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PHASE 2 CONTAMINATION ASSESSMENT

LOTS 2 & 3 IN DP1115877
53A & 53B WARRIEWOOD ROAD, WARRIEWOOD

REPORT NO 13757/2-AA 27 JUNE 2016

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Job No: 13757/2
Our Ref: 13757/2-AA
27 June 2016

Merrin Developments Pty Ltd
C/- Intercapital Consultants
155 Regent Street
RIVERSTONE NSW 2765
Email: len@intercapital.ws

Attention: Mr L Mariani

Dear Sir

re: **Proposed Residential Development**
Lots 2 & 3 in DP1115877 - 53A & 53B Warriewood Road, Warriewood
Phase 2 Contamination Assessment

Further to the phase 1 preliminary contamination assessment (PCA) report (Report No 13234/2-AA dated 25 August 2014), prepared by Geotechnique Pty Ltd (Geotechnique) for the property registered as Lots 2 and 3 in DP1115877 and Part Lot 3 in DP942319, located at 53A, 53B and 53 Warriewood Road, Warriewood and as requested, we have completed a phase 2 contamination assessment (CA) for a parcel of land currently registered as Lots 2 and 3 in DP1115877, located at 53A and 53B Warriewood Road, Warriewood (hereafter referred as site).

Reference should be made to Executive Summary.

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

ANWAR BARBHUYIA
Associate
BE (Civil), MEngSc (Enviro), MIEAust

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EXECUTIVE SUMMARY

Further to the phase 1 preliminary contamination assessment (PCA) report (Report No 13234/2-AA dated 25 August 2014), prepared by Geotechnique Pty Ltd (Geotechnique) for the property registered as Lots 2 and 3 in DP1115877 and Part Lot 3 in DP942319, located at 53A, 53B and 53 Warriewood Road, Warriewood and as requested, this executive summary presents a synopsis of a phase 2 contamination assessment (CA) for a parcel of land currently registered as Lots 2 and 3 in DP1115877, located at 53A and 53B Warriewood Road, Warriewood (hereafter referred as site), indicated on Figure 1 (page 1 of the report).

We understand proposed residential development at the above site includes construction of residential dwellings and townhouses/apartment buildings with three storeys above the ground and one level of basement car park. The basement excavations will be up to about 3.0m deep.

The objective of the Phase 2 CA was to supplement the Phase 1 PCA Report 13234/2-AA with appropriate soil sampling and testing, in order to ascertain whether the site is likely to present a risk of harm to human health and/or the environment.

In order to achieve the objective of this assessment, the scope of work included review of the phase 1 preliminary contamination assessment report, site reconnaissance, test pit excavation, soil sampling and testing, and preparation of this report.

As shown on Drawing No 13757/2-AA1, the site is trapezoidal in shape and covers an area of approximately 1.609 hectares (ha)

The findings of this Phase 2 CA are summarised as follows:

- The site comprised two individual rural residential properties facing Warriewood Road.
- The site is proposed for residential development involving construction of residential dwellings and townhouses/apartment buildings with three storeys above the ground and one level of basement car park.
- The entire site is underlain by imported and site originated fill overlying natural clayey silt, sandy silt and clayey soil. The test pits did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter, with the exception of the presence of fibro-cement pieces in the fill profile at test pit TP25. Moreover, one fibro-cement piece at the ground surface of each of two judgmental sampling locations (FCP1 and FCP2) was also observed. Both fibro-cement pieces were sent to laboratory for asbestos analysis. No other fibro-cement pieces were found on the ground surface at FCP1 and FCP2.

- All the laboratory test results satisfied the criteria for stating that the analytes selected are either not present i.e. concentrations less than laboratory limits of reporting, or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under a "residential with access to soil" form of development, with the exception of elevated cadmium and PAH concentrations and detection of friable asbestos and boned asbestos containing material (ACM) fragments, as indicated on Drawing No 13757/2-AA2. Elevated Benzo(a)Pyrene TEQ concentrations and friable asbestos presents a risk of harm to human health, whilst elevated Benzo(a)Pyrene (BaP) and cadmium concentrations might impact on terrestrial ecosystems or on the growth of certain plants. ACM fragments present a potential risk of harm to human health.

The site is considered suitable for the proposed residential development subject to implementation of the following recommendations prior to site preparation and earthworks:

- Detailed sampling and testing in the vicinity of locations of concern, as indicated on Drawing No 13757/2-AA2, to delineate the extent of contamination.
- Sampling and testing of soils in the footprints of site features such as the houses, building, sheds, carport, glasshouse, concrete, recycled asphalt, gravel and bitumen covered areas, after complete demolition and removal or clearing.
- Development of a remedial action plan (RAP) to remediate PAH and asbestos contaminated fill materials with elevated Metals concentrations plus any other contamination identified through the recommended additional sampling and testing, followed by appropriate validation. We consider that the site can be made suitable for the proposed development following appropriate remediation and validation.

For any materials to be excavated and removed from the site, it is recommended that waste classification of the materials, in accordance with the "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA 2014 and NSW EPA guidelines for the resource recovery exemptions under the Protection of the Environment Operations (Waste) Regulation 2005, is undertaken prior to disposal at an appropriately licensed landfill or potential re-use at other sites.

If suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets/pieces/pipes, ash material, etc) are encountered during any stage of future earthworks/site preparation/demolition/remediation, we recommend that this office is contacted for assessment. In the event of contamination, detailed assessment, remediation and validation will be necessary.

Any imported fill should be tested, or validation certificates provided by a qualified consultant, to ensure suitability for the proposed residential use. In addition, the imported fill must be free from asbestos, ash and odour, not be discoloured and not acid sulphate soil. The imported soil should either be virgin excavated natural materials (VENM) or excavated natural material (ENM).

Reference should be made to Section 15.0 of the report and Appendix C, which set out details of the limitations of the assessment.

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1.0 INTRODUCTION

Further to the phase 1 preliminary contamination assessment (PCA) report (Report No 13234/2-AA dated 25 August 2014), prepared by Geotechnique Pty Ltd (Geotechnique) for the property registered as Lots 2 and 3 in DP1115877 and Part Lot 3 in DP942319, located at 53A, 53B and 53 Warriewood Road, Warriewood and as requested, we have completed a phase 2 contamination assessment (CA) for a parcel of land currently registered as Lots 2 and 3 in DP1115877, located at 53A and 53B Warriewood Road, Warriewood (hereafter referred as site), as indicated on Figure 1 below.

FIGURE 1

Map Data ©2016 Google

We understand proposed residential development at the above site includes construction of residential dwellings and townhouses/apartment buildings with three storeys above the ground and one level of basement car park. The basement excavations will be up to about 3.0m deep.

The objective of the Phase 2 CA was to supplement the Phase 1 PCA Report 13234/2-AA with appropriate soil sampling and testing, in order to ascertain whether the site is likely to present a risk of harm to human health and/or the environment.

This report was prepared generally in accordance with the NSW Environment Protection Authority (EPA), "Guidelines for Consultants Reporting on Contaminated Sites" – 2011, and to satisfy control B3.6 Contaminated Land and Potentially Contaminated Land of Pittwater Council 21 Development Control Plan 2014 as well as State Environmental Planning Policy No. 55 – Contaminated Land (SEPP55).

2.0 SCOPE OF WORK

In order to achieve the objectives of the assessment, the following scope of work was conducted:

- Review and summary of the *Phase 1 Preliminary Contamination Assessment* report prepared by Geotechnique in August 2014.
- An inspection by a Field Engineer from Geotechnique, to identify current site activities, site features and any visible or olfactory indicators of potential contamination.
- Soil sampling by the Field Engineer in accordance with a pre-determined sampling plan, developed with reference to the NSW EPA *Sampling Design Guidelines* and aimed at ascertaining the presence of soil contaminants in the open area of the site.
- Chemical analysis by NATA accredited testing laboratories, in accordance with chains of custody prepared by Geotechnique.
- Implementation of industry standard quality assurance (QA) and quality control (QC) measures. QC samples were also forwarded to the testing laboratories.
- Assessment of the laboratory analytical results against current applicable guidelines.
- Assessment of field and laboratory QA and QC.
- Preparation of this report.

3.0 SITE INFORMATION

The site is located on the south western side of Warriewood Road, Warriewood, in the local government area of Pittwater, as indicated on Figure 1 (page 1). The site comprises the entirety of Lots 2 and 3 in DP1115877. Reference may be made to Drawing No 13234/2-AA1 for the lot layout.

As shown on Drawing No 13757/2-AA1, the site is trapezoidal in shape and covers an area of approximately 1.609 hectares (ha)

At the time of inspection and field sampling on 30 May 2016 by a Field Engineer from Geotechnique, the site comprised two individual rural residential properties, facing Warriewood Road. During the inspection for the phase 2 CA, the site remained unchanged as observed during phase PCA in July 2014, as shown on Drawing No 13234/2-AA1.

Lot 2 in DP 1115877 (53A Warriewood Road) was a residential land. Former market gardening activities were reflected on the land terraces. A number of features were identified on site including: a fibro house with possible fibro roof, a colorbond garage, a galvanised iron (GI) and fibro shed, a GI shed, remnant of a former shed, a glass house, a GI chook house and a concrete driveway. A batter acting as a driveway along the north western boundary was partly covered with recycled asphalt. The land slopes gently from Warriewood Road frontage toward the centre then become flat toward Narrabeen Creek. The centre portion was quite boggy.

Lot 3 in DP 1115877 (53B Warriewood Road) was a residential land. The lot consisted of a 2 storey brick house with tile roof, a fibro house with colorbond roof and awning, a colorbond garden shed, an in-ground swimming pool, a GI shed, a colorbond shed and bitumen driveway. This lot appeared to have been formed by filling at the north-eastern portion for levelling under the houses, the pools and the driveways structures; and filling at the south western portion using coarse material such as gravel and building rubbles to create a stable surface on the original boggy ground.

The remainder of the site was grass and/or tree covered. There were no obvious features associated with any underground storage tanks (bowser, breather pipe, inlet valve and piping) or odour that would indicate the potential for contamination. There were no visible or olfactory indicators of potential contamination.

There were no air emissions emanating from the site and neighbouring properties.

The site is bound to the north west by rural residential land, to the north east by Warriewood Road and to the south east by a rural residential land and to the south west by Narrabeen Creek.

4.0 TOPOGRAPHY, GEOLOGY & HYDROGEOLOGY

In general, ground surface of the site slopes moderately to gently toward the creek.

Based on the Geological Map of Sydney (Geological Series Sheet 9130, Scale 1:100,000, Edition 1, 1983), published by the Department of Minerals Resources, Geological Survey of New South Wales, the subsurface materials across the site is anticipated to be stream alluvium and/or estuarine sand, comprising silty to peaty quartz sand, silt and clay, ferruginous and humic at places, with shell layers.

Reference to the Soil Landscape Map of Sydney (Soil Landscape Series Sheet 9130, Scale 1:100,000, Edition 2, 2002), prepared by the Department of Land and Water Conservation of NSW indicates that the landscape at the site belongs to Warriewood Group, which is characterised by level to gently undulating swales, depressions and in filled lagoons on Quaternary sand, with local relief of less than 10m, ground slopes of less than 3%, depth to water table of less than 2.0m. Soils in this group comprise sandy humus, sand and peaty, with thickness exceeding 1.5m. This landscape has high watertable and is subjected to flooding.

Reference should be made to Table 1 in Appendix A for descriptions of the soils encountered during sampling for this assessment. Based on information from the test pits and boreholes locations, the sub-surface profile across the site is generalised as follows:

Fill	The following 4 types of fill were encountered; Type 1: 300mm to 1.8m thick, clay, medium plasticity, brown, inclusion of gravel, cobbles and silt was encountered at TP5, TP10, TP11, TP13, TP14, TP16, TP17, TP19, TP20, TP24 and TP25, underlain by natural sandy silt or natural silty sandy clay or type 2 fill. Type 2: 800mm thick silty sandy clay, low plasticity, dark grey, inclusion of branches, building material, bricks, fibro-cement pieces, was encountered at TP25, underlain by natural silty sandy clay. Type 3: 100mm to 500mm thick Sandy Silt, fine grained, brown, inclusion of gravel, inclusion of gravel, was encountered at TP13, TP14, TP10 and TP25 to TP27, underlain by type 1 fill or natural silty sandy clay.

	Type 4: 100mm to 500mm thick clayey silt, fine grained, brown, was encountered at BH1, TP5, BH7, BH8, TP11, TP16 and TP17, underlain by type 1 fill or natural clayey silt. Based on the contents of the fill materials, the natural soil profiles and regional geological information, it appears that type 1 fill materials could have been imported to the site, whilst types 2 to 4 might have originated from the site.
Natural Soil	Clayey silt, fine grained, dark brown or silty sandy clay, low plasticity, dark grey-brown or sandy silt, fine grained, dark brown/pale grey or clay, medium to high plasticity, brown-grey, was encountered below the fill material across the site except for BH7 and BH8 due to hand auger refusal. Natural clayey silt was also encountered on the surface layer of BH2 to BH4, BH6, TP9, TP12 and TP15. Natural silty sandy clay was also encountered on the surface layer of TP18 and TP21 to TP23

Fibro-cement pieces were found in fill profile at TP25. No fibro-cement pieces were observed in other sampling points, except the presence of one fibro-cement piece at the ground surface of each of two judgmental sampling locations (FCP1 and FCP2). Both pieces were collected and sent to laboratory for asbestos analysis.

Based on observation and site topography, surface run-off would generally follow the topography and eventuate in the Narrabeen Creek, which borders the site to the south west.

A search was carried out during the phase 1 PCA through the website of the Department of Natural Resources for any registered groundwater bore data within a radius of one kilometre (km) of the site. The search revealed eight bores within this radius. However, features were available for six bores. The bores were drilled between 2004 and 2008, with standing water level at depths ranging from 0.9m to 7.0m. The bores were authorised / intended for monitoring purposes, test bore, recreation and irrigation usage purposes.

During the recent field works to install monitoring well as a part groundwater contamination assessment, groundwater was encountered at about 2.5m below the existing ground surface at about centre portion of the site. Preparation of a separate report regarding the groundwater contamination is underway.

5.0 SITE HISTORY INFORMATION

Geotechnique carried out a review of site history information as part of the Phase 1 PCA. The review included historical aerial photographs, certificates of land titles (past and present), Planning Certificates issued by Council under Section 149 of the Environmental Planning and Assessment Act 1979, EPA records and WorkCover NSW information pertaining to storage of dangerous goods. For details, reference should be made to Report 13234/2-AA.

Historical aerial photographs revealed that the site was rural residential land with market garden activities since at least 1950s. Market garden activates were continued in the north western portion of the site until the 2000s, whilst in the south eastern portion it continued until the 1970s. From the 1980s, more sheds/buildings were built in the south eastern portion of the site.

NSW Department of Lands records indicate various current and past private owners of the site. A farmer owned the site between 1913 and 1943 and two market gardeners owned the site between 1949 and 1982.

The Section 149 (2) Planning Certificates revealed no matters arising under the Contaminated Land Management (CLM) Act 1997.

A search of the EPA records revealed no EPA notices issued for the site.

A search of records held by WorkCover NSW did not locate any records of keeping dangerous goods at the site, including underground tanks.

6.0 SUMMARY OF THE PHASE 1 PCA REPORT

A Phase 1 PCA was carried out for the site currently registered as Lots 2 and 3 in DP1115877 and Part Lot 3 in DP942319, located at 53A, 53B and 53 Warriewood Road, Warriewood, in the local government area of Pittwater. The results were presented in the Geotechnique report *Phase 1 Preliminary Contamination Assessment* (Ref 13234/2-AA dated 25 August 2014). It is understood that the site is proposed for residential development.

The objective of the assessment was to ascertain whether the site potentially presents a risk of harm to human health and/or the environment.

In order to achieve the objectives of the assessment, the scope of work included a study of site history, geological and hydrogeological information and a site inspection.

At the time of inspections on 25 July 2014 by a Field Engineer from Geotechnique, the site comprised three individual properties. All properties were facing Warriewood Road. Two properties were rural residential, whilst the other one was vacant land. The following observations were made during the inspection, as shown on Drawing No 13234/2-AA1.

- The site comprised of three lots, Lot 2 and 3 in DP 1115877 and Lot 3 in DP 942319;
    - Lot 2 in DP 1115877 was a residential land. Former market gardening activities were reflected on the land terraces. A number of features were identified on site including: a fibro house with possible fibro roof, a colorbond garage, a galvanised iron (GI) and fibro shed, a GI shed, remnant of a former shed, a glass house, a GI chook house and a concrete driveway. A batter acting as a driveway along the north western boundary was partly covered with recycled asphalt. The land slopes gently from Warriewood Road frontage toward the centre then become flat toward Narrabeen Creek. The centre portion was quite boggy.
    - Lot 3 in DP 1115877 was a residential land. The lot consisted of a 2 storey brick house with tile roof, a fibro house with colorbond roof and awning, a colorbond garden shed, an in-ground swimming pool, a GI shed, a colorbond shed and bitumen driveway.
    - Lot 3 in DP 942319 was vacant land which appeared to be an easement.

Lot 3 1115877 and Lot 3 in DP 942319 appeared to have been formed by filling at the north-eastern portion for levelling under the houses, the pools and the driveways structures; and filling at the south western portion using coarse material such as gravel and building rubbles to create a stable surface on the original boggy ground.

The remainder of the site was grass and/or tree covered. There were no obvious features associated with any underground storage tanks (bowser, breather pipe, inlet valve and piping) or odour that would indicate the potential for contamination. There were no visible or olfactory indicators of potential contamination.

There were no air emissions emanating from the site and neighbouring properties.

The site is bound to the north west by rural residential land, to the north east by Warriewood Road and to the south east by a rural residential land and to the south west by Narrabeen Creek.

Based on the information obtained in preparation of the report, it is considered that the subject site has potential for contamination due to past market garden activities in the site, the presence of site features and potential fill within the site.

Based on the phase 1 PCA, the site would be suitable for the proposed residential development, subject to implementation of a suitable sampling and testing plan as a detailed contamination assessment to target the potential for contamination listed in Section 7.0 of the report. If any contaminants are identified the site could be made suitable for the proposed development following appropriate remediation and validation.

7.0 DATA QUALITY OBJECTIVES

The data qualitative objectives (DQO) are qualitative and quantitative statements that specify the quality of the data required for the assessment. DQO must ensure that the data obtained is sufficient to characterise the contamination of a site and enable appropriate assessment of health and environmental risks for the current or proposed use. The DQO were developed for this assessment in accordance with the NSW Department of Environment and Conservation (DEC) (2006), Guidelines for the NSW Site Auditor Scheme (2nd edition), as well as in accordance with the Australian Standard "*Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-volatile and semi-volatile compounds*" (AS4482.1-2005) and "*Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 2: Volatile substances*" (AS4482.2-1999). The DQO process adopted is outlined below.

State the Problem

The site is rural residential land which was used as market garden activities in the past. The site also contains fill materials, houses, sheds, carport, glasshouse, GI features, shipping containers and recycled asphalt, gravel and bitumen covered areas. As a result the potential exists for contamination to have occurred within the site in the past and presently.

The site is proposed for residential development.

The following key professional personnel were involved in the assessment.

Mr Anwar Barbhuyia	Associate
Mr Justin Hofmann	Field Engineer

Identify the Decisions
The decisions to be made in completing the assessment are as follows:

- Does the site or is the site, likely to present a risk of harm to human health or the environment*?*
- Is the site currently suitable for the proposed end use?
- Is there any potential for groundwater contamination?
- Are there any off-site migration issues to be considered?
- Is further investigation required to adequately address the abovementioned decisions?
- Is further investigation required to delineate the extent of contamination identified?
- Does the site require remediation to ensure suitability for the proposed end use?

Identify Inputs to the Decisions
The inputs into the decision process are as follows:

- Historical information (presented in Section 5.0).
- Site operations and observation details (presented in Section 3.0).
- Systematic soil sampling at a density required generally to meet the NSW EPA "*Sampling Design Guidelines*" using a backhoe or hand auger, where sampling location is not accessible by a backhoe.
- Judgemental soil sampling, targeting the areas where fibro-cement pieces were observed on the ground surface.
- Soil profile information obtained through the sampling phase.
- Chemical and/or physical test data on analysed samples.
- Assessment of test data / data sets against applicable soil investigation levels in the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM), NSW Site Auditor Scheme, 2006 (Section 12.0). For asbestos, the assessed soil must not contain bonded asbestos containing material (ACM) in excess of 0.01%w/w and surface soil within the site is free of visible ACM, and friable asbestos in the soil is <0.001% w/w.

Define the Study Boundaries
The study boundary for this assessment is defined by the boundaries of the subject site, as shown on Drawing No 13757/2-AA1 and summarised in Section 3.0 of this report.

Develop a Decision Rule
The information obtained through this assessment will be used to characterise the site in terms of contamination issues and risk to human health and the environment. The decision rule in characterising the site will be as follows:

- Laboratory test results will be assessed individually.
- The assessment criteria are the NSW EPA produced and/or endorsed criteria, as specified in Section 12.0 of this report. For asbestos, the assessed soil must not contain bonded ACM in excess of 0.01%w/w and surface soil within the site is free of visible ACM, and friable asbestos in the soil is <0.001% w/w.

- The site will be deemed to potentially contain contamination "hot spots" if any of the individual concentrations exceed the assessment criteria adopted or any presence of asbestos-cement pieces on the surface soil or presence of bonded ACM in excess of 0.01%w/w in the assessed soil and/or detection of friable asbestos in excess of 0.001%w/w in the assessed soil. Further investigation, remediation and/or management will be recommended.

Laboratory test results will only be accepted and considered useable for this assessment under the following conditions:

- All laboratories used are accredited by NATA for the analyses undertaken.
- All detection limits set by the laboratories fall below the assessment criteria adopted.
- Analyte concentrations in the rinsate water sample do not vary significantly from the laboratory detection limits.
- The recovery of spike concentrations in the trip spike sample is sufficient so as not to impact on the reported concentrations of the soil samples when the same recovery is applied (BTEX only).
- The differences between the reported concentrations of analytes in the field duplicate samples and the corresponding original samples are within accepted limits (refer to Section 9.5).
- The differences between the reported concentrations of analytes in the inter-laboratory duplicate (split) samples and the corresponding original samples are within accepted limits (refer to Section 9.6).
- The QA/QC protocols and results reported by the laboratories comply with the requirements of the NEPM 1999 "*Guideline on Laboratory Analysis of Potentially Contaminated Soils*" and Australian and New Zealand Environment and Conservation Council (ANZECC)-1996 "*Guidelines for the Laboratory Analysis of Contaminated Soils*".

