP03/0.3-0.5	06/12/15	6		X	Ice	2					X											
TP04/0.0-0.2	06/12/15	7		X	Ice	2					X		X			X						
TP04/0.3-0.5	06/12/15	8		X	Ice	2					X											
TP05/0.0-0.2	06/12/15	9		X	Ice	2	X									X						
TP05/0.4-0.6	06/12/15	10		X	Ice	2					X	X										

SGS Alexandria Environmental

SE146852 COC
Received: 07 – Dec – 2015

Relinquished By: Craig Cowper	Date/Time: 7 December @ 9:30AM	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: Julius Santillo	Date/Time 7/12/15 1:45PM
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: SLR Pricing 2015
	Comments: Methods and detection limits to suit NEPM 2013		Lab Quotation No: Eurofins Version 13.CS2

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SLR Consulting	Project Name/No:	610.14433.00300 Lindfield
Address:	2 Lincoln Street	Purchase Order No:	SGS PO 20112 Eurofins PO 20113
	Lane Cove NSW 2066	Results Required By:	Standard Turnaround
		Telephone:	0400 882 269
Contact Name:	Craig Cowper	Facsimile:	02 9427 8200
		Email Results:	ccowper@slrconsulting.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10 TRH/BTEX/PAH/Metals	CL16 TRH / BTEX / PAH/Metals / Phenols	CL5 TRH/BTEX	CL5 TRH/BTEX/PAH/VOC	CL2 8 metals	PAH	OCP	Phenol (total)	VOC (8260)	Asbestos (Absence/Presence)	BTEX		B1 TRH/BTEX	8 metals	PAH	Notes
TP06/0.0-0.2	06/12/15	11		X	Ice	2	X									X						
TP06/0.5-0.7	06/12/15	12		X	Ice	2						X										
TP06/1.1-1.3	06/12/15	13		X	Ice	2					X	X										
TP07/0.0-0.2	06/12/15	14		X	Ice	2					X		X			X						
TP07/0.7-0.9	06/12/15	15		X	Ice	2	X															
TP07/0.9-1.1	06/12/15	16		X	Ice	2					X	X										
HA01/0.0-0.2	06/12/15	17		X	Ice	2	X						X									
HA01/0.3-0.5	06/12/15	18		X	Ice	2					X					X						
HA02/0.0-0.2	06/12/15	19		X	Ice	2					X					X						
HA02/0.2-0.4	06/12/15	20		X	Ice	2					X	X										

Relinquished By: Craig Cowper	Date/Time: 7 December @ 9:30AM	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: JULIUS AWANG	Date/Time 7/12/15 1:15PM
Samples Intact? Yes/No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/No	Laboratory Quotation No: SLR Pricing 2015
	Comments: Methods and detection limits to suit NEPM 2013		Lab Quotation No: Eurofins Version 13.CS2

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SLR Consulting	Project Name/No:	610.14433.00300 Lindfield
Address:	2 Lincoln Street	Purchase Order No:	SGS PO 20112 Eurofins PO 20113
	Lane Cove NSW 2066	Results Required By:	Standard Turnaround
		Telephone:	0400 882 269
Contact Name:	Craig Cowper	Facsimile:	02 9427 8200
		Email Results:	ccowper@slrconsulting.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10 TRH/BTEX/PAH/Metals	CL16 TRH / BTEX / PAH/Metals / Phenols	CL5 TRH/BTEX	CL5 TRH/BTEX/PAH/VOC	CL2 8 metals	PAH	OCP	Phenol (total)	VOC (8260)	Asbestos (Absence/Presence)	BTEX		B1 TRH/BTEX	8 metals	PAH	Notes
HA03/0.05-0.2	06/12/15	21		2	2	2					X					X						
HA03/0.4-0.6	06/12/15	22		X	Ice	2	X															
HA03/0.7-0.9	06/12/15	23		X	Ice	2					X	X										
HA04/0.05-0.2	06/12/15	24		X	Ice	2					X					X						
HA04/0.2-0.4	06/12/15	25		X	Ice	2	X															
HA05/0.05-0.2	06/12/15	26		X	Ice	2					X											
HA05/0.2-0.4	06/12/15	27		X	Ice	2					X					X						
HA06/0.0-0.2	06/12/15	28		X	Ice	2					X		X			X						
HA06/0.5-0.7	06/12/15	29		X	Ice	2	X															
HA06/0.9-1.1	06/12/15	30		X	Ice	2						X										

Relinquished By: Craig Cowper	Date/Time: 7 December @ 9:30AM	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: Sylvia Anwar	Date/Time 7/12/15 1:45pm
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: SLR Pricing 2015
	Comments: Methods and detection limits to suit NEPM 2013		Lab Quotation No: Eurofins Version 13.CS2

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SLR Consulting	Project Name/No:	610.14433.00300 Lindfield
Address:	2 Lincoln Street	Purchase Order No:	SGS PO 20112 Eurofins PO 20113
	Lane Cove NSW 2066	Results Required By:	Standard Turnaround
		Telephone:	0400 882 269
Contact Name:	Craig Cowper	Facsimile:	02 9427 8200
		Email Results:	ccowper@slrconsulting.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10 TRH/BTEX/PAH/Metals	CL16 TRH / BTEX / PAH/Metals / Phenols	CL5 TRH/BTEX	CL5 TRH/BTEX/PAH/VOC	CL2 8 metals	PAH	OCP	Phenol (total)	VOC (8260)	Asbestos (Absence/Presence)	BTEX		B1 TRH/BTEX	8 metals	PAH	Notes
DUP01	06/12/15	31		X	Ice	2					X											
DUP01A	06/12/15			X	Ice	2														X		SEND TO EUROFINS MGT
DUP02	06/12/15	32		X	Ice	2						X										
DUP02A	06/12/15			X	Ice	2															X	SEND TO EUROFINS MGT
Trip Spike	06/12/15	33	X		Ice	1											X					
Trip Blank	06/12/15	34	X		Ice	1											X					
RB01	06/12/15	35	X		Ice	4					X	X										

Relinquished By: Craig Cowper	Date/Time: 7 December @ 8:30AM	Received By:	Date/Time
Relinquished By:	Date/Time:	Received By: JULIUS ALVAREZ	Date/Time 7/12/15 1:15PM
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: SLR Pricing 2015
	Comments: Methods and detection limits to suit NEPM 2013		Lab Quotation No: Eurofins Version 13.CS2

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Certificate of Analysis

SLR Consulting
2 Lincoln St
Lane Cove West
NSW 2066

NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Attention: **Craig Cowper**

Report **482676-S**
Project name LINDFIELD
Project ID 610.14433.00300
Received Date Dec 08, 2015

Client Sample ID			**DUP01A**	**DUP02A**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S15-De08707**	**S15-De08708**
Date Sampled			**Dec 06, 2015**	**Dec 06, 2015**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	2.2
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	2.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	2.7
Acenaphthene	0.5	mg/kg	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	1.1
Benzo(a)pyrene	0.5	mg/kg	-	1.7
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	1.6
Benzo(g.h.i)perylene	0.5	mg/kg	-	1.2
Benzo(k)fluoranthene	0.5	mg/kg	-	1.3
Chrysene	0.5	mg/kg	-	1.3
Dibenz(a.h)anthracene	0.5	mg/kg	-	< 0.5
Fluoranthene	0.5	mg/kg	-	1.7
Fluorene	0.5	mg/kg	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	0.9
Naphthalene	0.5	mg/kg	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5
Pyrene	0.5	mg/kg	-	1.8
Total PAH*	0.5	mg/kg	-	13
2-Fluorobiphenyl (surr.)	1	%	-	96
p-Terphenyl-d14 (surr.)	1	%	-	96
Heavy Metals				
Arsenic	2	mg/kg	93	-
Cadmium	0.4	mg/kg	< 0.4	-
Chromium	5	mg/kg	16	-
Copper	5	mg/kg	63	-
Lead	5	mg/kg	46	-
Mercury	0.05	mg/kg	< 0.05	-
Nickel	5	mg/kg	5.0	-
Zinc	5	mg/kg	77	-
% Moisture	0.1	%	20	14

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Polycyclic Aromatic Hydrocarbons	Sydney	Dec 11, 2015	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Metals M8	Sydney	Dec 11, 2015	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Dec 09, 2015	14 Day
- Method: LTM-GEN-7080 Moisture			

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NATA # 1261
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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name:	SLR Consulting (Sydney)	**Order No.:**	20113	**Received:**	Dec 8, 2015 12:18 PM
Address:	2 Lincoln St Lane Cove West NSW 2066	**Report #:**	482676	**Due:**	Dec 15, 2015
		Phone:	02 9428 8100	**Priority:**	5 Day
		Fax:		**Contact Name:**	Craig Cowper
Project Name:	LINDFIELD				
Project ID:	610.14433.00300				