Specify Limits on Decision Errors
The limits on decision errors for this assessment are as follows:

- Systematic sample numbers comply with those recommended in the NSW EPA sampling design guidelines, which have risk probabilities already incorporated. Sample numbers are therefore considered adequate for site characterisation. Judgmental samples were recovered from two sampling locations where fibro-cement pieces were observed on the ground surface.
- Analyte selection in the open areas is based on site history, site activities and the presence of fill materials. The possibility of any other potential contaminants that would be detected through field observation (through odours, staining, and colouring, presence of fibro-cement piece) might need to be included.
- The assessment criteria adopted from the guidelines stated in Section 12.0 have risk probabilities already incorporated.
- The acceptable limits for field and inter-laboratory duplicate (split) comparisons are outlined in Sections 9.5 and 9.6 of this report.
- The acceptance limits for laboratory QA/QC parameters are based on the laboratory reported acceptance limits and those stated in the NEPM 1999 "*Guideline on Laboratory Analysis of Potentially Contaminated Soils*" and ANZECC 1996 "*Guidelines for the Laboratory Analysis of Contaminated Soils*".

Optimise the Design for Obtaining Data

- The procedures adopted for location and collection of environmental samples were developed prior to implementation, in accordance with NSW EPA guidelines and current industry practice. The sampling program was designed to ensure integrity of data collection during the assessment, including decontamination techniques, sample labelling, storage and chain of custody protocols.
- The analytical program was developed in theory prior to undertaking the sampling (based on site history, site activities and presence fill materials and soil stockpiles) and refined on the basis of field observations (both surface and sub-surface) during the sampling phase. All potential contaminants have been covered within the site.
- Only laboratories accredited by NATA for the analyses undertaken were used for this assessment. The laboratory performance is assessed through review of statistics calculated for QA samples such as blanks, spikes, duplicates and surrogates.
- The field QA/QC protocols adopted are outlined in Section 9.0 of this report. The QA/QC program incorporates preparation of traceable documentation of procedures used in the sampling and analytical program and in data validation procedures.

Data Quality Indicators

The performance of the assessment in achieving the DQO will be assessed through the application of Data Quality Indicators (DQI), defined as follows:

Precision	A quantitative measure of the variability (or reproducibility) of data.
Accuracy	A quantitative measure of the closeness of reported data to the “true” value.
Representativeness	The confidence (expressed qualitatively) that data is representative of each media present on the site.
Completeness	A measure of the amount of useable data from a data collection activity.
Comparability	The confidence (expressed qualitatively) that data can be considered equivalent for each sampling and analytical event.

Assessment of the data quality indicators is presented in Section 8.0 (sampling) and Section 11.0 (analysis) of this report.

8.0 SAMPLING & ANALYSIS PLAN AND SAMPLING METHODOLOGY

Sampling and analyses for the Phase 2 CA were carried out to obtain a reasonable assessment of the following:

1. Nature, location and likely distribution of soil contaminants beneath the site.
2. The risks that the contaminants (if present) pose to human health or the environment, both presently and under the conditions of the proposed development.

The risk of harm to human health and the environment was determined through comparison of test results with NSW EPA produced or endorsed criteria available at the time, as discussed in Section 12.0 of this report.

Soil sampling was carried out on 30 and 31 May 2016 by a Field Engineer from Geotechnique, responsible for visually assessing the site, locating the test pits as close as possible to nominated locations, recovery of soil samples, preparation of samples for delivery to NATA accredited laboratories and logging the sub-surface profile encountered at each test pit and borehole location.

Based on the "*Sampling Design Guidelines for Contaminated Sites*" 1995, EPA, for site area of 1.609ha, twenty seven (27) systematic sampling positions were adopted and aimed at maximising coverage of the site area. Two judgemental sampling points (FCP1 and FCP2) were positioned where one fibro-cement piece was observed on the ground surface at each location.

The test pit and sample locations are shown on Drawing No 13757/2-AA1.

The sampling procedures adopted were as follows:

- The sample location was excavated or drilled to the depth interval nominated by the Field Engineer. The representative soil sample was recovered directly from the bulk bucket of the backhoe using a stainless steel trowel, or from the hand auger using disposable gloves. For sample location, surface sample was recovered by using a stainless steel trowel. The stainless steel auger and trowel were decontaminated prior to use in order to prevent cross contamination (refer to Section 9.2 for details of the procedures for decontamination of the auger and trowel).
- To minimise the potential loss of volatiles, the laboratory soil sample was immediately transferred to a labelled, laboratory supplied, 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jar was then placed in a chilled container.
- The recovered soil sample for asbestos analysis was transferred into a small plastic bag, which was placed inside a large plastic bag.
- Fibro-cement pieces for asbestos analysis were collected into a separate small plastic bag, which was placed inside a large plastic bag.

In order to ensure the analytical performance of the primary laboratory, duplicate and split samples were prepared for analyses. Samples were kept in a labelled laboratory supplied glass jar (acid-washed and solvent-rinsed) and sealed with an airtight screw top Teflon lid. The fully filled jar was placed in a chilled container.

A rinsate water sample was collected and placed in a glass bottle and a vial supplied by the laboratory at completion of the each day sampling. The fully filled bottle and vial were labelled and placed in a chilled container.

At completion of each day field sampling, the chilled containers and large plastic bags were transported to our Penrith office. The chilled containers were then transferred to a refrigerator where the temperature was maintained below 4°C.

The chilled containers with the trip spike samples and large plastic bags, were forwarded to the primary laboratory SGS Environmental Services (SGS) and the secondary laboratory, Envirolab Services Pty Ltd (Envirolab), both NATA accredited. Chains of Custody (COC) were then forwarded to the laboratories.

On receipt of the samples and COC, the laboratories returned the Sample Receipt Confirmation, verifying the integrity of all samples received.

The soil profile encountered, as described in Section 6.0 of this report, did not reveal any visual (staining, dying) or olfactory indicators of potential contaminants, with the exception of the presence of fibro-cement pieces in the fill profile at TP25 and on the ground surface at FCP1 and FCP2. As a result, and based on the potential for contamination identified in the *Phase 1 Preliminary Contamination Assessment* report, the following laboratory analysis plan was implemented:

- Discrete selected imported fill samples were analysed for Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), Total Petroleum Hydrocarbons (TPH), BTEX (Benzene, Toluene, Ethyl Benzene and Xylenes) and Polycyclic Aromatic Hydrocarbons (PAH), Organochlorine Pesticides (OCP) and Polychlorinated Biphenyls (PCB).
- Discrete selected fill samples originating from the site, covering at least one sample for each type of fill materials, were analysed for Metals (arsenic, cadmium, copper, lead, mercury and zinc) and OCP. For screening purposes, the samples were also analysed for chromium and nickel.
- Surface natural soil samples and natural soil samples, immediately below the fill materials, were analysed for Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc) and/or OCP for screening purposes. Selected natural soil samples were also analysed for TPH, BTEX, PAH and PCB for screening purposes.
- Two judgmental soil samples where fibro-cement pieces were observed on the ground surface and fill samples with inclusions of fibro-cement pieces were analysed for asbestos. Fibro-cement pieces were also analysed for asbestos. Moreover, few selected fill and natural soil samples were also analysed for asbestos for screening purposes.

The following table provides a list of the data quality indicators (refer to Section 7.0) for the soil sampling phase of the assessment and the methods adopted in ensuring that the data quality indicators were met.

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Completeness	Good sampling coverage of open area of the site; sample numbers comply with NSW EPA sampling design guidelines. Two judgemental sampling points were positioned where one fibro-cement piece was observed on the ground surface at each location. Representative coverage of potential contaminants in the open area based on site history, site activities, presence of fill materials and fibro-cement pieces. On site visual assessment of soils uncovered. Use of trained and qualified field staff (Section 9.1). Preparation of sample location plan. Preparation of soil profile logs. Preparation of chain of custody records.

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Comparability	Using appropriate techniques for sample recovery. Appropriate industry standard decontamination procedures adopted (Section 9.2). Experienced samplers used. Using appropriate sample storage and transportation methods.
Representativeness	Good sampling coverage of open area of the site; sample numbers comply with NSW EPA sampling design guidelines. Two judgemental sampling points were positioned where one fibro-cement piece was observed on the ground surface at each location. Representative coverage of potential contaminants in the open area based on site history, site activities, presence of fill materials and fibro-cement pieces.
Precision and Accuracy	Rinsate blank water, trip spike, field duplicate, and inter-laboratory duplicate / split samples recovered or prepared (Section 9.3 to 9.6).

9.0 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

9.1 Sampling Personnel

Geotechnique undertook all the sampling associated with this assessment. A Field Engineer from Geotechnique (Justin Hofmann) nominated sampling positions based on the project brief prepared by the Project Manager, supervised (full time) the excavation of each test pit, carried out drilling using a hand auger at a number of locations, logged the soil profile encountered, recovered soil samples at a frequency determined by the sampling plan (project brief), packaged the samples (refer to Section 8.0).

Mr Hofmann has a Bachelor of Science degree and has been employed by Geotechnique as a Field Engineer since November 2015. At commencement of employment Mr Hofmann underwent supervised training in Geotechnique procedures for sampling and logging.

9.2 Decontamination Procedures

As stated in Section 8.0 of this report, soil samples were transferred directly to the laboratory supplied glass jar using a stainless steel trowel from the bulk bucket of the backhoe or direct from the stainless steel trowel or from the stainless steel hand auger using disposable gloves. The stainless steel hand auger and trowel were decontaminated prior to use. As stated in Sections 9.5 and 9.6, a trowel was used to divide the soil sample into two portions to prepare duplicate/split samples. Decontamination of the hand auger and trowel involved the following:

- Removal of soils adhering to the hand auger and trowel by scrubbing with a brush;
- Washing the hand auger and trowel thoroughly in a solution of phosphate free detergent (Decon 90) using brushes and disposable towels;
- Rinsing the hand auger and trowel thoroughly with distilled water;
- Repeating the washing / rinsing steps and rinsing with water;
- Drying the hand auger and trowel with a clean cloth.

A sample of the final rinsate water sample was recovered at completion of the each day sampling.

9.3 Rinsate Samples

A rinsate water sample was recovered on completion of each of the two days of field works for soil sampling in order to identify possible cross contamination between the sampling locations. Therefore, two (2) rinsate water samples (Rinsates R1 and R2) were recovered.

The rinsate water samples were analysed for Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc). The test results for the rinsate water sample are summarised in Table A. The laboratory test results certificates are included in Appendix B.

As shown in Table A, all concentrations of analytes in the rinsate sample were less than the laboratory limits of reporting, which indicates that adequate decontamination had been carried out in the field.

9.4 Trip Spike Sample

Trip spike samples are obtained from the laboratory on a regular basis, prior to conducting field sampling where volatile substances are suspected. The samples are held in the Penrith office of Geotechnique, at less than 4°C, for a period of not more than seven days. During the field work, the trip spike samples are kept in the chilled container with soil samples recovered from the site. The trip spike sample is then forwarded to the primary laboratory together with the soil samples recovered from the site.

The laboratory prepares the trip spike by adding a known amount of pure petrol standard to a clean sand sample. The sample is mixed thoroughly to ensure a relatively homogenous distribution of the spike throughout the sample. When the sample is submitted for analysis, the same procedure is adopted for testing as for the soil samples being analysed from the site.

The purpose of the trip spike is to detect any loss or potential loss of volatiles from the soil samples during field work, transportation, sample extraction or testing.

Trip spike sample (TS1) was forwarded to the primary analytical laboratory with the samples collected from the site and was tested for BTEX. The test results for the trip spike sample, reported as a percentage recovery of the applied and known spike concentrations, are shown in Table B. The laboratory test results certificates are included in Appendix B.

As indicated in Table B, the results show a good recovery of the spike concentrations (ranging from 88% to 99%). Furthermore, all BTEX results were less than laboratory detection limits and there were no visible or olfactory indications of hydrocarbon contamination.

Based on the above, it is considered that any loss of volatiles from the recovered samples that might have occurred would not affect the outcome / conclusions of this report.

9.5 Duplicate Samples

A field duplicate sample is prepared in the field through the following processes:

- A larger than normal quantity of soil is recovered from the sample location selected for duplication.
- The sample is placed in a decontaminated stainless mixing bowl and divided into two portions, using the decontaminated trowel.

- A portion of the sub-samples was immediately transferred, using the decontaminated trowel, into a labelled, laboratory supplied, 250ml glass jar and sealed with an airtight, Teflon screw top lid. The fully filled jar was labelled as the duplicate sample and immediately placed in a chilled container.
- The remaining portion is stored in the same way and labelled as the original sample.

Duplicate samples were prepared on the basis of sample numbers recovered during the field work overall. The duplicate sample frequency was computed using the total number of samples analysed as part of this assessment. The duplicate sample frequencies computed are as follows:

Metals	67 samples analysed	4 duplicates	5.9% frequency
TPH	16 samples analysed	1 duplicate	6.3% frequency
BTEX	16 samples analysed	1 duplicate	6.3% frequency
PAH	18 samples analysed	1 duplicate	5.6% frequency
OCP	40 samples analysed	2 duplicates	5.0% frequency
PCB	8 samples analysed	1 duplicate	13% frequency

The duplicate frequency adopted generally complies with the NEPM, which recommends a duplicate frequency of at least 5%.

The laboratory test results are summarised in Tables C1 to C4. The laboratory test results certificates are included in Appendix B.

A comparison was made of the laboratory test results for the duplicate sample with the original sample and the Relative Percentage Differences (RPD) were computed to assess the accuracy of the laboratory test procedures. RPD within 30% are generally considered acceptable. However, this variation can be higher for organic analysis than for inorganics and for low concentrations of analytes.

As shown in Tables C1 to C4 the comparisons between the duplicates and corresponding original samples indicated generally acceptable RPD, with the exception of the RPD of some Metals and PAH, which were in excess of 30% mainly due to heterogeneity of the samples. Therefore, the variations are not considered to be critical and the test results provided by SGS are of adequate accuracy and reliability for this assessment.

9.6 Inter-laboratory Duplicate / Split Samples

The inter-laboratory duplicate / split sample provides a check on the analytical performance of the primary laboratory. Inter-laboratory duplicate/split sample was prepared on the basis of sample numbers recovered during field work and the analyses undertaken by the primary laboratory.

The inter-laboratory duplicate/ split samples were prepared in the same manner as the duplicate sample. Reference should be made to Section 9.5.

The split sample frequency was computed using the total number of samples analysed as part of this assessment. The split sample frequencies computed are as follows:

Metals	67 samples analysed	4 splits	5.9% frequency
OCP	40 samples analysed	2 splits	5.0% frequency

The split sample frequency adopted generally complies with the NEPM, which recommends a frequency of 5%.

The laboratory test results are summarised in Tables D1 to D4. The laboratory test results certificates are included in Appendix B.

Based on Schedule B (3) of the NEPM the difference in the results between the split samples should generally be within 30% of the mean concentration determined by both laboratories, i.e., RPD should be within 30%. However, this variation can be higher for organic analysis than for inorganics and for low concentrations of analytes.

As shown in Tables D1 to D4, the comparisons between the splits and corresponding original samples indicated generally acceptable RPD, with the exception of the RPD of a number of Metals, which were in excess of 30% mainly due to heterogeneity of the samples. Therefore, the variations are not considered to be critical and the test results provided by the primary laboratory are deemed reliable for this assessment.

10.0 LABORATORY QUALITY ASSESSMENT AND QUALITY CONTROL

Geotechnique uses only laboratories accredited by the National Association of Testing Authorities (NATA) for chemical analyses. The laboratory must also incorporate quality laboratory management systems to ensure that trained analysts using validated methods and suitably calibrated equipment produce reliable results.

In addition to the quality control samples the laboratory must also ensure that all analysts receive certification as to their competence in carrying out the analysis and participate in national and international proficiency studies.

SGS and Envirolab are accredited by NATA and operate a Quality System designed to comply with ISO / IEC 17025.

Generally within the allowable holding times, detailed in Schedule B(3) of The *National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM)* by the National Environment Protection Council (NEPC), the recovered discrete soil samples were analysed. It should be noted that there is no specific holding time for asbestos analysis. Within the allowable holding times for water detailed in Standard Methods for the Examination of Water and Wastewater (APHA) the rinsate samples were analysed.

The test methods adopted by the laboratories are indicated with the laboratory test results certificates in Appendix B. As part of the analytical run for the project the laboratories included laboratory blanks, duplicate samples, laboratory control samples, matrix spikes and/or surrogate spikes.

We have checked the QA/QC procedures and results adopted by the laboratories against the appropriate guidelines. The quality control sample numbers adopted by SGS and Envirolab are considered adequate for the analyses undertaken.

The methods used by SGS and Envirolab have been validated as recommended in the NEPM and ANZECC guidelines and endorsed by NATA.

The samples analysed for TPH (C6–C9) and/or BTEX were extracted by the purge and trap method recommended by the NSW EPA.

All reported laboratory Limits of Reporting (LOR) / Practical Quantitation Limits (PQL) were less than the assessment criteria adopted for each analyte or analyte group.

Overall, the quality control elements adopted by SGS and Envirolab indicate that the analytical data falls within acceptable levels of accuracy and precision for the analysis of soils. The analytical data provided is therefore considered to be reliable and useable for this assessment.

11.0 QA/QC DATA EVALUATION

The following table provides a list of the data quality indicators for the analytical phase of the assessment and the methods adopted in ensuring that the data quality indicators were met.

DATA QUALITY INDICATOR	METHOD(S) OF ACHIEVEMENT
Data Completeness	Laboratory sample receipt information received confirming receipt of samples intact and appropriate chain of custody. Analysis for all potential contaminants of concern in the open area of the site. NATA registered laboratory analytical reports / certificates of analysis provided.
Data Comparability	Use of NATA registered laboratories. Test methods consistent for each sample. Test methods comparable between primary and secondary laboratory. Generally acceptable RPD between original samples and field duplicates and inter-laboratory duplicate / split samples. A number of high RPD recorded due to non-homogeneous soil matrix.
Data Representativeness	Representative coverage of potential contaminants in the open area based on site history, site activities, presence of fill materials and fibro-cement pieces. Adequate duplicate, split, trip spike and rinsate sample numbers. Adequate laboratory internal quality control and quality assurance methods, complying with the NEPM.
Data Precision and Accuracy	Acceptable concentrations in rinsate blank water samples. Acceptable recoveries of spike concentrations in trip spike sample. Acceptable RPD for duplicate samples comparison overall. Acceptable RPD for inter-laboratory duplicate / split samples comparison overall. Appropriate and validated laboratory test methods used. Adequate laboratory performance based on results of the blank samples, duplicates, surrogate spike samples, control samples and/or matrix spike samples.

Based on the above it is considered that both laboratories complied with the quality assurance and quality control data quality indicators. As such, it is concluded that the laboratory test data obtained are reliable and useable for this assessment.

12.0 ASSESSMENT CRITERIA

Investigation levels and screening levels developed in the NEPM 2013 were used in this assessment for soil samples, as follows:

- Risk-based Health Investigation Levels (HIL) for a broad range of metals and organic substances. The HIL are applicable for assessing human health risk via all relevant pathways of exposure. The HIL as listed in Table 1A (1) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" are provided for different land uses.

  The site is proposed for residential development involving construction of residential dwellings and townhouses/apartment buildings with three storeys above the ground and one level of basement car park. Therefore, with regard to human health, analytical results will be assessed against risk based more stringent HIL for *residential with garden/accessible soil* (HIL A).

- Health Screening Levels (HSL) for TRH fractions and Naphthalene are applicable for assessing human health risk via inhalation and direct contact pathways. The HSL depend on specific soil physicochemical properties, land use scenarios and the characteristics of building structures. The HSL listed in Table 1A(3) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" apply to different soil types and depths below surface to >4 m.

  For this assessment, the analytical results were assessed against the available HSL for *residential with garden/accessible soil* (HSL A) for silt to depth 0m to <1m and 1m to <2m, and clay to depth of 0m to <1m, 1m to <2m and 2m to <4m.

- Ecological Screening Levels (ESL) for selected petroleum hydrocarbon compounds, TPH fractions and Benzo(a)Pyrene are applicable for assessing the risk to terrestrial ecosystems. ESL listed in Table 1B(6) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" broadly apply to coarse and fine-grained soils and various land uses and are generally applicable to the top 2m of soil.

  The analytical result was assessed against the available ESL for *residential with garden/accessible soil* for fine-grained soil (clay and silt).

- Ecological Investigation Levels (EIL), a specific type of Soil Quality Guidelines (SQG) for selected metals, is applicable for assessing the risk to terrestrial ecosystems. EIL listed in Table 1B(1-5) of Schedule B1 "*Guideline on Investigation Levels for Soil and Groundwater*" depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2m of soil. For arsenic and lead, generic EIL are adopted, for *urban residential* land use for aged contamination. For other metals, where available, EIL are calculated using the EIL calculator developed by CSIRO for NEPC. Otherwise, where available, EIL are calculated using 30% effect concentration (EC30) or lowest observed effect concentrations (LOEC) toxicity data. EIL are the sum of the added contaminant limit (ACL) and the ambient background concentration (ABC).

  For this assessment the analytical results were assessed against the available SQG / EIL for *urban residential* land use for aged contamination in soil for low traffic volume.

- Due to a lack of EIL for cadmium and mercury, the available Provisional Phytotoxicity Based Investigation Levels (PIL) published in the *Guidelines for the NSW Site Auditor Scheme* (NSW EPA, 2006) and EIL published in the NEPM 2013 were used, with regard to protection of the environment and impact on plant growth.

For discrete soil samples the individual concentrations of analytes were assessed against the HIL A / HSL A / ESL / EIL. For discrete soil samples the individual concentrations of cadmium and mercury were assessed against the PIL and HIL A.