Eurofins | mgt Client Manager: Andrew Black

Sample Detail					Polycyclic Aromatic Hydrocarbons	Metals M8	Moisture Set
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
DUP01A	Dec 06, 2015		Soil	S15-De08707		X	X
DUP02A	Dec 06, 2015		Soil	S15-De08708	X		X

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	88			70-130	Pass	
Acenaphthylene	%	98			70-130	Pass	
Anthracene	%	89			70-130	Pass	
Benz(a)anthracene	%	95			70-130	Pass	
Benzo(a)pyrene	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	%	90			70-130	Pass	
Benzo(g.h.i)perylene	%	100			70-130	Pass	
Benzo(k)fluoranthene	%	94			70-130	Pass	
Chrysene	%	97			70-130	Pass	
Dibenz(a.h)anthracene	%	85			70-130	Pass	
Fluoranthene	%	97			70-130	Pass	
Fluorene	%	87			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	91			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
Phenanthrene	%	97			70-130	Pass	
Pyrene	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	100			70-130	Pass	
Cadmium	%	104			70-130	Pass	
Chromium	%	102			70-130	Pass	
Copper	%	102			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead			%	107			70-130	Pass	
Mercury			%	108			70-130	Pass	
Nickel			%	103			70-130	Pass	
Zinc			%	104			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S15-De09975	NCP	%	83			70-130	Pass	
Cadmium	S15-De09975	NCP	%	92			70-130	Pass	
Chromium	S15-De09975	NCP	%	82			70-130	Pass	
Copper	S15-De09975	NCP	%	92			70-130	Pass	
Lead	S15-De09975	NCP	%	121			70-130	Pass	
Mercury	S15-De09975	NCP	%	110			70-130	Pass	
Nickel	S15-De09975	NCP	%	91			70-130	Pass	
Zinc	S15-De09975	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S15-De07544	NCP	%	94			70-130	Pass	
Acenaphthylene	S15-De07544	NCP	%	98			70-130	Pass	
Anthracene	S15-De07544	NCP	%	98			70-130	Pass	
Benz(a)anthracene	S15-De07544	NCP	%	93			70-130	Pass	
Benzo(a)pyrene	S15-De07544	NCP	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	S15-De07544	NCP	%	92			70-130	Pass	
Benzo(g.h.i)perylene	S15-De07544	NCP	%	96			70-130	Pass	
Benzo(k)fluoranthene	S15-De07544	NCP	%	94			70-130	Pass	
Chrysene	S15-De07544	NCP	%	105			70-130	Pass	
Dibenz(a.h)anthracene	S15-De07544	NCP	%	87			70-130	Pass	
Fluoranthene	S15-De07544	NCP	%	101			70-130	Pass	
Fluorene	S15-De07544	NCP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S15-De07544	NCP	%	89			70-130	Pass	
Naphthalene	S15-De07544	NCP	%	100			70-130	Pass	
Phenanthrene	S15-De07544	NCP	%	110			70-130	Pass	
Pyrene	S15-De07544	NCP	%	101			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S15-De08100	NCP	mg/kg	4.2	4.8	13	30%	Pass	
Cadmium	S15-De08100	NCP	mg/kg	0.5	0.6	16	30%	Pass	
Chromium	S15-De08100	NCP	mg/kg	21	22	3.0	30%	Pass	
Copper	S15-De08100	NCP	mg/kg	180	160	9.0	30%	Pass	
Lead	S15-De08100	NCP	mg/kg	150	160	8.0	30%	Pass	
Mercury	S15-De08774	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S15-De08100	NCP	mg/kg	12	12	2.0	30%	Pass	
Zinc	S15-De08100	NCP	mg/kg	300	380	26	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S15-De05957	NCP	%	2.6	2.6	2.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Benzo(a)pyrene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S15-De08192	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Andrew Black	Analytical Services Manager
Bob Symons	Senior Analyst-Inorganic (NSW)
Ivan Taylor	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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NATA # 1261 Site # 18217

Brisbane
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Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Company Name: SLR Consulting (Sydney)
Address: 2 Lincoln St
Lane Cove West
NSW 2066

Project Name: LINDFIELD
Project ID: 610.14433.00300

Order No.: 20113
Report #: 482676
Phone: 02 9428 8100
Fax:

Received: Dec 8, 2015 12:18 PM
Due: Dec 15, 2015
Priority: 5 Day
Contact Name: Craig Cowper

Eurofins | mgt Client Manager: Andrew Black

Sample Detail					Polycyclic Aromatic Hydrocarbons	Metals M8	Moisture Set
Laboratory where analysis is conducted							
Melbourne Laboratory - NATA Site # 1254 & 14271							
Sydney Laboratory - NATA Site # 18217					X	X	X
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
DUP01A	Dec 06, 2015		Soil	S15-De08707		X	X
DUP02A	Dec 06, 2015		Soil	S15-De08708	X		X

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NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Sample Receipt Advice

Company name:	**SLR Consulting (Sydney)**
Contact name:	Craig Cowper
Project name:	LINDFIELD
Project ID:	610.14433.00300
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Dec 8, 2015 12:18 PM
Eurofins | mgt reference:	**482676**

Sample information

☑ A detailed list of analytes logged into our LIMS, is included in the attached summary table.

☑ All samples have been received as described on the above COC.

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

☑ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Andrew Black on Phone : (+61) 2 9900 8490 or by e.mail: AndrewBlack@eurofins.com.au

Results will be delivered electronically via e.mail to Craig Cowper - ccowper@slrconsulting.com.

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Company Name:	SLR Consulting	Project Name/No:	610.14433.00300 Lindfield
Address:	2 Lincoln Street	Purchase Order No:	SGS PO 20112 Eurofins PO 20113
	Lane Cove NSW 2066	Results Required By:	Standard Turnaround
		Telephone:	0400 882 269
Contact Name:	Craig Cowper	Facsimile:	02 9427 8200
		Email Results:	ccowper@slrconsulting.com

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10 TRH/BTEX/PAH/Metals	CL16 TRH / BTEX / PAH/Metals / Phenols	CL5 TRH/BTEX	CL5 TRH/BTEX/PAH/VOC	CL2 8 metals	PAH	OCP	Phenol (total)	VOC (8260)	Asbestos (Absence/Presence)	BTEX		B1 TRH/BTEX	8 metals	PAH	Notes
																						432676.
DUP01	06/12/15			X	Ice	2					X											
DUP01A	06/12/15			X	Ice	2														X		SEND TO EUROFINS MGT
DUP02	06/12/15			X	Ice	2						X										
DUP02A	06/12/15			X	Ice	2															X	SEND TO EUROFINS MGT
Trip Spike	06/12/15		X		Ice	1											X					
Trip Blank	06/12/15		X		Ice	1											X					
RB01	06/12/15		X		Ice	4					X	X										

Relinquished By: Craig Cowper	Date/Time: 7 December @ 8:30AM	Received By: Siamak	Date/Time 8/12/15
Relinquished By:	Date/Time:	Received By:	Date/Time 12:18pm
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: SLR Pricing 2015
	Comments: Methods and detection limits to suit NEPM 2013		Lab Quotation No: Eurofins Version 13.CS2

CALIBRATION

SLR

PID CALIBRATION LOG

PID MODEL: MiniRae Lite PGM73500 (10.6eV lamp)	PID SERIAL NUMBER: 595-000501

Date:	05/11/2015	SLR Project Number:	610.15486.00000
Isobutylene Gas Lot No:	1583028		
Isobutylene Standard (ppm):	100 ppm		
Fresh Air Cal (ppm):	0.0		
Isobutylene Cal (ppm):	100		
SLR Consultant Signature:			

Date:	20/11/2015	SLR Project Number:	610.15675.00000
Isobutylene Gas Lot No:	1583028		
Isobutylene Standard (ppm):	100 ppm		
Fresh Air Cal (ppm):	0.0		
Isobutylene Cal (ppm):	100		
SLR Consultant Signature:			

Date:	25/11/15	SLR Project Number:	610.15884.00000
Isobutylene Gas Lot No:	1583028		
Isobutylene Standard (ppm):	100		
Fresh Air Cal (ppm):	0.0		
Isobutylene Cal (ppm):	100.5		
SLR Consultant Signature:	Abo.Mc		

Date:	06/12/15	SLR Project Number:	610.14433.00300
Isobutylene Gas Lot No:	1583028		
Isobutylene Standard (ppm):	100		
Fresh Air Cal (ppm):	0.0		
Isobutylene Cal (ppm):	100		
SLR Consultant Signature:			

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