For asbestos, the assessed soil must not contain bonded ACM in excess of 0.01%w/w and surface soil within the site is free of visible ACM, and friable asbestos in the soil is <0.001% w/w.

The site (or study area) will be deemed contaminated or containing contamination "hot spots" if the above criteria are unfulfilled. Further investigation, remediation and/or management will be recommended if the area of concern is found to be contaminated or contain contamination "hot spots".

13.0 FIELD & LABORATORY TEST RESULTS, ASSESSMENT & DISCUSSION

13.1 Field Results

Details of the sub-surface conditions encountered during field work for this assessment are presented in Table 1 in Appendix A of this report. As discussed in Section 4.0, the general soil profile comprised imported and site originated fill overlying natural clayey silt, sandy silt and clayey soil.

The test pits did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter, except presence of fibro-cement pieces at TP25. Moreover, one fibro-cement piece was observed at the ground surface of each of two judgmental sampling locations (FCP1 and FCP2). Both pieces were collected and sent to laboratory for asbestos analysis.

13.2 Analytical Results

Reference may be made to Appendix B for the actual laboratory analytical reports from SGS. The test results are also presented in Tables E1 to E3 and F to I together with the assessment criteria adopted. A discussion of the test data is presented in the following sub-sections.

13.2.1 Metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn)

The Metals test results for discrete fill samples are presented in Table E1 and as shown, all concentrations of Metals were below the available relevant Ecological Investigation Level (EIL) and Health Investigation Levels (HIL) for residential development with garden/accessible soil (HIL A). Concentrations of cadmium (Cd) and mercury (Hg) were also below the relevant provisional phytotoxicity based investigation levels (PIL), with the exception of highlighted Cd concentrations. The Cd Concentration (3.5mg/kg and 4.7mg/kg) might impact on the growth of certain plants but would not present a risk of harm to human health.

The Metals test results for surface natural soil samples and natural soil samples, immediately below the fill materials, are presented in Tables E2 and E3, and as shown all concentrations of Metals were below the available relevant EIL and HIL A. Concentrations of Cd and Hg were also below the relevant PIL.

13.2.2 TPH and BTEX

The TPH and BTEX test results for the selected discrete imported fill and deeper natural soil samples, immediately below the fill materials are presented in Table F. As shown in Table F, the concentrations of F1 (TPH C6-C10 less BTEX), F2 (TPH >C10-C16 less Naphthalene), F3 (TPH >C16-C34), F4 (TPH >C34-C40) and BTEX were below the relevant Health Screening Levels A (HSL A) and / or Ecological Screening Levels (ESL) adopted. Moreover, most of the test results were below the laboratory limits of reporting (LOR).

13.2.3 Polycyclic Aromatic Hydrocarbons (PAH)

The PAH test results for selected discrete imported fill and deeper natural soil samples, immediately below the fill materials, are presented in Table G and as shown all Benzo(a)pyrene (BaP), BaP TEQ, Naphthalene and Total PAH were below the relevant HIL A or HSL A or EIL or ESL adopted, with the exception of highlighted Benzo(a)pyrene (BaP) and BaP TEQ concentrations.

The BaP TEQ concentration exceeded the relevant HIL A, whilst BaP concentration exceeded the relevant ESL.

The BaP TEQ concentration (6.3mg/kg) presents a risk of harm to human health, whilst BaP concentration (4.9mg/kg) might impact on terrestrial ecosystems.

13.2.4 Organochlorine Pesticides (OCP)

The OCP test results for the discrete soil samples are presented in Table H and as indicated, all concentrations of OCP were well below the relevant HIL A. Concentrations of DDT were also well below the EIL. Most of the test results were below the laboratory LOR.

13.2.5 Polychlorinated Biphenyls (PCB)

The PCB test results for the selected discrete imported fill and deeper natural soil samples, immediately below the fill materials, are presented in Table H and as indicated the concentrations of PCB were below the relevant HIL A adopted as well as below the laboratory LOR.

13.2.6 Asbestos

The asbestos test results for the recovered selected discrete fill and deeper natural soil samples, immediately below the fill materials, are presented in Table I, and as indicated, no bonded asbestos found at the limit of reporting of 0.01% w/w. As also indicated in Table I, no friable asbestos found at the limit of reporting of 0.001% w/w, with the exception of TP14 (0-0.15m), TP25 (1.5-1.8m) and FCP2 (0-0.15m) where friable Chrysotile asbestos were found.

As also shown in Table I, Fibro-cement pieces recovered from the ground surface at FCP2 and fill profile at TP25 (1.5-1.8m), contain bonded Amosite and/or Chrysotile asbestos. As the asbestos-cement piece was sent to the laboratory for asbestos analysis, no other asbestos-cement pieces were observed on the ground surface at FCP2. As also shown in Table I, asbestos was not detected in the fibro-cement pieces observed on the ground surface at FCP1 and in the fill profile at TP25 (0.5-1.5m).

14.0 CONCLUSION AND RECOMMENDATIONS

The findings of this Phase 2 CA are summarised as follows:

- The site comprised two individual rural residential properties facing Warriewood Road.
- The site is proposed for residential development involving construction of residential dwellings and townhouses/apartment buildings with three storeys above the ground and one level of basement car park.
- The entire site is underlain by imported and site originated fill overlying natural clayey silt, sandy silt and clayey soil. The test pits did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter, with the exception of the presence of fibro-cement pieces in the fill profile at test pit TP25. Moreover, one fibro-cement piece at the ground surface of each of two judgmental sampling locations (FCP1 and FCP2) was also observed. Both fibro-cement pieces were sent to laboratory for asbestos analysis. No other fibro-cement pieces were found on the ground surface at FCP1 and FCP2.
- As presented in summary tables (Tables E1 to E2 and F to I) and discussed in Section 13.2, all the laboratory test results satisfied the criteria for stating that the analytes selected are either not present i.e. concentrations less than laboratory LOR, or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under a “residential with access to soil” form of development, with the exception of elevated cadmium and PAH concentrations and detection of friable asbestos and boned asbestos containing material (ACM) fragments, as indicated on Drawing No 13757/2-AA2. Elevated Benzo(a)Pyrene TEQ concentrations and friable asbestos presents a risk of harm to human health, whilst elevated Benzo(a)Pyrene (BaP) and cadmium concentrations might impact on terrestrial ecosystems or on the growth of certain plants. ACM fragments present a potential risk of harm to human health.

The site is considered suitable for the proposed residential development subject to implementation of the following recommendations prior to site preparation and earthworks:

- Detailed sampling and testing in the vicinity of locations of concern, as indicated on Drawing No 13757/2-AA2, to delineate the extent of contamination.
- Sampling and testing of soils in the footprints of site features such as the houses, building, sheds, carport, glasshouse, concrete, recycled asphalt, gravel and bitumen covered areas, after complete demolition and removal or clearing.
- Development of a remedial action plan (RAP) to remediate PAH and asbestos contaminated fill materials with elevated Metals concentrations plus any other contamination identified through the recommended additional sampling and testing, followed by appropriate validation. We consider that the site can be made suitable for the proposed development following appropriate remediation and validation.

For any materials to be excavated and removed from the site, it is recommended that waste classification of the materials, in accordance with the "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA 2014 and NSW EPA guidelines for the resource recovery exemptions under the Protection of the Environment Operations (Waste) Regulation 2005, is undertaken prior to disposal at an appropriately licensed landfill or potential re-use at other sites.

If suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets/pieces/pipes, ash material, etc) are encountered during any stage of future earthworks/site preparation/demolition/remediation, we recommend that this office is contacted for assessment. In the event of contamination, detailed assessment, remediation and validation will be necessary.

Any imported fill should be tested, or validation certificates provided by a qualified consultant, to ensure suitability for the proposed residential use. In addition, the imported fill must be free from asbestos, ash and odour, not be discoloured and not acid sulphate soil. The imported soil should either be virgin excavated natural materials (VENM) or excavated natural material (ENM).

15.0 LIMITATIONS

Within the scope of work outlined in the quote dated 24 May 2016 (Reference Q7607-2), the services performed by Geotechnique in preparing this report were conducted in a manner consistent with the level of quality and skill generally exercised by members of the profession and consulting practice.

This report has been prepared for Merrin Developments Pty Ltd through Intercapital Consultants for the purpose stated within. Northern Beaches Council may rely upon the report for development and/or construction application determinations. Any reliance on this report by other parties shall be at such parties' sole risk as the report might not contain sufficient information for other purposes.

This report shall only be presented in full and may not be used to support any objective other than those set out in the report, except where written approval is provided by Geotechnique Pty Ltd.

The information in this report is considered accurate at the completion of field sampling (31 May 2016), in accordance with the current conditions of the site. Any variations to the site form or use beyond this date might nullify the conclusions stated.

No contamination assessment can eliminate all risk; even a rigorous professional assessment might not detect all contamination within a site.

Presented in Appendix C is a document entitled "Environmental Notes", which should be read in conjunction with this report.

GEOTECHNIQUE PTY LTD

LIST OF REFERENCES

Australian Standard "Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 1: Non-volatile and semi-volatile compounds" (AS4482.1-2005)

Australian Standard "Guide to the Sampling and Investigation of Potentially Contaminated Soil Part 2: Volatile substances" (AS4482.2-1999)

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Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites – NSW Environment Protection Authority 2011

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Guidelines for the Laboratory Analysis of Contaminated Soils - Australian and New Zealand Environment and Conservation Council (ANZECC) 1996

Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land – Department of Urban Affairs and Planning / NSW Environment Protection Authority 1998

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National Environment Protection (Assessment of Site Contamination) Measure – National Environmental Protection Council 1999

Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A – The Excavated Natural Material Exemption & Order 2014

Soil Landscape of Sydney 1:100,000 Sheet (9130) – Department of Land & Water Conservation 2002

Standard Methods for the Examination of Water and Wastewater – American Public Health Association (APHA)

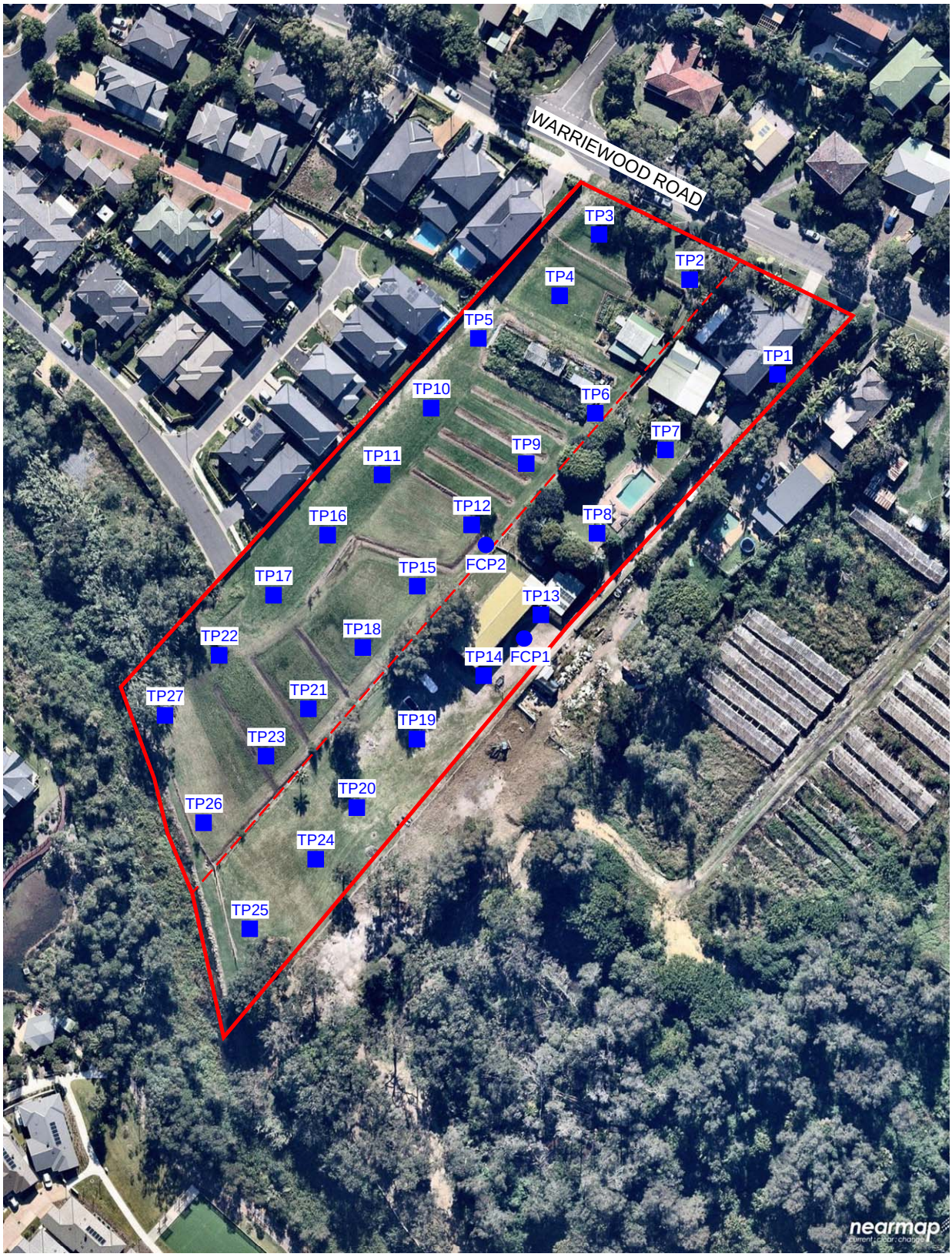
Waste Classification Guidelines Part 1: Classifying Waste - NSW EPA (November 2014)

DRAWINGS

DRAWING NO 13757/2-AA1
TEST PIT & SAMPLE LOCATIONS

DRAWING NO 13234/2-AA1
LOT LAYOUT & SITE FEATURES

DRAWING NO 13757/2-AA2
LOCATIONS OF CONCERN



Imagery ©2016 NearMap.com

N

LEGEND

- Test Pit
- Sample

0 15 30 45 60 75m

Scale 1:1500

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Intercapital Consultants
Proposed Residential Development
Lots 2 & 3 in DP1115877
53A & 53B Warriewood Road, Warriewood

Test Pit & Sample Locations

Drawing No: 13757/2-AA1
Job No: 13757/2
Drawn By: MH
Date: 23 June 2016
Checked By: JH/AB

File No: 13757-2
Layers: 0, AA1

Imagery ©2014 NearMap.com

0 15 30 45 60 75m

Scale 1:1500

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NOTES

1. Site features are indicative and are not to scale.
2. This drawing has been produced using a base plan provided by others to which additional information e.g test pits, borehole locations or notes have been added. Some or all of the plan may not be relevant at the time of producing this drawing

Intercapital Consultants
Proposed Residential Development
Lots 2, 3 in DP1115877 and Lot 3 in DP942319
53A, 53B & 53 Warriewood Road, Warriewood

Lot Layout & Site Features

Drawing No: 13234/2-AA1
Job No: 13234/2
Drawn By: MH
Date: 25 August 2014
Checked By: AN/AB

File No: 13234-2
Layers: 0, AA1

LEGEND

- Test Pit
- Sample

Imagery ©2016 NearMap.com

0 15 30 45 60 75m

Scale 1:1500

Sample Location	Depth (m)	Contaminant	Concentration (mg/kg)	Level (mg/kg)			
				HIL A	EIL	PIL	ESL
TP14	0-0.5	Friable Chrysotile Asbestos	**NA**	-	-	-	-
TP20	0-0.5	Benzo(a)Pyrene (BaP), BaP TEQ	**4.9, 6.3**	- Bap TEQ = 3	- -	- -	BaP = 0.7 -
TP25	0.5-1.0	Cadmium (Cd)	**3.5**	Cd = 20	-	Cd= 3	-
TP25	1.0-1.5	Cd	**4.7**	Cd = 20	-	Cd= 3	-
TP25	1.5-1.8	Friable Chrysotile Asbestos & Bonded ACM fragments	**NA**	-	-	-	-
FCP2	0-0.1	Friable Chrysotile Asbestos	**NA**	-	-	-	-

Notes:

HIL A: Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.

EIL : Ecological Investigation Level of aged Metals for urban residential land use

PIL : Provisional Phytotoxicity Based Investigation Level

ESL : Ecological Screening Level for urban residential land use

ACM : Asbestos Containing Material

NA : Not Applicable

PREPARED BY:

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Intercapital Consultants
Proposed Residential Development
Lots 2 & 3 in DP1115877
53A & 53B Warriewood Road, Warriewood

Locations of Concern

Drawing No: 13757/2-AA2
Job No: 13757/2
Drawn By: MH
Date: 23 June 2016
Checked By: AB

File No: 13757-2
Layers: 0, AA2

TABLES

TABLE A
RINSATE SAMPLES
(Ref No: 13757/2-AA)

ANALYTES	Rinsate R1 30/05/2016	Rinsate R2 31/05/2016
METALS	**(mg/L)**	**(mg/L)**
Arsenic	<0.02	<0.02
Cadmium	<0.001	<0.001
Chromium	<0.005	<0.005
Copper	<0.005	<0.005
Lead	<0.02	<0.02
Mercury	<0.0001	<0.0001
Nickel	<0.005	<0.005
Zinc	<0.01	<0.01

TABLE B
TRIP SPIKE SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	Trip Spike TS1
BTEX	
Benzene	89%
Toluene	99%
Ethyl Benzene	94%
Xylenes	88%

Note : results are reported as percentage recovery of known spike concentrations

TABLE C1
DUPLICATE SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	TP20 0-0.15m mg/kg	Duplicate D1 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	5	6	18
Cadmium	<0.3	<0.3	-
Chromium	13	11	17
Copper	13	18	32
Lead	54	62	14
Mercury	0.08	0.09	12
Nickel	4.1	3.6	13
Zinc	68	63	8
TOTAL PETROLEUM HYDROCARBONS (TPH)			
F1 (C6-C10 less BTEX)	<25	<25	-
F2 (>C10-C16)	33	<25	-
F3 (>C16-C34)	<90	310	-
F4 (>C34-C40)	<120	<120	-
BTEX			
Benzene	<0.1	<0.1	-
Toluene	<0.1	<0.1	-
Ethyl Benzene	<0.1	<0.1	-
Xylenes	<0.3	<0.3	-
POLYCYCLIC AROMATIC HYDROCARBONS			
Benzo(a)Pyrene TEQ	<0.3	6.3	-
Total PAH	2	26	171
Naphthalene	<0.1	<0.1	
Benzo(a)Pyrene	<0.1	4.9	-
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.15	-
Endrin	<0.2	<0.2	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	<0.1	-
Endosulfan (alpha, beta & sulphate)	<0.5	<0.5	-
DDD+DDE+DDT	<0.6	<0.6	-
Chlordane (alpha & gamma)	<0.2	<0.2	-
POLYCHLORINATED BIPHENYLS (PCB)			
Total PCB	<1	<1	-

TABLE C2
DUPLICATE SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	TP25 0-0.15m mg/kg	Duplicate D2 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	3	<3	-
Cadmium	0.8	0.7	13
Chromium	7.1	6.3	12
Copper	14	10	33
Lead	23	26	12
Mercury	0.02	0.03	40
Nickel	2.7	1.9	35
Zinc	56	53	6
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.15	-
Endrin	<0.2	<0.2	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	<0.1	-
Endosulfan (alpha, beta & sulphate)	<0.5	<0.5	-
DDD+DDE+DDT	<0.6	<0.6	-
Chlordane (alpha & gamma)	<0.2	<0.2	-

TABLE C3
DUPLICATE SAMPLE
(Ref No: 13757/2-AA)

.

ANALYTES	TP24 0.5-0.8m mg/kg	Duplicate D3 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	4	4	0
Cadmium	<0.3	<0.3	-
Chromium	14	19	30
Copper	1.5	2.6	54
Lead	16	19	17
Mercury	<0.01	0.02	-
Nickel	0.8	1.2	40
Zinc	3.4	12	112

TABLE C4
DUPLICATE SAMPLE
(Ref No: 13757/2-AA)

.

ANALYTES	TP19 1.55-1.65m mg/kg	Duplicate D4 mg/kg	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	6	6	0
Cadmium	<0.3	<0.3	-
Chromium	7.8	8.6	10
Copper	8.7	8.4	4
Lead	32	31	3
Mercury	0.05	0.06	18
Nickel	2.7	3.1	14
Zinc	60	43	33

TABLE D1
SPLIT SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	TP11 0-0.15m mg/kg (SGS)	Split Sample S1 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	4	<4	-
Cadmium	<0.3	<0.4	-
Chromium	8.9	8	11
Copper	6.6	5	28
Lead	18	21	15
Mercury	0.05	<0.1	-
Nickel	3.6	2	57
Zinc	44	38	15
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.2	-
Endrin	<0.2	<0.1	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	-	-
Endosulfan (alpha (I), beta (II) & sulphate)	<0.5	<0.3	-
DDD+DDE+DDT	<0.6	<0.3	-
Chlordane (alpha & gamma)	<0.2	<0.2	-

TABLE D2
SPLIT SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	TP13 0-0.15m mg/kg (SGS)	Split Sample S2 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	24	18	29
Cadmium	<0.3	<0.4	-
Chromium	44	30	38
Copper	62	27	79
Lead	45	24	61
Mercury	0.03	<0.1	-
Nickel	11	6	59
Zinc	210	93	77
ORGANOCHLORINE PESTICIDES (OCP)			
Hexachlorobenzene (HCB)	<0.1	<0.1	-
Heptachlor	<0.1	<0.1	-
Aldrin+Dieldrin	<0.15	<0.2	-
Endrin	<0.2	<0.1	-
Methoxychlor	<0.1	<0.1	-
Mirex	<0.1	-	-
Endosulfan (alpha (I), beta (II) & sulphate)	<0.5	<0.3	-
DDD+DDE+DDT	<0.6	<0.3	-
Chlordane (alpha & gamma)	<0.2	<0.2	-

TABLE D3
SPLIT SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	TP26 0-0.15m mg/kg (SGS)	Split Sample S3 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	3	<4	-
Cadmium	<0.3	<0.4	-
Chromium	6.3	5	23
Copper	15	10	40
Lead	21	15	33
Mercury	0.02	<0.1	-
Nickel	2.2	2	10
Zinc	47	35	29

TABLE D4
SPLIT SAMPLE
(Ref No: 13757/2-AA)

ANALYTES	TP27 0.35-0.45m mg/kg (SGS)	Split Sample S4 mg/kg (ENVIROLAB)	RELATIVE PERCENTAGE DIFFERENCES (RPD) %
METALS			
Arsenic	<3	<4	-
Cadmium	<0.3	<0.4	-
Chromium	6.6	7	6
Copper	1	<1	-
Lead	10	9	11
Mercury	0.03	<0.1	-
Nickel	3.2	4	22
Zinc	7.3	7	4

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TABLE E1

METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS

DISCRETE SAMPLES

(Ref No: 13757/2-AA)

Sample Location	Depth (m)	METALS (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC (cmol/kg)	pH
Fill Samples											
BH1	0-0.1	4	<0.3	14	17	21	0.04	10	62	18	7.4
TP5	0-0.15	4	<0.3	8.8	17	31	0.05	4.3	54	-	-
TP5	0.5-0.8	<3	<0.3	7.7	8.0	20	0.03	2.3	32	13	8.3
BH7	0-0.15	5	0.3	16	13	41	0.07	2.2	66	5.7	6.2
BH7	0.3-0.6	4	<0.3	11	5.3	18	<0.01	1.2	13	6.6	6.2
BH8	0-0.15	6	0.4	20	15	55	0.10	2.4	63	-	-
BH8	0.2-0.5	4	<0.3	13	5.3	22	0.02	1.3	11	-	-
TP10	0-0.15	3	<0.3	6.5	17	24	0.05	2.8	60	-	-
TP10	0.5-0.8	<3	<0.3	7.6	11	18	0.04	2.3	26	-	-
TP10	1.0-1.3	3	<0.3	7.5	7.5	19	0.03	2.3	27	-	-
TP10	1.5-1.8	<3	<0.3	7.9	6.4	18	0.03	2.2	29	-	-
TP11	0-0.15	4	<0.3	8.9	6.6	18	0.05	3.6	44	6.1	7.6
TP11	0.5-0.8	3	<0.3	7.5	9.0	19	0.03	1.7	38	9.7	8.0
TP11	1.0-1.3	<3	<0.3	8.0	7.5	20	0.03	2.2	34	-	-
TP13	0-0.15	24	<0.3	44	62	45	0.03	11	210	34	8.7
TP13	0.2-0.5	5	<0.3	13	4.9	22	0.03	1.8	42	-	-
TP14	0-0.15	3	<0.3	8.7	11	32	0.03	3.3	160	-	-
TP14	0.5-0.8	4	<0.3	17	1.8	16	<0.01	0.6	6.4	11	7.7
TP16	0-0.15	4	<0.3	8.5	8.1	27	0.06	2.2	67	-	-
TP16	0.5-0.8	<3	<0.3	7.5	7.4	20	0.03	2.0	24	-	-
TP16	1.0-1.3	4	<0.3	8.2	9.7	17	0.04	2.3	28	-	-
TP16	1.5-1.8	3	<0.3	8.0	6.7	19	0.04	2.2	27	-	-
TP16	2.0-2.2	<3	<0.3	7.7	7.1	22	0.03	2.1	27	-	-
TP17	0-0.15	<3	<0.3	4.5	4.8	15	0.04	1.8	35	4.2	7.9
TP17	0.5-0.8	4	<0.3	9.9	5.2	11	0.01	1.6	14	6.5	7.0
TP17	1.0-1.3	<3	<0.3	7.9	7.4	18	0.04	2.1	26	-	-
TP17	1.5-1.8	<3	<0.3	8.0	6.9	19	0.04	2.6	30	-	-
TP19	0-0.15	<3	<0.3	7.6	8.7	27	0.03	3.0	43	24	8.6
TP19	0.5-0.8	13	<0.3	15	17	55	0.01	2.2	24	-	-
TP19	1.0-1.3	6	<0.3	13	5.0	24	0.02	1.9	68	-	-
TP20	0-0.15	5	<0.3	13	13	54	0.08	4.1	68	8.4	7.7
TP20	0.5-0.8	5	<0.3	11	9.5	21	0.02	1.8	16	-	-
TP20	1.0-1.3	4	<0.3	5.3	4.0	15	0.04	1.7	38	-	-
TP24	0-0.15	4	0.3	11	8.6	34	0.02	2.7	33	-	-
TP24	0.5-0.8	4	<0.3	14	1.5	16	<0.01	0.8	3.4	-	-
TP24	1.0-1.3	<3	<0.3	7.2	9.7	15	0.02	0.8	7.5	-	-
TP25	0-0.15	3	0.8	7.1	14	23	0.02	2.7	56	-	-
TP25	0.5-0.8	14	**3.5**	22	15	59	0.03	3.8	45	11	7.9
TP25	1.0-1.3	8	**4.7**	18	41	46	0.06	4.5	130	-	-
TP25	1.5-1.8	16	2.8	23	83	58	0.05	6.2	130	-	-
TP26	0-0.15	3	<0.3	6.3	15	21	0.02	2.2	47	4.2	6.8
TP27	0-0.15	<3	<0.3	10	20	32	0.05	2.5	42	-	-
Limits of Reporting (LOR)		3	0.3	0.3	0.5	1	0.01	0.5	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) A - Residential A		100	20	100	6000	300	10	400	7400		
Ecological Investigation Levels (EIL) - Urban residential		100	-	190	95	1100	-	25	280		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)											
Provisional Phytotoxity-Based Investigation Levels (PIL)			3				1				

Notes:
a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.
b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; the lowest CEC=4.2 cmolc/kg and pH=6.2 were selected for derivation of EIL.
EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.
c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III), clay content was assumed =1%, a conservative assumption
g: Generic EIL for aged lead

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TABLE E2
METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13757/2-AA)

Sample Location	Depth (m)	METALS (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC (cmol/kg)	pH
Natural Soil											
BH1	0.15-0.25	3	0.3	17	18	25	0.03	17	53	10	8.0
BH2	0-0.15	5	0.4	9.2	48	75	0.04	4.5	220	13	7.4
BH3	0-0.15	6	0.3	17	11	26	0.05	1.6	56	-	-
BH4	0-0.15	6	0.5	13	15	30	0.03	1.9	110	4.5	6.6
BH6	0-0.15	3	0.3	8.4	12	49	0.08	2.1	140	-	-
TP9	0-0.15	7	0.7	28	23	28	0.06	8.4	170	18	7.7
TP12	0-0.15	6	0.3	10	12	25	0.03	1.4	67	-	-
TP15	0-0.15	11	<0.3	7.7	14	32	0.17	1.0	34	6.1	6.8
Limits of Reporting (LOR)		3	0.3	0.3	0.5	1	0.01	0.5	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) A - Residential A		100	20	100	6000	300	10	400	7400		
Ecological Investigation Levels (EIL) - Urban residential		100	-	190	100	1100	-	30	290		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)											
Provisional Phytotoxity-Based Investigation Levels (PIL)			3				1				

Notes:
a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.
b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; the lowest CEC=4.5 cmolc/kg and pH=6.6 were selected for derivation of EIL.
EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.
c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III), clay content was assumed =1%, a conservative assumpt
g: Generic EIL for aged lead

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TABLE E3
METALS, CATION EXCHANGE CAPACITY (CEC) & pH TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13757/2-AA)

Sample Location	Depth (m)	METALS (mg/kg) ARSENIC	CADMIUM	CHROMIUM (Total)	COPPER	LEAD	MERCURY	NICKEL	ZINC	CEC (cmol/kg)	pH
Natural Soil											
TP5	1.05-1.15	<3	<0.3	3.5	0.9	7	0.02	<0.5	3.2	2.1	7.3
TP10	1.85-1.95	9	<0.3	8.5	8.2	18	0.02	2.0	19	12	8.4
TP11	1.45-1.55	3	<0.3	6.5	3.5	13	0.02	1.4	15	-	-
TP13	0.55-0.65	4	<0.3	8.7	20	21	0.02	3.3	49	6.7	7.6
TP14	1.05-1.15	4	<0.3	12	15	28	0.05	4.0	58	-	-
TP16	2.25-2.35	<3	<0.3	5.9	2.4	11	0.01	1.1	10	-	-
TP17	2.05-2.15	9	0.3	14	0.6	19	<0.01	2.3	9.0	7.2	5.3
TP18	0-0.15	5	<0.3	11	17	31	0.07	2.3	74	7.2	6.2
TP19	1.55-1.65	6	<0.3	7.8	8.7	32	0.05	2.7	60	-	-
TP20	1.55-1.65	8	<0.3	7.5	17	26	0.05	1.8	64	-	-
TP21	0-0.15	8	0.3	9.8	11	28	0.05	4.8	40	-	-
TP22	0-0.15	6	<0.3	7.3	13	31	0.06	2.3	40	5.1	6.3
TP23	0-0.15	10	<0.3	13	19	43	0.08	6.3	57	-	-
TP24	1.55-1.65	10	0.4	20	36	39	0.05	6.9	98	-	-
TP25	1.85-1.95	4	<0.3	13	4.4	16	0.03	4.6	15	-	-
TP26	0.25-0.35	7	<0.3	6.7	13	22	0.04	1.5	32	-	-
TP27	0.35-0.45	<3	<0.3	6.6	1.0	10	0.03	3.2	7.3	-	-
Limits of Reporting (LOR)		3	0.3	0.3	0.5	1	0.01	0.5	0.5	0.02	-
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)											
Health-based Investigation Levels (HIL) A - Residential A		100	20	100	6000	300	10	400	7400		
Ecological Investigation Levels (EIL) - Urban residential		100	-	190	55	1100	-	9	160		
GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (2006)											
Provisional Phytotoxity-Based Investigation Levels (PIL)			3				1				

Notes:
a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.
b: EIL of aged nickel & zinc were derived from calculation spreadsheet developed by CSIRO for NEPC; old NSW suburb with low traffic volume; the lowest CEC=2.1 cmolc/kg and pH=5.3 were selected for derivation of EIL.
EIL of aged copper was calulatd as the lowest value based on the pH and the CEC of the sample analysed and background concentration.
c: Chromium (VI)
d: Methyl Mercury
e: Generic EIL for aged arsenic
f: Chromium (III), clay content was assumed =1%, a conservative assumpt
g: Generic EIL for aged lead

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TABLE F
TOTAL PETROLEUM HYDROCARBONS (TPH) AND BTEX TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13757/2-AA)

											NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)																			
			TPH (mg/kg)					BTEX (mg/kg)				Health Screening Levels (HSL) A Low density residential						Ecological Screening Levels for fine-grained soil Urban residential								Ecological Screening Levels for coarse-grained soil Urban residential							
Sample Location	Depth (m)	Soil type	F1	F2*	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2*	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	F1	F2**	F3	F4	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES
BH1	0.15-0.25	silt	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	40	230	0.6	390	NL	95	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP5	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP5	1.05-1.15	silt	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	65	NL	0.7	NL	NL	210	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP10	0-0.15	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP10	1.85-1.95	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	90	NL	1	NL	NL	310	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP11	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP13	0.2-0.5	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP13	0.55-0.65	silt	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	40	230	0.6	390	NL	95	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP14	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP16	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP17	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP17	2.05-2.15	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	150	NL	2	NL	NL	NL	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP19	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP20	0-0.15	clay	<25	33	33	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
Duplicate D1 (TP20 0-0.15m)		clay	<25	<25	<25	310	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP24	0-0.15	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
TP25	0.5-0.8	clay	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	50	280	0.7	480	NL	110	180	120	1300	5600	65	105	125	45	-	-	-	-	-	-	-	-
Limits of Reporting (LOR)			25	-	25	90	120	0.1	0.1	0.1	0.3																						

Notes:
F1: C6-C10 less BTEX
F2*: >C10-C16 less Naphthalene
F2**: >C10-C16
F3: >C16-C34
F4: >C34-C40
NL: Not Limiting

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TABLE G

POLYCYCLIC AROMATIC HYDROCARBONS (PAH) TEST RESULTS

DISCRETE SAMPLES

(Ref No: 13757/2-AA)

			PAH (mg/kg)				NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)				
							Health-based Investigation Levels (HIL) A[a] - Residential A		Health Screening Level (HSL) A - Low density residential	Generic Ecological Investigation Level (EIL) - Urban residential	Ecological Screening Level (ESL) - Urban residential
Sample Location	Depth (m)	Soil type	BaP TEQ	TOTAL PAHs	NAPHTHALENE	BENZO(a)PYRENE (BaP)	BaP TEQ	TOTAL PAHs	NAPHTHALENE	NAPHTHALENE	BENZO(a)PYRENE (BaP)
BH1	0-0.1	silt	<0.3	<0.8	<0.1	0.1	3	300	4	170	0.7
BH1	0.15-0.25	silt	1.0	6.4	<0.1	0.7	3	300	4	170	0.7
TP5	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
TP5	1.05-1.15	silt	<0.3	<0.8	<0.1	<0.1	3	300	NL	170	0.7
BH7	0.3-0.6	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
BH8	0.2-0.5	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
TP10	0-0.15	clay	0.6	3.4	<0.1	0.4	3	300	5	170.0	0.7
TP10	1.85-1.95	clay	<0.3	<0.8	<0.1	<0.1	3	300	NL	170	0.7
TP11	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
TP13	0.2-0.5	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170.0	0.7
TP13	0.55-0.65	silt	<0.3	<0.8	<0.1	<0.1	3	300	4	170.0	0.7
TP14	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170.0	0.7
TP16	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170.0	0.7
TP17	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
TP17	2.05-2.15	clay	<0.3	<0.8	<0.1	<0.1	3	300	NL	170	0.7
TP19	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
TP20	0-0.15	clay	<0.3	2.0	<0.1	<0.1	3	300	5	170	0.7
Duplicate D1 (TP20 0-0.15m)		clay	**6.3**	26	<0.1	**4.9**	3	300	5	170	0.7
TP24	0-0.15	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
TP25	0.5-0.8	clay	<0.3	<0.8	<0.1	<0.1	3	300	5	170	0.7
Limits of Reporting (LOR)			0.3	0.8	0.1	0.1					

Notes: a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.

NL: Not Limimting

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TABLE H
ORGANOCHLORINE PESTICIDES (OCP) & POLYCHLORINATED BIPHENYLS (PCB) TEST RESULTS
DISCRETE SAMPLES
(Ref No: 13757/2-AA)

Sample Location	Depth (m)	OCP (mg/kg)										(mg/kg)
		HEXACHLOROBENZENE (HCB)	HEPTACHLOR	ALDRIN+DIELDRIN	ENDRIN	METHOXYCHLOR	MIREX	ENDOSULFAN (alpha, beta & sulphate)	DDD+DDE+DDT	DDT	CHLORDANE (alpha & gamma)	PCB
BH1	0-0.1	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
BH1	0.15-0.25	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
BH2	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
BH3	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
BH4	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP5	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP5	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP5	1.05-1.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
BH6	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
BH7	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
BH8	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP9	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	1.9	0.9	<0.2	-
TP10	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP10	1.85-1.95	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP11	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP11	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP12	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP13	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP13	0.2-0.5	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP13	0.55-0.65	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP14	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP14	0.5-0.8	<0.1	<0.1	0.26	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP15	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP16	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP16	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP17	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP17	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP17	2.05-2.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP18	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP19	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP19	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP20	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP21	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP22	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP23	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP24	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP25	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP25	0.5-0.8	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	<1
TP26	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
TP27	0-0.15	<0.1	<0.1	<0.15	<0.2	<0.1	<0.1	<0.5	<0.6	<0.2	<0.2	-
Limits of Reporting (LOR)		0.1	0.1	0.15	0.2	0.1	0.1	0.5	0.6	0.2	0.2	1
NATIONAL ENVIRONMENT PROTECTION AMENDMENT MEASURE (2013)												
Health-based Investigation Levels (HIL) [a] A - Residential A		10	6	6	10	300	10	270	240		###	1
Ecological Investigation Levels (EIL) - Urban residential										180 [b]		

Notes: a: Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.

b: Generic EIL for DDT

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TABLE I

ASBESTOS TEST RESULTS

DISCRETE SAMPLES

(Ref No: 13757/2-AA)

Sample Location	Depth (m)	ASBESTOS
Soil Samples		
BH1	0-0.1	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
BH1	0.15-0.25	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP5	1.05-1.15	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP10	1.85-1.95	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP13	0-0.15	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP13	0.55-0.65	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP14	0-0.15	**Friable Chrysotile found (0.022% w/w)**
TP17	2.05-2.15	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP24	0-0.15	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP25	0-0.15	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP25	0.5-0.8	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP25	1.0-1.3	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
TP25	1.5-1.8	**Friable Chrysotile found (0.004% w/w)**
TP26	0-0.15	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
FCP1	0-0.1	No bonded asbestos found at the limit of reporting of 0.01% w/w and no friable asbestos found at the limit of reporting of 0.001% w/w
FCP2	0-0.1	**Friable Chrysotile found (0.007% w/w)**
Fibro-cement Pieces		
TP25	0.5-0.8	No Asbestos Detected
TP25	1.0-1.3	No Asbestos Detected
TP25	1.5-1.8	**Amosite & Chrysotile Asbestos Detected**
FCP1	Ground Surface	No Asbestos Detected
FCP2	Ground Surface	**Chrysotile Asbestos Detected**

APPENDIX A

TABLE 1 - TEST PIT, BOREHOLE & SAMPLE LOGS

GEOTECHNIQUE PTY LTD

Project	**Proposed Residential Development**	**Job No**	**13757/2**
Location	**Lots 2 & 3 in DP1115877**	**Refer to Drawing No**	**13757/2-AA1**
	53A & 53B Warriewood Road, Warriewood	**Logged & Sampled by**	**JH**

TABLE 1

TP/BH	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
BH1	0.0-0.1	0.0-0.1	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.1-0.5	0.15-0.25			(ML) Clayey SILT, fine grained, dark brown	
BH2	0.0-0.5	0.0-0.15 0.2-0.3	31/05/2016		(ML) Clayey SILT, fine grained, dark brown	
BH3	0.0-0.5	0.0-0.15 0.2-0.3	31/05/2016		(ML) Clayey SILT, fine grained, dark brown	
BH4	0.0-0.5	0.0-0.15 0.2-0.3	31/05/2016		(ML) Clayey SILT, fine grained, dark brown	
TP5	0.0-0.5	0.0-0.15	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.5-1.0	0.5-0.8			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.0-1.5	1.05-1.15			(ML) Sandy SILT, fine grained, pale grey	
BH6	0.0-0.5	0.0-0.15 0.2-0.3	31/05/2016		(ML) Clayey SILT, fine grained, dark brown	
BH7	0.0-0.3	0.0-0.15	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.3-0.8	0.3-0.6			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	0.8	NS			Refusal	
BH8	0.0-0.15	0.0-0.15	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.15-0.7	0.2-0.5			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	0.7	NS			Refusal	
TP9	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(ML) Clayey SILT, fine grained, dark brown	
TP10	0.0-1.8	0.0-0.15 0.5-0.8 1.0-1.3 1.5-1.8	30/05/2016		FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.8-2.3	1.85-1.95			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	

NS = No Sample

*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

GEOTECHNIQUE PTY LTD

Project	**Proposed Residential Development**	**Job No**	**13757/2**
Location	**Lots 2 & 3 in DP1115877**	**Refer to Drawing No**	**13757/2-AA1**
	53A & 53B Warriewood Road, Warriewood	**Logged & Sampled by**	**JH**

TABLE 1

TP/BH	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
TP11	0.0-0.5	0.0-0.15	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.5-1.4	0.5-0.8 1.0-1.3			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.4-1.6	1.45-1.55			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
	1.6-1.9	NS			(CI-CH) CLAY, medium to high plasticity, brown-grey	
TP12	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(ML) Clayey SILT, fine grained, dark brown	
TP13	0.0-0.2	0.0-0.15	30/05/'2016		FILL: Sandy Silt, fine grained, brown, inclusion of gravel, inclusion of gravel	
	0.2-0.5	0.2-0.5			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	0.5-1.0	0.55-0.65			(ML) Sandy SILT, fine grained, dark brown	
TP14	0.0-0.5	0.0-0.15	30/05/2016		FILL: Sandy Silt, fine grained, brown, inclusion of cobbles/gravel	
	0.5-1.0	0.5-0.8			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.0-1.5	1.05-1.15			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP15	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(ML) Clayey SILT, fine grained, dark brown	
TP16	0.0-0.5	0.0-0.15	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.5-2.2	0.5-0.8 1.0-1.3 1.5-1.8 2.0-2.2			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	2.2-2.7	2.25-2.35			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP17	0.0-0.5	0.0-0.15	31/05/2016		FILL: Clayey Silt, fine grained, brown	
	0.5-2.0	0.5-0.8 1.0-1.3 1.5-1.8			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	2.0-2.5	2.05-2.15			(CI-CH) CLAY, medium to high plasticity, brown-grey	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

Project	**Proposed Residential Development**	**Job No**	**13757/2**
Location	**Lots 2 & 3 in DP1115877**	**Refer to Drawing No**	**13757/2-AA1**
	53A & 53B Warriewood Road, Warriewood	**Logged & Sampled by**	**JH**

TABLE 1

TP/BH	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
TP18	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP19	0.0-0.5	0.0-0.15	30/05/2016		FILL: Sandy Silt, fine grained, brown, inclusion of gravel	
	0.5-1.5	0.5-0.8 1.0-1.3			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.5-2.0	1.55-1.65			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP20	0.0-1.5	0.0-0.15 0.5-0.8 1.0-1.3	30/05/2016		FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.5-2.0	1.55-1.65			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP21	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP22	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP23	0.0-0.5	0.0-0.15 0.2-0.3	30/05/2016		(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP24	0.0-1.5	0.0-0.15 0.5-0.8 1.0-1.3	30/05/2016		FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles and silt	
	1.5-2.0	1.55-1.65			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP25	0.0-0.5	0.0-0.15	30/05/2016		FILL: Sandy Silt, fine grained, brown, inclusion of gravel	
	0.5-1.0	0.5-0.8			FILL: Clay, medium plasticity, brown, inclusion of gravel, cobbles, silt, building material, bricks and fibro-cement pieces	
	1.0-1.8	1.0-1.3 1.5-1.8			FILL: Silty Sandy Clay, low plasticity, dark grey, inclusion of branches, building material, bricks, fibro-cement pieces Seepage at 1.5m	
	1.8-2.3	1.85-1.95			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

GEOTECHNIQUE PTY LTD

Project	**Proposed Residential Development**	**Job No**	**13757/2**
Location	**Lots 2 & 3 in DP1115877**	**Refer to Drawing No**	**13757/2-AA1**
	53A & 53B Warriewood Road, Warriewood	**Logged & Sampled by**	**JH**

TABLE 1

TP/BH	Depth (m)	Sample Depth (m)	Date	Time	Material Description	Remarks*
TP26	0.0-0.2	0.0-0.15	30/05/2016		FILL: Sandy Silt, fine grained, brown, inclusion of gravel	
	0.2-0.7	0.25-0.35			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
TP27	0.0-0.3	0.0-0.15	30/05/2016		FILL: Sandy Silt, fine grained, brown, inclusion of gravel	
	0.3-0.8	0.35-0.45			(CL) Silty Sandy CLAY, low plasticity, dark grey-brown	
Sample						
FCP1	0.0-0.1	0.0-0.1	30/05/2016		FILL: Sandy Silt, fine grained, brown, inclusion of gravel	One (1) fibro-cement piece found on ground surface
FCP2	0.0-0.1	0.0-0.1	7/06 /2016		(ML) Sandy SILT, fine grained, dark brown,	One (1) fibro-cement piece found on ground surface

NS = No Sample
*Odour (O), Discolouration (D), Petroleum Hydrocarbon Staining (PHS), Asbestos Containing Material (ACM), Ash Material (ASHM), Demolition Waste (DW), Groundwater (GW), Perched Water (PW) PID reading etc.

APPENDIX B

SGS ENVIRONMENTAL SERVICES ANALYTICAL REPORTS
AND
ENVIROLAB SERVICES CERTIFICATE OF ANALYSIS

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood**
Order Number	(Not specified)
Samples	78

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
SGS Reference	**SE153116 R0**
Date Received	1/6/2016
Date Reported	10/6/2016

COMMENTS

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

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

Sample #27: Asbestos found in 5x3mm cement sheet fragment, in >2 to <7mm fraction.
Sample #64: Asbestos found in 4x2mm cement sheet fragments, in >2 to <7mm fraction.

Samples #59, 61, 70 were ashed after initial stereo microscope examination, re-examined and trace analysis performed on samples where asbestos has not been detected.
No trace asbestos fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Yusuf Kuthpudin
Asbestos Analyst

VOC's in Soil [AN433/AN434] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018
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	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032
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	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054
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	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	Duplicate D1 SOIL - 30/5/2016 SE153116.072	Tripspike TS1 SOIL - 30/5/2016 SE153116.078
Benzene	mg/kg	0.1	<0.1	<0.1	[89%]
Toluene	mg/kg	0.1	<0.1	<0.1	[99%]
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	[94%]
m/p-xylene	mg/kg	0.2	<0.2	<0.2	[88%]
o-xylene	mg/kg	0.1	<0.1	<0.1	[93%]
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-
Total BTEX	mg/kg	0.6	<0.6	<0.6	-
Naphthalene	mg/kg	0.1	<0.1	<0.1	-

Volatile Petroleum Hydrocarbons in Soil [AN433/AN434/AN410] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018
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	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032
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	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054
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	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	Duplicate D1 SOIL - 30/5/2016 SE153116.072
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
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	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	<45	<45
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	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054
TRH C10-C14	mg/kg	20	<20	<20	<20	**28**	<20
TRH C15-C28	mg/kg	45	<45	<45	<45	**65**	<45
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	**33**	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25	<25	**33**	<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

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	Duplicate D1 SOIL - 30/5/2016 SE153116.072
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	**150**
TRH C29-C36	mg/kg	45	<45	**200**
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16 (F2)	mg/kg	25	<25	<25
TRH >C10-C16 (F2) - Naphthalene	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	**310**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	**360**
TRH C10-C40 Total	mg/kg	210	<210	**360**

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018
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	**0.2**	<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	**0.2**	<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	**1.4**	<0.1	<0.1	**0.4**	<0.1
Pyrene	mg/kg	0.1	**1.4**	<0.1	<0.1	**0.6**	<0.1
Benzo(a)anthracene	mg/kg	0.1	**0.6**	<0.1	<0.1	**0.3**	<0.1
Chrysene	mg/kg	0.1	**0.5**	<0.1	<0.1	**0.4**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.7**	<0.1	<0.1	**0.6**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	**0.3**	<0.1	<0.1	**0.2**	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.7**	<0.1	<0.1	**0.4**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.5**	<0.1	<0.1	**0.2**	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.3**	<0.1	<0.1	**0.1**	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	**0.9**	<0.2	<0.2	**0.5**	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	**1.0**	<0.3	<0.3	**0.6**	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	**0.9**	<0.2	<0.2	**0.5**	<0.2
Total PAH (18)	mg/kg	0.8	**6.4**	<0.8	<0.8	**3.4**	<0.8

PARAMETER	UOM	LOR	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032
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	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)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	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054
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	**1.0**	<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	**0.4**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.4**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)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	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	**2.0**	<0.8

PARAMETER	UOM	LOR	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	Duplicate D1 SOIL - 30/5/2016 SE153116.072
Naphthalene	mg/kg	0.1	<0.1	<0.1
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	<0.1	**0.2**
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.6**
Anthracene	mg/kg	0.1	<0.1	**0.3**
Fluoranthene	mg/kg	0.1	<0.1	**2.2**
Pyrene	mg/kg	0.1	<0.1	**3.1**
Benzo(a)anthracene	mg/kg	0.1	<0.1	**1.4**
Chrysene	mg/kg	0.1	<0.1	**1.4**
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**3.6**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**2.2**
Benzo(a)pyrene	mg/kg	0.1	<0.1	**4.9**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**3.0**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	**0.3**
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**2.5**
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	**6.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	**6.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	**6.3**
Total PAH (18)	mg/kg	0.8	<0.8	**26**

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	BH2 0-0.15 SOIL - 31/5/2016 SE153116.003	BH3 0-0.15 SOIL - 31/5/2016 SE153116.004	BH4 0-0.15 SOIL - 31/5/2016 SE153116.005
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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP5 0-0.15 SOIL - 31/5/2016 SE153116.006	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	BH6 0-0.15 SOIL - 31/5/2016 SE153116.009	BH7 0-0.15 SOIL - 31/5/2016 SE153116.010
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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	BH8 0-0.15 SOIL - 31/5/2016 SE153116.012	TP9 0-0.15 SOIL - 30/5/2016 SE153116.013	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018	TP11 0-0.15 SOIL - 30/5/2016 SE153116.019
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	**0.7**	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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	**0.2**	<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	**0.7**	<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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP12 0-0.15 SOIL - 30/5/2016 SE153116.023	TP13 0-0.15 SOIL - 30/5/2016 SE153116.024	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026
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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP14 0-0.15 SOIL - 30/5/2016 SE153116.027	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP15 0-0.15 SOIL - 30/5/2016 SE153116.030	TP16 0-0.15 SOIL - 31/5/2016 SE153116.031	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032
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	0.05	<0.05	**0.16**	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP17 0-0.15 SOIL - 31/5/2016 SE153116.037	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP18 0-0.15 SOIL - 30/5/2016 SE153116.042	TP19 0-0.15 SOIL - 30/5/2016 SE153116.043
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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP21 0-0.15 SOIL - 30/5/2016 SE153116.051	TP22 0-0.15 SOIL - 30/5/2016 SE153116.052	TP23 0-0.15 SOIL - 30/5/2016 SE153116.053
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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054	TP25 0-0.15 SOIL - 30/5/2016 SE153116.058	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	TP26 0-0.15 SOIL - 30/5/2016 SE153116.066	TP27 0-0.15 SOIL - 30/5/2016 SE153116.068
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	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
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

OC Pesticides in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	Duplicate D1 SOIL - 30/5/2016 SE153116.072	Duplicate D2 SOIL - 30/5/2016 SE153116.073
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.05	<0.05	<0.05
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1

PCBs in Soil [AN400/AN420] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PARAMETER	UOM	LOR	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1	<1

PCBs in Soil [AN400/AN420] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	Duplicate D1 SOIL - 30/5/2016 SE153116.072
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 7/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	BH2 0-0.15 SOIL - 31/5/2016 SE153116.003	BH4 0-0.15 SOIL - 31/5/2016 SE153116.005	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007
Exchangeable Sodium, Na	mg/kg	2	9	25	23	19	61
Exchangeable Sodium, Na	meq/100g	0.01	0.04	0.11	0.10	0.08	0.27
Exchangeable Sodium Percentage*	%	0.1	0.2	1.1	0.8	1.8	2.1
Exchangeable Potassium, K	mg/kg	2	160	210	90	59	69
Exchangeable Potassium, K	meq/100g	0.01	0.42	0.53	0.23	0.15	0.18
Exchangeable Potassium Percentage*	%	0.1	2.3	5.3	1.8	3.4	1.4
Exchangeable Calcium, Ca	mg/kg	2	3000	1600	2200	730	2200
Exchangeable Calcium, Ca	meq/100g	0.01	15	7.8	11	3.6	11
Exchangeable Calcium Percentage*	%	0.1	83.0	77.6	86.7	81.4	88.0
Exchangeable Magnesium, Mg	mg/kg	2	320	200	160	73	130
Exchangeable Magnesium, Mg	meq/100g	0.02	2.6	1.6	1.3	0.60	1.1
Exchangeable Magnesium Percentage*	%	0.1	14.5	16.0	10.7	13.4	8.5
Cation Exchange Capacity	meq/100g	0.02	18	10	13	4.5	13

PARAMETER	UOM	LOR	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	BH7 0-0.15 SOIL - 31/5/2016 SE153116.010	BH7 0.3-0.6 SOIL - 31/5/2016 SE153116.011	TP9 0-0.15 SOIL - 30/5/2016 SE153116.013	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018
Exchangeable Sodium, Na	mg/kg	2	17	25	24	25	67
Exchangeable Sodium, Na	meq/100g	0.01	0.07	0.11	0.11	0.11	0.29
Exchangeable Sodium Percentage*	%	0.1	3.5	1.9	1.6	0.6	2.4
Exchangeable Potassium, K	mg/kg	2	18	130	160	190	72
Exchangeable Potassium, K	meq/100g	0.01	0.05	0.34	0.40	0.48	0.18
Exchangeable Potassium Percentage*	%	0.1	2.2	5.9	6.1	2.7	1.5
Exchangeable Calcium, Ca	mg/kg	2	350	770	850	3300	2200
Exchangeable Calcium, Ca	meq/100g	0.01	1.8	3.8	4.2	17	11
Exchangeable Calcium Percentage*	%	0.1	84.0	67.7	63.6	93.3	87.9
Exchangeable Magnesium, Mg	mg/kg	2	26	170	230	75	120
Exchangeable Magnesium, Mg	meq/100g	0.02	0.22	1.4	1.9	0.62	1.0
Exchangeable Magnesium Percentage*	%	0.1	10.3	24.5	28.7	3.4	8.2
Cation Exchange Capacity	meq/100g	0.02	2.1	5.7	6.6	18	12

PARAMETER	UOM	LOR	TP11 0-0.15 SOIL - 30/5/2016 SE153116.019	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020	TP13 0-0.15 SOIL - 30/5/2016 SE153116.024	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028
Exchangeable Sodium, Na	mg/kg	2	30	77	95	64	47
Exchangeable Sodium, Na	meq/100g	0.01	0.13	0.33	0.41	0.28	0.20
Exchangeable Sodium Percentage*	%	0.1	2.2	3.4	1.2	4.1	1.8
Exchangeable Potassium, K	mg/kg	2	39	48	250	41	110
Exchangeable Potassium, K	meq/100g	0.01	0.10	0.12	0.63	0.10	0.28
Exchangeable Potassium Percentage*	%	0.1	1.7	1.3	1.9	1.5	2.5
Exchangeable Calcium, Ca	mg/kg	2	1000	1600	6300	1000	1700
Exchangeable Calcium, Ca	meq/100g	0.01	5.2	8.1	32	5.1	8.7
Exchangeable Calcium Percentage*	%	0.1	85.2	84.2	94.1	76.0	77.8
Exchangeable Magnesium, Mg	mg/kg	2	81	130	120	150	240
Exchangeable Magnesium, Mg	meq/100g	0.02	0.66	1.1	0.95	1.2	2.0
Exchangeable Magnesium Percentage*	%	0.1	11.0	11.1	2.8	18.3	17.9
Cation Exchange Capacity	meq/100g	0.02	6.1	9.7	34	6.7	11

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 7/6/2016 (continued)

PARAMETER	UOM	LOR	TP15 0-0.15 SOIL - 30/5/2016 SE153116.030	TP17 0-0.15 SOIL - 31/5/2016 SE153116.037	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP18 0-0.15 SOIL - 30/5/2016 SE153116.042
Exchangeable Sodium, Na	mg/kg	2	39	12	71	340	85
Exchangeable Sodium, Na	meq/100g	0.01	0.17	0.05	0.31	1.5	0.37
Exchangeable Sodium Percentage*	%	0.1	2.8	1.2	4.8	20.3	5.1
Exchangeable Potassium, K	mg/kg	2	39	40	71	79	34
Exchangeable Potassium, K	meq/100g	0.01	0.10	0.10	0.18	0.20	0.09
Exchangeable Potassium Percentage*	%	0.1	1.6	2.4	2.8	2.8	1.2
Exchangeable Calcium, Ca	mg/kg	2	850	740	940	430	1000
Exchangeable Calcium, Ca	meq/100g	0.01	4.2	3.7	4.7	2.1	5.1
Exchangeable Calcium Percentage*	%	0.1	70.2	88.6	72.0	29.7	70.8
Exchangeable Magnesium, Mg	mg/kg	2	190	40	160	410	200
Exchangeable Magnesium, Mg	meq/100g	0.02	1.5	0.32	1.3	3.4	1.7
Exchangeable Magnesium Percentage*	%	0.1	25.4	7.7	20.5	47.2	22.9
Cation Exchange Capacity	meq/100g	0.02	6.1	4.2	6.5	7.2	7.2

PARAMETER	UOM	LOR	TP19 0-0.15 SOIL - 30/5/2016 SE153116.043	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP22 0-0.15 SOIL - 30/5/2016 SE153116.052	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	TP26 0-0.15 SOIL - 30/5/2016 SE153116.066
Exchangeable Sodium, Na	mg/kg	2	28	17	140	34	21
Exchangeable Sodium, Na	meq/100g	0.01	0.12	0.07	0.60	0.15	0.09
Exchangeable Sodium Percentage*	%	0.1	0.5	0.9	11.8	1.3	2.2
Exchangeable Potassium, K	mg/kg	2	88	59	38	84	29
Exchangeable Potassium, K	meq/100g	0.01	0.23	0.15	0.10	0.21	0.07
Exchangeable Potassium Percentage*	%	0.1	0.9	1.8	1.9	1.9	1.8
Exchangeable Calcium, Ca	mg/kg	2	4600	1500	690	2000	660
Exchangeable Calcium, Ca	meq/100g	0.01	23	7.3	3.5	9.9	3.3
Exchangeable Calcium Percentage*	%	0.1	97.2	87.7	67.7	88.9	78.9
Exchangeable Magnesium, Mg	mg/kg	2	39	98	120	110	87
Exchangeable Magnesium, Mg	meq/100g	0.02	0.32	0.80	0.95	0.87	0.71
Exchangeable Magnesium Percentage*	%	0.1	1.4	9.6	18.6	7.8	17.1
Cation Exchange Capacity	meq/100g	0.02	24	8.4	5.1	11	4.2

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	BH2 0-0.15 SOIL - 31/5/2016 SE153116.003	BH3 0-0.15 SOIL - 31/5/2016 SE153116.004	BH4 0-0.15 SOIL - 31/5/2016 SE153116.005
Arsenic, As	mg/kg	3	4	3	5	6	6
Cadmium, Cd	mg/kg	0.3	<0.3	0.3	0.4	0.3	0.5
Chromium, Cr	mg/kg	0.3	14	17	9.2	17	13
Copper, Cu	mg/kg	0.5	17	18	48	11	15
Lead, Pb	mg/kg	1	21	25	75	26	30
Nickel, Ni	mg/kg	0.5	10	17	4.5	1.6	1.9
Zinc, Zn	mg/kg	0.5	62	53	220	56	110

PARAMETER	UOM	LOR	TP5 0-0.15 SOIL - 31/5/2016 SE153116.006	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	BH6 0-0.15 SOIL - 31/5/2016 SE153116.009	BH7 0-0.15 SOIL - 31/5/2016 SE153116.010
Arsenic, As	mg/kg	3	4	<3	<3	3	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	0.3	0.3
Chromium, Cr	mg/kg	0.3	8.8	7.7	3.5	8.4	16
Copper, Cu	mg/kg	0.5	17	8.0	0.9	12	13
Lead, Pb	mg/kg	1	31	20	7	49	41
Nickel, Ni	mg/kg	0.5	4.3	2.3	<0.5	2.1	2.2
Zinc, Zn	mg/kg	0.5	54	32	3.2	140	66

PARAMETER	UOM	LOR	BH7 0.3-0.6 SOIL - 31/5/2016 SE153116.011	BH8 0-0.15 SOIL - 31/5/2016 SE153116.012	TP9 0-0.15 SOIL - 30/5/2016 SE153116.013	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 0.5-0.8 SOIL - 30/5/2016 SE153116.015
Arsenic, As	mg/kg	3	4	6	7	3	<3
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	0.7	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	11	20	28	6.5	7.6
Copper, Cu	mg/kg	0.5	5.3	15	23	17	11
Lead, Pb	mg/kg	1	18	55	28	24	18
Nickel, Ni	mg/kg	0.5	1.2	2.4	8.4	2.8	2.3
Zinc, Zn	mg/kg	0.5	13	63	170	60	26

PARAMETER	UOM	LOR	TP10 1.0-1.3 SOIL - 30/5/2016 SE153116.016	TP10 1.5-1.8 SOIL - 30/5/2016 SE153116.017	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018	TP11 0-0.15 SOIL - 30/5/2016 SE153116.019	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020
Arsenic, As	mg/kg	3	3	<3	9	4	3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	7.5	7.9	8.5	8.9	7.5
Copper, Cu	mg/kg	0.5	7.5	6.4	8.2	6.6	9.0
Lead, Pb	mg/kg	1	19	18	18	18	19
Nickel, Ni	mg/kg	0.5	2.3	2.2	2.0	3.6	1.7
Zinc, Zn	mg/kg	0.5	27	29	19	44	38

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/6/2016 (continued)

PARAMETER	UOM	LOR	TP11 1.0-1.3 SOIL - 30/5/2016 SE153116.021	TP11 1.45-1.55 SOIL - 30/5/2016 SE153116.022	TP12 0-0.15 SOIL - 30/5/2016 SE153116.023	TP13 0-0.15 SOIL - 30/5/2016 SE153116.024	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025
Arsenic, As	mg/kg	3	<3	3	6	24	5
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	8.0	6.5	10	44	13
Copper, Cu	mg/kg	0.5	7.5	3.5	12	62	4.9
Lead, Pb	mg/kg	1	20	13	25	45	22
Nickel, Ni	mg/kg	0.5	2.2	1.4	1.4	11	1.8
Zinc, Zn	mg/kg	0.5	34	15	67	210	42

PARAMETER	UOM	LOR	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0-0.15 SOIL - 30/5/2016 SE153116.027	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP14 1.05-1.15 SOIL - 30/5/2016 SE153116.029	TP15 0-0.15 SOIL - 30/5/2016 SE153116.030
Arsenic, As	mg/kg	3	4	3	4	4	11
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	8.7	8.7	17	12	7.7
Copper, Cu	mg/kg	0.5	20	11	1.8	15	14
Lead, Pb	mg/kg	1	21	32	16	28	32
Nickel, Ni	mg/kg	0.5	3.3	3.3	0.6	4.0	1.0
Zinc, Zn	mg/kg	0.5	49	160	6.4	58	34

PARAMETER	UOM	LOR	TP16 0-0.15 SOIL - 31/5/2016 SE153116.031	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032	TP16 1.0-1.3 SOIL - 31/5/2016 SE153116.033	TP16 1.5-1.8 SOIL - 31/5/2016 SE153116.034	TP16 2.0-2.2 SOIL - 31/5/2016 SE153116.035
Arsenic, As	mg/kg	3	4	<3	4	3	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	8.5	7.5	8.2	8.0	7.7
Copper, Cu	mg/kg	0.5	8.1	7.4	9.7	6.7	7.1
Lead, Pb	mg/kg	1	27	20	17	19	22
Nickel, Ni	mg/kg	0.5	2.2	2.0	2.3	2.2	2.1
Zinc, Zn	mg/kg	0.5	67	24	28	27	27

PARAMETER	UOM	LOR	TP16 2.25-2.35 SOIL - 31/5/2016 SE153116.036	TP17 0-0.15 SOIL - 31/5/2016 SE153116.037	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 1.0-1.3 SOIL - 31/5/2016 SE153116.039	TP17 1.5-1.8 SOIL - 31/5/2016 SE153116.040
Arsenic, As	mg/kg	3	<3	<3	4	<3	<3
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	5.9	4.5	9.9	7.9	8.0
Copper, Cu	mg/kg	0.5	2.4	4.8	5.2	7.4	6.9
Lead, Pb	mg/kg	1	11	15	11	18	19
Nickel, Ni	mg/kg	0.5	1.1	1.8	1.6	2.1	2.6
Zinc, Zn	mg/kg	0.5	10	35	14	26	30

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/6/2016 (continued)

PARAMETER	UOM	LOR	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP18 0-0.15 SOIL - 30/5/2016 SE153116.042	TP19 0-0.15 SOIL - 30/5/2016 SE153116.043	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP19 1.0-1.3 SOIL - 30/5/2016 SE153116.045
Arsenic, As	mg/kg	3	9	5	<3	13	6
Cadmium, Cd	mg/kg	0.3	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	14	11	7.6	15	13
Copper, Cu	mg/kg	0.5	0.6	17	8.7	17	5.0
Lead, Pb	mg/kg	1	19	31	27	55	24
Nickel, Ni	mg/kg	0.5	2.3	2.3	3.0	2.2	1.9
Zinc, Zn	mg/kg	0.5	9.0	74	43	24	68

PARAMETER	UOM	LOR	TP19 1.55-1.65 SOIL - 30/5/2016 SE153116.046	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP20 0.5-0.8 SOIL - 30/5/2016 SE153116.048	TP20 1.0-1.3 SOIL - 30/5/2016 SE153116.049	TP20 1.55-1.65 SOIL - 30/5/2016 SE153116.050
Arsenic, As	mg/kg	3	6	5	5	4	8
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	7.8	13	11	5.3	7.5
Copper, Cu	mg/kg	0.5	8.7	13	9.5	4.0	17
Lead, Pb	mg/kg	1	32	54	21	15	26
Nickel, Ni	mg/kg	0.5	2.7	4.1	1.8	1.7	1.8
Zinc, Zn	mg/kg	0.5	60	68	16	38	64

PARAMETER	UOM	LOR	TP21 0-0.15 SOIL - 30/5/2016 SE153116.051	TP22 0-0.15 SOIL - 30/5/2016 SE153116.052	TP23 0-0.15 SOIL - 30/5/2016 SE153116.053	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054	TP24 0.5-0.8 SOIL - 30/5/2016 SE153116.055
Arsenic, As	mg/kg	3	8	6	10	4	4
Cadmium, Cd	mg/kg	0.3	0.3	<0.3	<0.3	0.3	<0.3
Chromium, Cr	mg/kg	0.3	9.8	7.3	13	11	14
Copper, Cu	mg/kg	0.5	11	13	19	8.6	1.5
Lead, Pb	mg/kg	1	28	31	43	34	16
Nickel, Ni	mg/kg	0.5	4.8	2.3	6.3	2.7	0.8
Zinc, Zn	mg/kg	0.5	40	40	57	33	3.4

PARAMETER	UOM	LOR	TP24 1.0-1.3 SOIL - 30/5/2016 SE153116.056	TP24 1.55-1.65 SOIL - 30/5/2016 SE153116.057	TP25 0-0.15 SOIL - 30/5/2016 SE153116.058	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	TP25 1.0-1.3 SOIL - 30/5/2016 SE153116.062
Arsenic, As	mg/kg	3	<3	10	3	14	8
Cadmium, Cd	mg/kg	0.3	<0.3	0.4	0.8	3.5	4.7
Chromium, Cr	mg/kg	0.3	7.2	20	7.1	22	18
Copper, Cu	mg/kg	0.5	9.7	36	14	15	41
Lead, Pb	mg/kg	1	15	39	23	59	46
Nickel, Ni	mg/kg	0.5	0.8	6.9	2.7	3.8	4.5
Zinc, Zn	mg/kg	0.5	7.5	98	56	45	130

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 7/6/2016 (continued)

PARAMETER	UOM	LOR	TP25 1.5-1.8 SOIL - 30/5/2016 SE153116.064	TP25 1.85-1.5 SOIL - 30/5/2016 SE153116.065	TP26 0-0.15 SOIL - 30/5/2016 SE153116.066	TP26 0.25-0.35 SOIL - 30/5/2016 SE153116.067	TP27 0-0.15 SOIL - 30/5/2016 SE153116.068
Arsenic, As	mg/kg	3	16	4	3	7	<3
Cadmium, Cd	mg/kg	0.3	2.8	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	23	13	6.3	6.7	10
Copper, Cu	mg/kg	0.5	83	4.4	15	13	20
Lead, Pb	mg/kg	1	58	16	21	22	32
Nickel, Ni	mg/kg	0.5	6.2	4.6	2.2	1.5	2.5
Zinc, Zn	mg/kg	0.5	130	15	47	32	42

PARAMETER	UOM	LOR	TP27 0.35-0.45 SOIL - 30/5/2016 SE153116.069	Duplicate D1 SOIL - 30/5/2016 SE153116.072	Duplicate D2 SOIL - 30/5/2016 SE153116.073	Duplicate D3 SOIL - 30/5/2016 SE153116.074	Duplicate D4 SOIL - 30/5/2016 SE153116.075
Arsenic, As	mg/kg	3	<3	6	<3	4	6
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	0.7	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	6.6	11	6.3	19	8.6
Copper, Cu	mg/kg	0.5	1.0	18	10	2.6	8.4
Lead, Pb	mg/kg	1	10	62	26	19	31
Nickel, Ni	mg/kg	0.5	3.2	3.6	1.9	1.2	3.1
Zinc, Zn	mg/kg	0.5	7.3	63	53	12	43

Mercury in Soil [AN312] Tested: 8/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	BH2 0-0.15 SOIL - 31/5/2016 SE153116.003	BH3 0-0.15 SOIL - 31/5/2016 SE153116.004	BH4 0-0.15 SOIL - 31/5/2016 SE153116.005
Mercury	mg/kg	0.01	0.04	0.03	0.04	0.05	0.03

PARAMETER	UOM	LOR	TP5 0-0.15 SOIL - 31/5/2016 SE153116.006	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	BH6 0-0.15 SOIL - 31/5/2016 SE153116.009	BH7 0-0.15 SOIL - 31/5/2016 SE153116.010
Mercury	mg/kg	0.01	0.05	0.03	0.02	0.08	0.07

PARAMETER	UOM	LOR	BH7 0.3-0.6 SOIL - 31/5/2016 SE153116.011	BH8 0-0.15 SOIL - 31/5/2016 SE153116.012	TP9 0-0.15 SOIL - 30/5/2016 SE153116.013	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 0.5-0.8 SOIL - 30/5/2016 SE153116.015
Mercury	mg/kg	0.01	<0.01	0.10	0.06	0.05	0.04

PARAMETER	UOM	LOR	TP10 1.0-1.3 SOIL - 30/5/2016 SE153116.016	TP10 1.5-1.8 SOIL - 30/5/2016 SE153116.017	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018	TP11 0-0.15 SOIL - 30/5/2016 SE153116.019	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020
Mercury	mg/kg	0.01	0.03	0.03	0.02	0.05	0.03

PARAMETER	UOM	LOR	TP11 1.0-1.3 SOIL - 30/5/2016 SE153116.021	TP11 1.45-1.55 SOIL - 30/5/2016 SE153116.022	TP12 0-0.15 SOIL - 30/5/2016 SE153116.023	TP13 0-0.15 SOIL - 30/5/2016 SE153116.024	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025
Mercury	mg/kg	0.01	0.03	0.02	0.03	0.03	0.03

PARAMETER	UOM	LOR	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0-0.15 SOIL - 30/5/2016 SE153116.027	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP14 1.05-1.15 SOIL - 30/5/2016 SE153116.029	TP15 0-0.15 SOIL - 30/5/2016 SE153116.030
Mercury	mg/kg	0.01	0.02	0.03	<0.01	0.05	0.17

PARAMETER	UOM	LOR	TP16 0-0.15 SOIL - 31/5/2016 SE153116.031	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032	TP16 1.0-1.3 SOIL - 31/5/2016 SE153116.033	TP16 1.5-1.8 SOIL - 31/5/2016 SE153116.034	TP16 2.0-2.2 SOIL - 31/5/2016 SE153116.035
Mercury	mg/kg	0.01	0.06	0.03	0.04	0.04	0.03

Mercury in Soil [AN312] Tested: 8/6/2016 (continued)

PARAMETER	UOM	LOR	TP16 2.25-2.35 SOIL - 31/5/2016 SE153116.036	TP17 0-0.15 SOIL - 31/5/2016 SE153116.037	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 1.0-1.3 SOIL - 31/5/2016 SE153116.039	TP17 1.5-1.8 SOIL - 31/5/2016 SE153116.040
Mercury	mg/kg	0.01	0.01	0.04	0.01	0.04	0.04

PARAMETER	UOM	LOR	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP18 0-0.15 SOIL - 30/5/2016 SE153116.042	TP19 0-0.15 SOIL - 30/5/2016 SE153116.043	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP19 1.0-1.3 SOIL - 30/5/2016 SE153116.045
Mercury	mg/kg	0.01	<0.01	0.07	0.03	0.01	0.02

PARAMETER	UOM	LOR	TP19 1.55-1.65 SOIL - 30/5/2016 SE153116.046	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP20 0.5-0.8 SOIL - 30/5/2016 SE153116.048	TP20 1.0-1.3 SOIL - 30/5/2016 SE153116.049	TP20 1.55-1.65 SOIL - 30/5/2016 SE153116.050
Mercury	mg/kg	0.01	0.05	0.08	0.02	0.04	0.05

PARAMETER	UOM	LOR	TP21 0-0.15 SOIL - 30/5/2016 SE153116.051	TP22 0-0.15 SOIL - 30/5/2016 SE153116.052	TP23 0-0.15 SOIL - 30/5/2016 SE153116.053	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054	TP24 0.5-0.8 SOIL - 30/5/2016 SE153116.055
Mercury	mg/kg	0.01	0.05	0.06	0.08	0.02	<0.01

PARAMETER	UOM	LOR	TP24 1.0-1.3 SOIL - 30/5/2016 SE153116.056	TP24 1.55-1.65 SOIL - 30/5/2016 SE153116.057	TP25 0-0.15 SOIL - 30/5/2016 SE153116.058	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	TP25 1.0-1.3 SOIL - 30/5/2016 SE153116.062
Mercury	mg/kg	0.01	0.02	0.05	0.02	0.03	0.06

PARAMETER	UOM	LOR	TP25 1.5-1.8 SOIL - 30/5/2016 SE153116.064	TP25 1.85-1.5 SOIL - 30/5/2016 SE153116.065	TP26 0-0.15 SOIL - 30/5/2016 SE153116.066	TP26 0.25-0.35 SOIL - 30/5/2016 SE153116.067	TP27 0-0.15 SOIL - 30/5/2016 SE153116.068
Mercury	mg/kg	0.01	0.05	0.03	0.02	0.04	0.05

PARAMETER	UOM	LOR	TP27 0.35-0.45 SOIL - 30/5/2016 SE153116.069	Duplicate D1 SOIL - 30/5/2016 SE153116.072	Duplicate D2 SOIL - 30/5/2016 SE153116.073	Duplicate D3 SOIL - 30/5/2016 SE153116.074	Duplicate D4 SOIL - 30/5/2016 SE153116.075
Mercury	mg/kg	0.01	0.03	0.09	0.03	0.02	0.06

Moisture Content [AN002] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	BH2 0-0.15 SOIL - 31/5/2016 SE153116.003	BH3 0-0.15 SOIL - 31/5/2016 SE153116.004	BH4 0-0.15 SOIL - 31/5/2016 SE153116.005
% Moisture	%w/w	0.5	14	7.5	14	13	17

PARAMETER	UOM	LOR	TP5 0-0.15 SOIL - 31/5/2016 SE153116.006	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116.007	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	BH6 0-0.15 SOIL - 31/5/2016 SE153116.009	BH7 0-0.15 SOIL - 31/5/2016 SE153116.010
% Moisture	%w/w	0.5	6.9	11	7.4	12	15

PARAMETER	UOM	LOR	BH7 0.3-0.6 SOIL - 31/5/2016 SE153116.011	BH8 0-0.15 SOIL - 31/5/2016 SE153116.012	TP9 0-0.15 SOIL - 30/5/2016 SE153116.013	TP10 0-0.15 SOIL - 30/5/2016 SE153116.014	TP10 0.5-0.8 SOIL - 30/5/2016 SE153116.015
% Moisture	%w/w	0.5	19	19	13	8.5	11

PARAMETER	UOM	LOR	TP10 1.0-1.3 SOIL - 30/5/2016 SE153116.016	TP10 1.5-1.8 SOIL - 30/5/2016 SE153116.017	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018	TP11 0-0.15 SOIL - 30/5/2016 SE153116.019	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116.020
% Moisture	%w/w	0.5	13	12	12	8.5	11

PARAMETER	UOM	LOR	TP11 1.0-1.3 SOIL - 30/5/2016 SE153116.021	TP11 1.45-1.55 SOIL - 30/5/2016 SE153116.022	TP12 0-0.15 SOIL - 30/5/2016 SE153116.023	TP13 0-0.15 SOIL - 30/5/2016 SE153116.024	TP13 0.2-0.5 SOIL - 30/5/2016 SE153116.025
% Moisture	%w/w	0.5	11	11	18	20	16

PARAMETER	UOM	LOR	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0-0.15 SOIL - 30/5/2016 SE153116.027	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116.028	TP14 1.05-1.15 SOIL - 30/5/2016 SE153116.029	TP15 0-0.15 SOIL - 30/5/2016 SE153116.030
% Moisture	%w/w	0.5	15	21	16	13	18

PARAMETER	UOM	LOR	TP16 0-0.15 SOIL - 31/5/2016 SE153116.031	TP16 0.5-0.8 SOIL - 31/5/2016 SE153116.032	TP16 1.0-1.3 SOIL - 31/5/2016 SE153116.033	TP16 1.5-1.8 SOIL - 31/5/2016 SE153116.034	TP16 2.0-2.2 SOIL - 31/5/2016 SE153116.035
% Moisture	%w/w	0.5	8.4	11	11	12	12

Moisture Content [AN002] Tested: 6/6/2016 (continued)

PARAMETER	UOM	LOR	TP16 2.25-2.35 SOIL - 31/5/2016 SE153116.036	TP17 0-0.15 SOIL - 31/5/2016 SE153116.037	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116.038	TP17 1.0-1.3 SOIL - 31/5/2016 SE153116.039	TP17 1.5-1.8 SOIL - 31/5/2016 SE153116.040
% Moisture	%w/w	0.5	13	5.9	13	11	11

PARAMETER	UOM	LOR	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP18 0-0.15 SOIL - 30/5/2016 SE153116.042	TP19 0-0.15 SOIL - 30/5/2016 SE153116.043	TP19 0.5-0.8 SOIL - 30/5/2016 SE153116.044	TP19 1.0-1.3 SOIL - 30/5/2016 SE153116.045
% Moisture	%w/w	0.5	28	38	9.6	23	19

PARAMETER	UOM	LOR	TP19 1.55-1.65 SOIL - 30/5/2016 SE153116.046	TP20 0-0.15 SOIL - 30/5/2016 SE153116.047	TP20 0.5-0.8 SOIL - 30/5/2016 SE153116.048	TP20 1.0-1.3 SOIL - 30/5/2016 SE153116.049	TP20 1.55-1.65 SOIL - 30/5/2016 SE153116.050
% Moisture	%w/w	0.5	34	13	16	19	21

PARAMETER	UOM	LOR	TP21 0-0.15 SOIL - 30/5/2016 SE153116.051	TP22 0-0.15 SOIL - 30/5/2016 SE153116.052	TP23 0-0.15 SOIL - 30/5/2016 SE153116.053	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054	TP24 0.5-0.8 SOIL - 30/5/2016 SE153116.055
% Moisture	%w/w	0.5	25	22	33	13	18

PARAMETER	UOM	LOR	TP24 1.0-1.3 SOIL - 30/5/2016 SE153116.056	TP24 1.55-1.65 SOIL - 30/5/2016 SE153116.057	TP25 0-0.15 SOIL - 30/5/2016 SE153116.058	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	TP25 1.0-1.3 SOIL - 30/5/2016 SE153116.062
% Moisture	%w/w	0.5	18	20	7.3	16	26

PARAMETER	UOM	LOR	TP25 1.5-1.8 SOIL - 30/5/2016 SE153116.064	TP25 1.85-1.5 SOIL - 30/5/2016 SE153116.065	TP26 0-0.15 SOIL - 30/5/2016 SE153116.066	TP26 0.25-0.35 SOIL - 30/5/2016 SE153116.067	TP27 0-0.15 SOIL - 30/5/2016 SE153116.068
% Moisture	%w/w	0.5	37	45	12	20	11

PARAMETER	UOM	LOR	TP27 0.35-0.45 SOIL - 30/5/2016 SE153116.069	Duplicate D1 SOIL - 30/5/2016 SE153116.072	Duplicate D2 SOIL - 30/5/2016 SE153116.073	Duplicate D3 SOIL - 30/5/2016 SE153116.074	Duplicate D4 SOIL - 30/5/2016 SE153116.075
% Moisture	%w/w	0.5	27	14	7.8	21	36

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 8/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116.002	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116.008	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116.018	TP13 0-0.15 SOIL - 30/5/2016 SE153116.024
Total Sample Weight	g	1	**465**	**637**	**533**	**550**	**500**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Fibre Type	No unit	-	-	-	-	-	-

PARAMETER	UOM	LOR	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116.026	TP14 0-0.15 SOIL - 30/5/2016 SE153116.027	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116.041	TP24 0-0.15 SOIL - 30/5/2016 SE153116.054	TP25 0-0.15 SOIL - 30/5/2016 SE153116.058
Total Sample Weight	g	1	**663**	**610**	**543**	**724**	**796**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	**0.136**	<0.0001	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	**0.022**	<0.001	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	**0.022**	<0.001	<0.001	<0.001
Fibre Type	No unit	-	-	CRY	-	-	-

PARAMETER	UOM	LOR	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116.060	TP25 1.0-1.3 SOIL - 30/5/2016 SE153116.062	TP25 1.5-1.8 SOIL - 30/5/2016 SE153116.064	TP26 0-0.15 SOIL - 30/5/2016 SE153116.066	FCP1 0-0.1 SOIL - 30/5/2016 SE153116.071
Total Sample Weight	g	1	**565**	**346**	**427**	**537**	**754**
ACM in >7mm Sample*	g	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	<0.0001	<0.0001	**0.0180**	<0.0001	<0.0001
AF/FA in <2mm Sample*	g	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.004**	<0.001	<0.001
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	<0.001	<0.001	**0.004**	<0.001	<0.001
Fibre Type	No unit	-	-	-	CRY	-	-

Fibre ID in bulk materials [AN602] Tested: 8/6/2016

PARAMETER	UOM	LOR	TP25 0.5-0.8 FCP MATERIAL - 30/5/2016 SE153116.059	TP25 1.0-1.3 FCP MATERIAL - 30/5/2016 SE153116.061	TP25 1.5-1.8 FCP MATERIAL - 30/5/2016 SE153116.063	FCP1 Ground Surface FCP MATERIAL - 30/5/2016 SE153116.070
Asbestos Detected	No unit	-	No	No	Yes	No

Metals in Water (Dissolved) by ICPOES [AN320/AN321] Tested: 8/6/2016

PARAMETER	UOM	LOR	Rinsate R1 WATER - 30/5/2016 SE153116.076	Rinsate R2 WATER - 31/5/2016 SE153116.077
Arsenic, As	mg/L	0.02	<0.02	<0.02
Cadmium, Cd	mg/L	0.001	<0.001	<0.001
Chromium, Cr	mg/L	0.005	<0.005	<0.005
Copper, Cu	mg/L	0.005	<0.005	<0.005
Lead, Pb	mg/L	0.02	<0.02	<0.02
Nickel, Ni	mg/L	0.005	<0.005	<0.005
Zinc, Zn	mg/L	0.01	<0.01	<0.01

Mercury (dissolved) in Water [AN311/AN312] Tested: 8/6/2016

PARAMETER	UOM	LOR	Rinsate R1 WATER - 30/5/2016 SE153116.076	Rinsate R2 WATER - 31/5/2016 SE153116.077
Mercury	mg/L	0.0001	<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.
AN122	Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.
AN122	The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100. ESP can be used to categorise the sodicity of the soil as below: ESP < 6% non-sodic ESP 6-15% sodic ESP >15% strongly sodic Method is refernced to Rayment and Higginson, 1992, sections 15D3 and 15N1.-
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
AN320/AN321	Metals by ICP-OES: Samples are preserved with 10% nitric acid for a wide range of metals and some non-metals. This solution is measured by Inductively Coupled Plasma. Solutions are aspirated into an argon plasma at 8000-10000K and emit characteristic energy or light as a result of electron transitions through unique energy levels. The emitted light is focused onto a diffraction grating where it is separated into components.
AN320/AN321	Photomultipliers or CCDs are used to measure the light intensity at specific wavelengths. This intensity is directly proportional to concentration. Corrections are required to compensate for spectral overlap between elements. Reference APHA 3120 B.
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).
AN605	This technique gravimetrically determines the mass of Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free fibres which are only observed by standard trace analysis as per AN 602.
AN605	AMO = Amosite CRY = Chrysotile CRO = Crocidolite
AN605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009.

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 calculated 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.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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 Documents/MP-AU-ENV-QU-022 QA QC Plan.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. 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.

STATEMENT OF QA/QC PERFORMANCE

SE153116 R0

CLIENT DETAILS

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Order Number	(Not specified)
Samples	78

LABORATORY DETAILS

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SGS Reference	**SE153116 R0**
Date Received	01 Jun 2016
Date Reported	10 Jun 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	2 items

SAMPLE SUMMARY

Sample counts by matrix	72 Soil,2 Water,4 FC	Type of documentation received	COC
Date documentation received	2/6/16@12:59pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.2°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

SE153116 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.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
BH2 0-0.15	SE153116.003	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
BH4 0-0.15	SE153116.005	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
BH7 0-0.15	SE153116.010	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
BH7 0.3-0.6	SE153116.011	LB102815	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
TP9 0-0.15	SE153116.013	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP11 0-0.15	SE153116.019	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP13 0-0.15	SE153116.024	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP15 0-0.15	SE153116.030	LB102815	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP17 0-0.15	SE153116.037	LB102817	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102817	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102817	31 May 2016	01 Jun 2016	28 Jun 2016	07 Jun 2016	28 Jun 2016	10 Jun 2016
TP18 0-0.15	SE153116.042	LB102817	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP19 0-0.15	SE153116.043	LB102817	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP20 0-0.15	SE153116.047	LB102817	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP22 0-0.15	SE153116.052	LB102817	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102817	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016
TP26 0-0.15	SE153116.066	LB102817	30 May 2016	01 Jun 2016	27 Jun 2016	07 Jun 2016	27 Jun 2016	10 Jun 2016

Fibre ID in bulk materials

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP25 0.5-0.8 FCP	SE153116.059	LB102891	30 May 2016	01 Jun 2016	30 May 2017	08 Jun 2016	30 May 2017	09 Jun 2016
TP25 1.0-1.3 FCP	SE153116.061	LB102891	30 May 2016	01 Jun 2016	30 May 2017	08 Jun 2016	30 May 2017	09 Jun 2016
TP25 1.5-1.8 FCP	SE153116.063	LB102891	30 May 2016	01 Jun 2016	30 May 2017	08 Jun 2016	30 May 2017	09 Jun 2016
FCP1 Ground Surface FCP	SE153116.070	LB102891	30 May 2016	01 Jun 2016	30 May 2017	08 Jun 2016	30 May 2017	09 Jun 2016

Gravimetric Determination of Asbestos in Soil

Method: ME-(AU)-[ENV]AN605

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102895	31 May 2016	01 Jun 2016	27 Nov 2016	08 Jun 2016	27 Nov 2016	09 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102895	31 May 2016	01 Jun 2016	27 Nov 2016	08 Jun 2016	27 Nov 2016	09 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102895	31 May 2016	01 Jun 2016	27 Nov 2016	08 Jun 2016	27 Nov 2016	09 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP13 0-0.15	SE153116.024	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP14 0-0.15	SE153116.027	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102895	31 May 2016	01 Jun 2016	27 Nov 2016	08 Jun 2016	27 Nov 2016	09 Jun 2016
TP24 0-0.15	SE153116.054	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 0-0.15	SE153116.058	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 1.0-1.3	SE153116.062	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 1.5-1.8	SE153116.064	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
TP26 0-0.15	SE153116.066	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016
FCP1 0-0.1	SE153116.071	LB102895	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	09 Jun 2016

Mercury (dissolved) in Water

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Rinsate R1	SE153116.076	LB102855	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	08 Jun 2016
Rinsate R2	SE153116.077	LB102855	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	08 Jun 2016

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH2 0-0.15	SE153116.003	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH3 0-0.15	SE153116.004	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016

HOLDING TIME SUMMARY

SE153116 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.

Mercury in Soil (continued) — **Method: ME-(AU)-[ENV]AN312**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4 0-0.15	SE153116.005	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP5 0-0.15	SE153116.006	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH6 0-0.15	SE153116.009	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH7 0-0.15	SE153116.010	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH7 0.3-0.6	SE153116.011	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
BH8 0-0.15	SE153116.012	LB102867	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP9 0-0.15	SE153116.013	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP10 0-0.15	SE153116.014	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP10 0.5-0.8	SE153116.015	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP10 1.0-1.3	SE153116.016	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP10 1.5-1.8	SE153116.017	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP11 0-0.15	SE153116.019	LB102867	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP11 1.0-1.3	SE153116.021	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP11 1.45-1.55	SE153116.022	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP12 0-0.15	SE153116.023	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP13 0-0.15	SE153116.024	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP14 0-0.15	SE153116.027	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP14 1.05-1.15	SE153116.029	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP15 0-0.15	SE153116.030	LB102868	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP16 0-0.15	SE153116.031	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP16 1.0-1.3	SE153116.033	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP16 1.5-1.8	SE153116.034	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP16 2.0-2.2	SE153116.035	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP16 2.25-2.35	SE153116.036	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP17 0-0.15	SE153116.037	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102868	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP17 1.0-1.3	SE153116.039	LB102869	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP17 1.5-1.8	SE153116.040	LB102869	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102869	31 May 2016	01 Jun 2016	28 Jun 2016	08 Jun 2016	28 Jun 2016	09 Jun 2016
TP18 0-0.15	SE153116.042	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP19 0-0.15	SE153116.043	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP19 1.0-1.3	SE153116.045	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP19 1.55-1.65	SE153116.046	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP20 0-0.15	SE153116.047	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP20 0.5-0.8	SE153116.048	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP20 1.0-1.3	SE153116.049	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP20 1.55-1.65	SE153116.050	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP21 0-0.15	SE153116.051	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP22 0-0.15	SE153116.052	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP23 0-0.15	SE153116.053	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP24 0-0.15	SE153116.054	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP24 0.5-0.8	SE153116.055	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP24 1.0-1.3	SE153116.056	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP24 1.55-1.65	SE153116.057	LB102869	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP25 0-0.15	SE153116.058	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP25 1.0-1.3	SE153116.062	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP25 1.5-1.8	SE153116.064	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP25 1.85-1.5	SE153116.065	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP26 0-0.15	SE153116.066	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP26 0.25-0.35	SE153116.067	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016

HOLDING TIME SUMMARY

SE153116 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.

Mercury in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP27 0-0.15	SE153116.068	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
TP27 0.35-0.45	SE153116.069	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
Duplicate D1	SE153116.072	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
Duplicate D2	SE153116.073	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
Duplicate D3	SE153116.074	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016
Duplicate D4	SE153116.075	LB102870	30 May 2016	01 Jun 2016	27 Jun 2016	08 Jun 2016	27 Jun 2016	09 Jun 2016

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
Rinsate R1	SE153116.076	LB102848	30 May 2016	01 Jun 2016	26 Nov 2016	08 Jun 2016	26 Nov 2016	08 Jun 2016
Rinsate R2	SE153116.077	LB102848	31 May 2016	01 Jun 2016	27 Nov 2016	08 Jun 2016	27 Nov 2016	08 Jun 2016

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH2 0-0.15	SE153116.003	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH3 0-0.15	SE153116.004	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH4 0-0.15	SE153116.005	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP5 0-0.15	SE153116.006	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH6 0-0.15	SE153116.009	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH7 0-0.15	SE153116.010	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH7 0.3-0.6	SE153116.011	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
BH8 0-0.15	SE153116.012	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP9 0-0.15	SE153116.013	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP10 0-0.15	SE153116.014	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP10 0.5-0.8	SE153116.015	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP10 1.0-1.3	SE153116.016	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP10 1.5-1.8	SE153116.017	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP11 0-0.15	SE153116.019	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP11 1.0-1.3	SE153116.021	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP11 1.45-1.55	SE153116.022	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP12 0-0.15	SE153116.023	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP13 0-0.15	SE153116.024	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	08 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP14 0-0.15	SE153116.027	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP14 1.05-1.15	SE153116.029	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP15 0-0.15	SE153116.030	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP16 0-0.15	SE153116.031	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP16 1.0-1.3	SE153116.033	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP16 1.5-1.8	SE153116.034	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP16 2.0-2.2	SE153116.035	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP16 2.25-2.35	SE153116.036	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP17 0-0.15	SE153116.037	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP17 1.0-1.3	SE153116.039	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP17 1.5-1.8	SE153116.040	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102668	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP18 0-0.15	SE153116.042	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP19 0-0.15	SE153116.043	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP19 1.0-1.3	SE153116.045	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP19 1.55-1.65	SE153116.046	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP20 0-0.15	SE153116.047	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016

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
TP20 0.5-0.8	SE153116.048	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP20 1.0-1.3	SE153116.049	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP20 1.55-1.65	SE153116.050	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP21 0-0.15	SE153116.051	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP22 0-0.15	SE153116.052	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP23 0-0.15	SE153116.053	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP24 0-0.15	SE153116.054	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP24 0.5-0.8	SE153116.055	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP24 1.0-1.3	SE153116.056	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP24 1.55-1.65	SE153116.057	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP25 0-0.15	SE153116.058	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP25 1.0-1.3	SE153116.062	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP25 1.5-1.8	SE153116.064	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP25 1.85-1.5	SE153116.065	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP26 0-0.15	SE153116.066	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP26 0.25-0.35	SE153116.067	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP27 0-0.15	SE153116.068	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
TP27 0.35-0.45	SE153116.069	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
Duplicate D1	SE153116.072	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
Duplicate D2	SE153116.073	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
Duplicate D3	SE153116.074	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016
Duplicate D4	SE153116.075	LB102668	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	11 Jun 2016	09 Jun 2016

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH2 0-0.15	SE153116.003	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH3 0-0.15	SE153116.004	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH4 0-0.15	SE153116.005	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0-0.15	SE153116.006	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH6 0-0.15	SE153116.009	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH7 0-0.15	SE153116.010	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH8 0-0.15	SE153116.012	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP9 0-0.15	SE153116.013	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 0-0.15	SE153116.014	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0-0.15	SE153116.019	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP12 0-0.15	SE153116.023	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0-0.15	SE153116.024	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0-0.15	SE153116.027	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP15 0-0.15	SE153116.030	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0-0.15	SE153116.031	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0-0.15	SE153116.037	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP18 0-0.15	SE153116.042	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0-0.15	SE153116.043	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP20 0-0.15	SE153116.047	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP21 0-0.15	SE153116.051	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP22 0-0.15	SE153116.052	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016

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.

OC Pesticides in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP23 0-0.15	SE153116.053	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP24 0-0.15	SE153116.054	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0-0.15	SE153116.058	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP26 0-0.15	SE153116.066	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP27 0-0.15	SE153116.068	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D1	SE153116.072	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D2	SE153116.073	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016

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
BH1 0-0.1	SE153116.001	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH2 0-0.15	SE153116.003	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH3 0-0.15	SE153116.004	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH4 0-0.15	SE153116.005	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0-0.15	SE153116.006	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH6 0-0.15	SE153116.009	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH7 0-0.15	SE153116.010	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH8 0-0.15	SE153116.012	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP9 0-0.15	SE153116.013	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 0-0.15	SE153116.014	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0-0.15	SE153116.019	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP12 0-0.15	SE153116.023	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0-0.15	SE153116.024	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0-0.15	SE153116.027	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP15 0-0.15	SE153116.030	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0-0.15	SE153116.031	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0-0.15	SE153116.037	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP18 0-0.15	SE153116.042	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0-0.15	SE153116.043	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP20 0-0.15	SE153116.047	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP21 0-0.15	SE153116.051	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP22 0-0.15	SE153116.052	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP23 0-0.15	SE153116.053	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP24 0-0.15	SE153116.054	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0-0.15	SE153116.058	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP26 0-0.15	SE153116.066	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP27 0-0.15	SE153116.068	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D1	SE153116.072	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D2	SE153116.073	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016

PCBs in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH2 0-0.15	SE153116.003	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH3 0-0.15	SE153116.004	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH4 0-0.15	SE153116.005	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016

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.

PCBs in Soil (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP5 0-0.15	SE153116.006	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH6 0-0.15	SE153116.009	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH7 0-0.15	SE153116.010	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH8 0-0.15	SE153116.012	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP9 0-0.15	SE153116.013	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 0-0.15	SE153116.014	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0-0.15	SE153116.019	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP12 0-0.15	SE153116.023	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0-0.15	SE153116.024	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0-0.15	SE153116.027	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP15 0-0.15	SE153116.030	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0-0.15	SE153116.031	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0-0.15	SE153116.037	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP18 0-0.15	SE153116.042	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0-0.15	SE153116.043	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP20 0-0.15	SE153116.047	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP21 0-0.15	SE153116.051	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP22 0-0.15	SE153116.052	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP23 0-0.15	SE153116.053	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP24 0-0.15	SE153116.054	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0-0.15	SE153116.058	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP26 0-0.15	SE153116.066	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP27 0-0.15	SE153116.068	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D1	SE153116.072	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D2	SE153116.073	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116.001	LB102807	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102807	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH2 0-0.15	SE153116.003	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH3 0-0.15	SE153116.004	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH4 0-0.15	SE153116.005	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP5 0-0.15	SE153116.006	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH6 0-0.15	SE153116.009	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH7 0-0.15	SE153116.010	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH7 0.3-0.6	SE153116.011	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
BH8 0-0.15	SE153116.012	LB102808	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP9 0-0.15	SE153116.013	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP10 0-0.15	SE153116.014	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP10 0.5-0.8	SE153116.015	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP10 1.0-1.3	SE153116.016	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP10 1.5-1.8	SE153116.017	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP11 0-0.15	SE153116.019	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016

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.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP11 1.0-1.3	SE153116.021	LB102808	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP11 1.45-1.55	SE153116.022	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP12 0-0.15	SE153116.023	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP13 0-0.15	SE153116.024	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP14 0-0.15	SE153116.027	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP14 1.05-1.15	SE153116.029	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP15 0-0.15	SE153116.030	LB102809	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP16 0-0.15	SE153116.031	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP16 1.0-1.3	SE153116.033	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP16 1.5-1.8	SE153116.034	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP16 2.0-2.2	SE153116.035	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP16 2.25-2.35	SE153116.036	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP17 0-0.15	SE153116.037	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP17 1.0-1.3	SE153116.039	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP17 1.5-1.8	SE153116.040	LB102809	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102810	31 May 2016	01 Jun 2016	27 Nov 2016	07 Jun 2016	27 Nov 2016	09 Jun 2016
TP18 0-0.15	SE153116.042	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP19 0-0.15	SE153116.043	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP19 1.0-1.3	SE153116.045	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP19 1.55-1.65	SE153116.046	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP20 0-0.15	SE153116.047	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP20 0.5-0.8	SE153116.048	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP20 1.0-1.3	SE153116.049	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP20 1.55-1.65	SE153116.050	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP21 0-0.15	SE153116.051	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP22 0-0.15	SE153116.052	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP23 0-0.15	SE153116.053	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP24 0-0.15	SE153116.054	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP24 0.5-0.8	SE153116.055	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP24 1.0-1.3	SE153116.056	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP24 1.55-1.65	SE153116.057	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 0-0.15	SE153116.058	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102810	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 1.0-1.3	SE153116.062	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 1.5-1.8	SE153116.064	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP25 1.85-1.5	SE153116.065	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP26 0-0.15	SE153116.066	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP26 0.25-0.35	SE153116.067	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP27 0-0.15	SE153116.068	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
TP27 0.35-0.45	SE153116.069	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
Duplicate D1	SE153116.072	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
Duplicate D2	SE153116.073	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
Duplicate D3	SE153116.074	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016
Duplicate D4	SE153116.075	LB102812	30 May 2016	01 Jun 2016	26 Nov 2016	07 Jun 2016	26 Nov 2016	09 Jun 2016

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
BH1 0-0.1	SE153116.001	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH1 0.15-0.25	SE153116.002	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
BH2 0-0.15	SE153116.003	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH3 0-0.15	SE153116.004	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH4 0-0.15	SE153116.005	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0-0.15	SE153116.006	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016

HOLDING TIME SUMMARY

SE153116 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
TP5 1.05-1.15	SE153116.008	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
BH6 0-0.15	SE153116.009	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH7 0-0.15	SE153116.010	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
BH8 0-0.15	SE153116.012	LB102721	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP9 0-0.15	SE153116.013	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP10 0-0.15	SE153116.014	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP11 0-0.15	SE153116.019	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP12 0-0.15	SE153116.023	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0-0.15	SE153116.024	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102721	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP14 0-0.15	SE153116.027	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP15 0-0.15	SE153116.030	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0-0.15	SE153116.031	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP17 0-0.15	SE153116.037	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102722	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP18 0-0.15	SE153116.042	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0-0.15	SE153116.043	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP20 0-0.15	SE153116.047	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP21 0-0.15	SE153116.051	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP22 0-0.15	SE153116.052	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP23 0-0.15	SE153116.053	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP24 0-0.15	SE153116.054	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP25 0-0.15	SE153116.058	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP26 0-0.15	SE153116.066	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
TP27 0-0.15	SE153116.068	LB102722	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016
Duplicate D1	SE153116.072	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
Duplicate D2	SE153116.073	LB102723	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	10 Jun 2016

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0.15-0.25	SE153116.002	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP5 1.05-1.15	SE153116.008	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP10 0-0.15	SE153116.014	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102733	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102733	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP20 0-0.15	SE153116.047	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP24 0-0.15	SE153116.054	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
Duplicate D1	SE153116.072	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
Tripspike TS1	SE153116.078	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016

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
BH1 0.15-0.25	SE153116.002	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP5 0.5-0.8	SE153116.007	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016

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.

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP5 1.05-1.15	SE153116.008	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP10 0-0.15	SE153116.014	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP10 1.85-1.95	SE153116.018	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP11 0.5-0.8	SE153116.020	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP13 0.2-0.5	SE153116.025	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP13 0.55-0.65	SE153116.026	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP14 0.5-0.8	SE153116.028	LB102730	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP16 0.5-0.8	SE153116.032	LB102730	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP17 0.5-0.8	SE153116.038	LB102733	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP17 2.05-2.15	SE153116.041	LB102733	31 May 2016	01 Jun 2016	14 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP19 0.5-0.8	SE153116.044	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP20 0-0.15	SE153116.047	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP24 0-0.15	SE153116.054	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
TP25 0.5-0.8	SE153116.060	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
Duplicate D1	SE153116.072	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016
Tripspike TS1	SE153116.078	LB102733	30 May 2016	01 Jun 2016	13 Jun 2016	06 Jun 2016	16 Jul 2016	09 Jun 2016

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)	BH1 0-0.1	SE153116.001	%	60 - 130%	95
	BH1 0.15-0.25	SE153116.002	%	60 - 130%	104
	BH2 0-0.15	SE153116.003	%	60 - 130%	101
	BH3 0-0.15	SE153116.004	%	60 - 130%	108
	BH4 0-0.15	SE153116.005	%	60 - 130%	99
	TP5 0-0.15	SE153116.006	%	60 - 130%	98
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	100
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	96
	BH6 0-0.15	SE153116.009	%	60 - 130%	99
	BH7 0-0.15	SE153116.010	%	60 - 130%	99
	BH8 0-0.15	SE153116.012	%	60 - 130%	103
	TP9 0-0.15	SE153116.013	%	60 - 130%	100
	TP10 0-0.15	SE153116.014	%	60 - 130%	99
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	101
	TP11 0-0.15	SE153116.019	%	60 - 130%	99
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	99
	TP12 0-0.15	SE153116.023	%	60 - 130%	102
	TP13 0-0.15	SE153116.024	%	60 - 130%	102
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	100
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	104
	TP14 0-0.15	SE153116.027	%	60 - 130%	103
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	101
	TP15 0-0.15	SE153116.030	%	60 - 130%	103
	TP16 0-0.15	SE153116.031	%	60 - 130%	98
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	97
	TP17 0-0.15	SE153116.037	%	60 - 130%	97
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	101
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	100
	TP18 0-0.15	SE153116.042	%	60 - 130%	108
	TP19 0-0.15	SE153116.043	%	60 - 130%	101
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	99
	TP20 0-0.15	SE153116.047	%	60 - 130%	115
	TP21 0-0.15	SE153116.051	%	60 - 130%	107
	TP22 0-0.15	SE153116.052	%	60 - 130%	108
	TP23 0-0.15	SE153116.053	%	60 - 130%	111
	TP24 0-0.15	SE153116.054	%	60 - 130%	103
	TP25 0-0.15	SE153116.058	%	60 - 130%	99
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	112
	TP26 0-0.15	SE153116.066	%	60 - 130%	105
	TP27 0-0.15	SE153116.068	%	60 - 130%	99
	Duplicate D1	SE153116.072	%	60 - 130%	108
	Duplicate D2	SE153116.073	%	60 - 130%	105

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1 0.15-0.25	SE153116.002	%	70 - 130%	84
	TP5 0.5-0.8	SE153116.007	%	70 - 130%	88
	TP5 1.05-1.15	SE153116.008	%	70 - 130%	88
	TP10 0-0.15	SE153116.014	%	70 - 130%	84
	TP10 1.85-1.95	SE153116.018	%	70 - 130%	88
	TP11 0.5-0.8	SE153116.020	%	70 - 130%	86
	TP13 0.2-0.5	SE153116.025	%	70 - 130%	84
	TP13 0.55-0.65	SE153116.026	%	70 - 130%	82
	TP14 0.5-0.8	SE153116.028	%	70 - 130%	82
	TP16 0.5-0.8	SE153116.032	%	70 - 130%	82
	TP17 0.5-0.8	SE153116.038	%	70 - 130%	78
	TP17 2.05-2.15	SE153116.041	%	70 - 130%	84
	TP19 0.5-0.8	SE153116.044	%	70 - 130%	84
	TP20 0-0.15	SE153116.047	%	70 - 130%	94
	TP24 0-0.15	SE153116.054	%	70 - 130%	86
	TP25 0.5-0.8	SE153116.060	%	70 - 130%	74

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 %
2-fluorobiphenyl (Surrogate)	Duplicate D1	SE153116.072	%	70 - 130%	76
d14-p-terphenyl (Surrogate)	BH1 0.15-0.25	SE153116.002	%	70 - 130%	80
	TP5 0.5-0.8	SE153116.007	%	70 - 130%	108
	TP5 1.05-1.15	SE153116.008	%	70 - 130%	114
	TP10 0-0.15	SE153116.014	%	70 - 130%	94
	TP10 1.85-1.95	SE153116.018	%	70 - 130%	112
	TP11 0.5-0.8	SE153116.020	%	70 - 130%	114
	TP13 0.2-0.5	SE153116.025	%	70 - 130%	118
	TP13 0.55-0.65	SE153116.026	%	70 - 130%	100
	TP14 0.5-0.8	SE153116.028	%	70 - 130%	118
	TP16 0.5-0.8	SE153116.032	%	70 - 130%	118
	TP17 0.5-0.8	SE153116.038	%	70 - 130%	116
	TP17 2.05-2.15	SE153116.041	%	70 - 130%	114
	TP19 0.5-0.8	SE153116.044	%	70 - 130%	104
	TP20 0-0.15	SE153116.047	%	70 - 130%	102
	TP24 0-0.15	SE153116.054	%	70 - 130%	108
	TP25 0.5-0.8	SE153116.060	%	70 - 130%	110
	Duplicate D1	SE153116.072	%	70 - 130%	104
d5-nitrobenzene (Surrogate)	BH1 0.15-0.25	SE153116.002	%	70 - 130%	84
	TP5 0.5-0.8	SE153116.007	%	70 - 130%	96
	TP5 1.05-1.15	SE153116.008	%	70 - 130%	88
	TP10 0-0.15	SE153116.014	%	70 - 130%	86
	TP10 1.85-1.95	SE153116.018	%	70 - 130%	90
	TP11 0.5-0.8	SE153116.020	%	70 - 130%	92
	TP13 0.2-0.5	SE153116.025	%	70 - 130%	92
	TP13 0.55-0.65	SE153116.026	%	70 - 130%	84
	TP14 0.5-0.8	SE153116.028	%	70 - 130%	94
	TP16 0.5-0.8	SE153116.032	%	70 - 130%	92
	TP17 0.5-0.8	SE153116.038	%	70 - 130%	84
	TP17 2.05-2.15	SE153116.041	%	70 - 130%	94
	TP19 0.5-0.8	SE153116.044	%	70 - 130%	96
	TP20 0-0.15	SE153116.047	%	70 - 130%	98
	TP24 0-0.15	SE153116.054	%	70 - 130%	96
	TP25 0.5-0.8	SE153116.060	%	70 - 130%	78
	Duplicate D1	SE153116.072	%	70 - 130%	82

PCBs in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	104
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	100
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	96
	TP10 0-0.15	SE153116.014	%	60 - 130%	99
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	101
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	99
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	100
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	104
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	101
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	97
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	101
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	100
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	99
	TP20 0-0.15	SE153116.047	%	60 - 130%	115
	TP24 0-0.15	SE153116.054	%	60 - 130%	103
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	112
	Duplicate D1	SE153116.072	%	60 - 130%	108

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	81
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	75
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	74
	TP10 0-0.15	SE153116.014	%	60 - 130%	80

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.

VOC's in Soil (continued) — **Method: ME-(AU)-[ENV]AN433/AN434**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	TP10 1.85-1.95	SE153116.018	%	60 - 130%	76
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	77
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	78
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	76
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	79
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	76
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	101
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	99
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	87
	TP20 0-0.15	SE153116.047	%	60 - 130%	112
	TP24 0-0.15	SE153116.054	%	60 - 130%	96
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	96
	Duplicate D1	SE153116.072	%	60 - 130%	97
	Tripspike TS1	SE153116.078	%	60 - 130%	123
d4-1,2-dichloroethane (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	79
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	72
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	70
	TP10 0-0.15	SE153116.014	%	60 - 130%	78
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	76
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	79
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	87
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	84
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	78
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	71
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	110
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	113
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	116
	TP20 0-0.15	SE153116.047	%	60 - 130%	126
	TP24 0-0.15	SE153116.054	%	60 - 130%	129
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	103
	Duplicate D1	SE153116.072	%	60 - 130%	106
	Tripspike TS1	SE153116.078	%	60 - 130%	96
d8-toluene (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	79
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	74
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	71
	TP10 0-0.15	SE153116.014	%	60 - 130%	77
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	71
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	75
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	73
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	74
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	77
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	73
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	77
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	79
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	92
	TP20 0-0.15	SE153116.047	%	60 - 130%	116
	TP24 0-0.15	SE153116.054	%	60 - 130%	91
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	104
	Duplicate D1	SE153116.072	%	60 - 130%	118
	Tripspike TS1	SE153116.078	%	60 - 130%	80
Dibromofluoromethane (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	82
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	75
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	74
	TP10 0-0.15	SE153116.014	%	60 - 130%	82
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	80
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	83
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	94
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	87
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	79
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	73
	TP17 0.5-0.8	SE153116.038	%	60 - 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.

VOC's in Soil (continued)

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Dibromofluoromethane (Surrogate)	TP17 2.05-2.15	SE153116.041	%	60 - 130%	99
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	124
	TP20 0-0.15	SE153116.047	%	60 - 130%	109
	TP24 0-0.15	SE153116.054	%	60 - 130%	127
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	113
	Duplicate D1	SE153116.072	%	60 - 130%	112
	Tripspike TS1	SE153116.078	%	60 - 130%	90

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	81
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	75
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	74
	TP10 0-0.15	SE153116.014	%	60 - 130%	80
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	76
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	77
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	78
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	76
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	79
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	76
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	101
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	99
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	87
	TP20 0-0.15	SE153116.047	%	60 - 130%	112
	TP24 0-0.15	SE153116.054	%	60 - 130%	96
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	96
	Duplicate D1	SE153116.072	%	60 - 130%	97
d4-1,2-dichloroethane (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	79
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	72
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	70
	TP10 0-0.15	SE153116.014	%	60 - 130%	78
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	76
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	79
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	87
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	84
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	78
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	71
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	110
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	113
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	116
	TP20 0-0.15	SE153116.047	%	60 - 130%	126
	TP24 0-0.15	SE153116.054	%	60 - 130%	129
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	103
	Duplicate D1	SE153116.072	%	60 - 130%	106
d8-toluene (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	79
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	74
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	71
	TP10 0-0.15	SE153116.014	%	60 - 130%	77
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	71
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	75
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	73
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	74
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	77
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	73
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	77
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	79
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	92
	TP20 0-0.15	SE153116.047	%	60 - 130%	116
	TP24 0-0.15	SE153116.054	%	60 - 130%	91
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	104
	Duplicate D1	SE153116.072	%	60 - 130%	118

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 %
Dibromofluoromethane (Surrogate)	BH1 0.15-0.25	SE153116.002	%	60 - 130%	82
	TP5 0.5-0.8	SE153116.007	%	60 - 130%	75
	TP5 1.05-1.15	SE153116.008	%	60 - 130%	74
	TP10 0-0.15	SE153116.014	%	60 - 130%	82
	TP10 1.85-1.95	SE153116.018	%	60 - 130%	80
	TP11 0.5-0.8	SE153116.020	%	60 - 130%	83
	TP13 0.2-0.5	SE153116.025	%	60 - 130%	94
	TP13 0.55-0.65	SE153116.026	%	60 - 130%	87
	TP14 0.5-0.8	SE153116.028	%	60 - 130%	79
	TP16 0.5-0.8	SE153116.032	%	60 - 130%	73
	TP17 0.5-0.8	SE153116.038	%	60 - 130%	98
	TP17 2.05-2.15	SE153116.041	%	60 - 130%	99
	TP19 0.5-0.8	SE153116.044	%	60 - 130%	124
	TP20 0-0.15	SE153116.047	%	60 - 130%	109
	TP24 0-0.15	SE153116.054	%	60 - 130%	127
	TP25 0.5-0.8	SE153116.060	%	60 - 130%	113
	Duplicate D1	SE153116.072	%	60 - 130%	112

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.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Number	Parameter	Units	LOR

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB102855.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB102867.001	Mercury	mg/kg	0.01	<0.01
LB102868.001	Mercury	mg/kg	0.01	<0.01
LB102869.001	Mercury	mg/kg	0.01	<0.01
LB102870.001	Mercury	mg/kg	0.01	<0.01

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Number	Parameter	Units	LOR	Result
LB102848.001	Arsenic, As	mg/L	0.02	<0.02
	Cadmium, Cd	mg/L	0.001	<0.001
	Chromium, Cr	mg/L	0.005	<0.005
	Copper, Cu	mg/L	0.005	<0.005
	Lead, Pb	mg/L	0.02	<0.02
	Nickel, Ni	mg/L	0.005	<0.005
	Zinc, Zn	mg/L	0.01	<0.01

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB102721.001		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	0.05	<0.05
		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)	%	-	95
LB102722.001		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

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.

OC Pesticides in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB102722.001		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.05	<0.05
		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)	%	-	101
LB102723.001		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	0.05	<0.05
		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)	%	-	103

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB102721.001		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(ah)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)	%	-	82
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	74

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
LB102722.001		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(ah)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)	%	-	82
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	74
LB102723.001		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(ah)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)	%	-	86
		2-fluorobiphenyl (Surrogate)	%	-	80
		d14-p-terphenyl (Surrogate)	%	-	104

PCBs in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB102721.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	95
LB102722.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2

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.

PCBs in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB102722.001		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101
LB102723.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	103

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Sample Number	Parameter	Units	LOR	Result
LB102807.001	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
LB102808.001	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
LB102809.001	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
LB102810.001	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
LB102812.001	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

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB102721.001	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
LB102722.001	TRH C10-C14	mg/kg	20	<20

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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Sample Number	Parameter	Units	LOR	Result
LB102722.001	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
LB102723.001	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
LB102730.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	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)	%	-	117
		d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	90
		Bromofluorobenzene (Surrogate)	%	-	85
	Totals	Total BTEX	mg/kg	0.6	<0.6
LB102733.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	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)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	83
		d8-toluene (Surrogate)	%	-	83
		Bromofluorobenzene (Surrogate)	%	-	106
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB102730.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	117
		d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	90
LB102733.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	83
		d4-1,2-dichloroethane (Surrogate)	%	-	83
		d8-toluene (Surrogate)	%	-	83

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 %
SE153099.004	LB102855.014	Mercury	µg/L	0.0001	-0.0068	0.005	200	196
SE153120.002	LB102855.024	Mercury	µg/L	0.0001	0	-0.0044	200	0

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.010	LB102867.014	Mercury	mg/kg	0.01	0.07	0.06	111	11
SE153116.019	LB102867.024	Mercury	mg/kg	0.01	0.05	0.04	145	0
SE153116.029	LB102868.014	Mercury	mg/kg	0.01	0.05	0.04	133	6
SE153116.038	LB102868.024	Mercury	mg/kg	0.01	0.01	0.01	200	0
SE153116.048	LB102869.014	Mercury	mg/kg	0.01	0.02	0.02	200	0
SE153116.057	LB102869.024	Mercury	mg/kg	0.01	0.05	0.05	134	0
SE153116.072	LB102870.014	Mercury	mg/kg	0.01	0.09	0.13	75	32
SE153117.038	LB102870.024	Mercury	mg/kg	0.01	0.0053635235	0.0068022240	200	0

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153100.004	LB102848.014	Chromium, Cr	mg/L	0.005	-0.00437486	-0.00414898	132	0
SE153117.045	LB102848.024	Arsenic, As	mg/L	0.02	0.00587481	0.0109448	200	0
		Cadmium, Cd	mg/L	0.001	-0.000449455	-0.000196937	200	0
		Chromium, Cr	mg/L	0.005	-0.00419668	-0.00409391	136	0
		Copper, Cu	mg/L	0.005	-0.00186886	-0.00238665	200	0
		Lead, Pb	mg/L	0.02	-0.000408636	-0.00247377	200	0
		Nickel, Ni	mg/L	0.005	-0.00139238	-0.00255716	200	0
		Zinc, Zn	mg/L	0.01	-0.00125382	-0.00129922	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.010	LB102668.011	% Moisture	%w/w	0.5	15	14	37	5
SE153116.020	LB102668.022	% Moisture	%w/w	0.5	11	11	39	1
SE153116.030	LB102668.033	% Moisture	%w/w	0.5	18	19	35	1
SE153116.040	LB102668.044	% Moisture	%w/w	0.5	11	12	39	5
SE153116.050	LB102668.055	% Moisture	%w/w	0.5	21	22	35	6
SE153116.062	LB102668.066	% Moisture	%w/w	0.5	26	24	34	8
SE153116.075	LB102668.077	% Moisture	%w/w	0.5	36	33	33	7

OC Pesticides in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.010	LB102721.014	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	0.05	<0.05	<0.05	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

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.

OC Pesticides in Soil (continued) — **Method: ME-(AU)-[ENV]AN400/AN420**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.010	LB102721.014		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	4
SE153116.026	LB102721.025		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	0.05	<0.05	<0.05	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	-	0.16	0.15	30	5
SE153116.043	LB102722.014		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	0.05	<0.05	<0.05	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	2
SE153116.068	LB102722.025		Hexachlorobenzene (HCB)	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.

OC Pesticides in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.068	LB102722.025		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	0.05	<0.05	<0.05	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	1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153091.007	LB102723.027		Naphthalene	mg/kg	0.1	0	0	200	0
			2-methylnaphthalene	mg/kg	0.1	0	0	200	0
			1-methylnaphthalene	mg/kg	0.1	0	0	200	0
			Acenaphthylene	mg/kg	0.1	0	0	200	0
			Acenaphthene	mg/kg	0.1	0	0	200	0
			Fluorene	mg/kg	0.1	0	0	200	0
			Phenanthrene	mg/kg	0.1	0	0	200	0
			Anthracene	mg/kg	0.1	0	0	200	0
			Fluoranthene	mg/kg	0.1	0	0	200	0
			Pyrene	mg/kg	0.1	0	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	0.01	0	200	0
			Chrysene	mg/kg	0.1	0	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	0	0.01	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.38	0.4	30	5
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.37	0.39	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.48	0.48	30	0
SE153091.015	LB102723.025		Naphthalene	mg/kg	0.1	0	0	200	0
			2-methylnaphthalene	mg/kg	0.1	0	0	200	0
			1-methylnaphthalene	mg/kg	0.1	0	0	200	0
			Acenaphthylene	mg/kg	0.1	0	0	200	0
			Acenaphthene	mg/kg	0.1	0	0	200	0
			Fluorene	mg/kg	0.1	0	0	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 %
SE153091.015	LB102723.025		Phenanthrene	mg/kg	0.1	0	0	200	0
			Anthracene	mg/kg	0.1	0	0	200	0
			Fluoranthene	mg/kg	0.1	0	0	200	0
			Pyrene	mg/kg	0.1	0	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	0.01	0.02	200	0
			Chrysene	mg/kg	0.1	0.01	0.01	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	0	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH (18)	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.38	0.42	30	10
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.37	0.39	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.45	0.5	30	11
SE153116.026	LB102721.025		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	197	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	148	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	184	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	173	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(ah)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	-	0.4	0.5	30	13
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2

PCBs in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.026	LB102721.025		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	5

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Original	Duplicate		Parameter	Units	LOR

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.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued) — **Method: ME-(AU)-[ENV]AN040/AN320**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153115.024	LB102807.014	Arsenic, As	mg/kg	3	6	9	43	37
		Cadmium, Cd	mg/kg	0.3	<0.3	0.3	123	15
		Chromium, Cr	mg/kg	0.3	9.8	11	35	15
		Copper, Cu	mg/kg	0.5	20	19	33	4
		Lead, Pb	mg/kg	1	17	18	36	6
		Nickel, Ni	mg/kg	0.5	7.8	11	35	35 ②
		Zinc, Zn	mg/kg	0.5	27	28	37	6
SE153116.002	LB102807.024	Arsenic, As	mg/kg	3	3	4	58	13
		Cadmium, Cd	mg/kg	0.3	0.3	0.3	129	1
		Chromium, Cr	mg/kg	0.3	17	24	32	34 ②
		Copper, Cu	mg/kg	0.5	18	18	33	1
		Lead, Pb	mg/kg	1	25	31	34	21
		Nickel, Ni	mg/kg	0.5	17	18	33	7
		Zinc, Zn	mg/kg	0.5	53	58	34	10
SE153116.012	LB102808.014	Arsenic, As	mg/kg	3	6	5	48	5
		Cadmium, Cd	mg/kg	0.3	0.4	0.4	107	5
		Chromium, Cr	mg/kg	0.3	20	20	33	2
		Copper, Cu	mg/kg	0.5	15	15	33	0
		Lead, Pb	mg/kg	1	55	53	32	4
		Nickel, Ni	mg/kg	0.5	2.4	2.0	53	16
		Zinc, Zn	mg/kg	0.5	63	62	33	1
SE153116.021	LB102808.024	Arsenic, As	mg/kg	3	<3	<3	66	16
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.0	7.9	36	1
		Copper, Cu	mg/kg	0.5	7.5	8.6	36	14
		Lead, Pb	mg/kg	1	20	21	35	6
		Nickel, Ni	mg/kg	0.5	2.2	3.1	49	35
		Zinc, Zn	mg/kg	0.5	34	36	36	4
SE153116.031	LB102809.014	Arsenic, As	mg/kg	3	4	4	55	10
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	159	0
		Chromium, Cr	mg/kg	0.3	8.5	8.0	36	5
		Copper, Cu	mg/kg	0.5	8.1	8.3	36	3
		Lead, Pb	mg/kg	1	27	29	34	7
		Nickel, Ni	mg/kg	0.5	2.2	2.5	51	11
		Zinc, Zn	mg/kg	0.5	67	75	33	11
SE153116.040	LB102809.024	Arsenic, As	mg/kg	3	<3	<3	68	8
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.3	8.0	7.2	37	10
		Copper, Cu	mg/kg	0.5	6.9	5.8	38	17
		Lead, Pb	mg/kg	1	19	17	36	12
		Nickel, Ni	mg/kg	0.5	2.6	1.6	54	44
		Zinc, Zn	mg/kg	0.5	30	25	37	16
SE153116.050	LB102810.014	Arsenic, As	mg/kg	3	8	8	42	6
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	154	0
		Chromium, Cr	mg/kg	0.3	7.5	8.2	36	9
		Copper, Cu	mg/kg	0.5	17	17	33	0
		Lead, Pb	mg/kg	1	26	28	34	5
		Nickel, Ni	mg/kg	0.5	1.8	2.0	56	10
		Zinc, Zn	mg/kg	0.5	64	64	33	0
SE153116.060	LB102810.024	Arsenic, As	mg/kg	3	14	12	38	13
		Cadmium, Cd	mg/kg	0.3	3.5	3.1	39	10
		Chromium, Cr	mg/kg	0.3	22	18	32	17
		Copper, Cu	mg/kg	0.5	15	13	34	15
		Lead, Pb	mg/kg	1	59	50	32	16
		Nickel, Ni	mg/kg	0.5	3.8	2.6	46	37
		Zinc, Zn	mg/kg	0.5	45	40	35	10
SE153116.074	LB102812.014	Arsenic, As	mg/kg	3	4	4	54	12
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	191	0
		Chromium, Cr	mg/kg	0.3	19	16	33	17
		Copper, Cu	mg/kg	0.5	2.6	2.8	49	6
		Lead, Pb	mg/kg	1	19	17	36	11

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.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.074	LB102812.014		Nickel, Ni	mg/kg	0.5	1.2	1.1	74	10
			Zinc, Zn	mg/kg	0.5	12	11	48	11
SE153121.002	LB102812.023		Cadmium, Cd	mg/kg	0.3	0.3	0.3	143	0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.026	LB102721.025		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 %
SE153054.008	LB102730.026	Monocyclic	Benzene	mg/kg	0.1	<0.1	0	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	0	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	0	200	0
			m/p-xylene	mg/kg	0.2	<0.2	0	200	0
			o-xylene	mg/kg	0.1	<0.1	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0.04	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.69	50	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	3.66	50	12
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.8	50	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.78	50	10
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	0	200	0
			Total BTEX	mg/kg	0.6	<0.6	0	200	0
SE153115.025	LB102733.014	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	-	4.2	4.2	50	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.5	50	1
			d8-toluene (Surrogate)	mg/kg	-	4.6	4.6	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	5.8	50	4
		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
SE153116.032	LB102730.025	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	3.9	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.5	3.8	50	6
			d8-toluene (Surrogate)	mg/kg	-	3.6	3.6	50	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.9	50	3
		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
SE153116.072	LB102733.026	Monocyclic	Benzene	mg/kg	0.1	<0.1	0.01	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	0	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	0.01	200	0
			m/p-xylene	mg/kg	0.2	<0.2	0.09	200	0
			o-xylene	mg/kg	0.1	<0.1	0.01	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.6	5	50	11

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.

VOC's in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116.072	LB102733.026	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5.4	50	2
			d8-toluene (Surrogate)	mg/kg	-	5.9	4.41	50	29
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	4.2	50	15
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	0.1	200	0
			Total BTEX	mg/kg	0.6	<0.6	0.12	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153054.008	LB102730.026		TRH C6-C10	mg/kg	25	<25	0	200	0
			TRH C6-C9	mg/kg	20	<20	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.69	30	13
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.1	3.66	30	12
			d8-toluene (Surrogate)	mg/kg	-	3.8	3.8	30	1
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.78	30	10
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	0	200	0
SE153115.025	LB102733.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	4.2	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	4.5	30	1
			d8-toluene (Surrogate)	mg/kg	-	4.6	4.6	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	5.8	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
SE153116.032	LB102730.025		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.7	3.9	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.5	3.8	30	6
			d8-toluene (Surrogate)	mg/kg	-	3.6	3.6	30	0
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.8	3.9	30	3
		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
SE153116.072	LB102733.026		TRH C6-C10	mg/kg	25	<25	0	200	0
			TRH C6-C9	mg/kg	20	<20	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.6	5	30	11
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.3	5.4	30	2
			d8-toluene (Surrogate)	mg/kg	-	5.9	4.41	30	29
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.9	4.2	30	15
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	0.01	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	-0.93	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.

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]AN122

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102815.002	Exchangeable Sodium, Na	mg/kg	2	NA	390	80 - 120	87
	Exchangeable Potassium, K	mg/kg	2	NA	343	80 - 120	86
	Exchangeable Calcium, Ca	mg/kg	2	NA	2570	80 - 120	90
	Exchangeable Magnesium, Mg	mg/kg	2	NA	635	80 - 120	85
LB102817.002	Exchangeable Sodium, Na	mg/kg	2	NA	390	80 - 120	88
	Exchangeable Potassium, K	mg/kg	2	NA	343	80 - 120	88
	Exchangeable Calcium, Ca	mg/kg	2	NA	2570	80 - 120	88
	Exchangeable Magnesium, Mg	mg/kg	2	NA	635	80 - 120	86

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102867.002	Mercury	mg/kg	0.01	0.24	0.2	70 - 130	118
LB102868.002	Mercury	mg/kg	0.01	0.23	0.2	70 - 130	114
LB102869.002	Mercury	mg/kg	0.01	0.23	0.2	70 - 130	116
LB102870.002	Mercury	mg/kg	0.01	0.23	0.2	70 - 130	113

Metals in Water (Dissolved) by ICPOES

Method: ME-(AU)-[ENV]AN320/AN321

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102848.002	Arsenic, As	mg/L	0.02	2.1	2	80 - 120	105
	Cadmium, Cd	mg/L	0.001	2.0	2	80 - 120	102
	Chromium, Cr	mg/L	0.005	2.0	2	80 - 120	100
	Copper, Cu	mg/L	0.005	2.1	2	80 - 120	104
	Lead, Pb	mg/L	0.02	2.0	2	80 - 120	102
	Nickel, Ni	mg/L	0.005	2.0	2	80 - 120	102
	Zinc, Zn	mg/L	0.01	2.1	2	80 - 120	103

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102721.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	90
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	90
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	85
		Dieldrin	mg/kg	0.05	0.16	0.2	60 - 140	80
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	95
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	70
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	99
LB102722.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	90
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	85
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	80
		Dieldrin	mg/kg	0.05	0.17	0.2	60 - 140	85
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	120
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	80
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	100
LB102723.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	95
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	90
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	85
		Dieldrin	mg/kg	0.05	0.18	0.2	60 - 140	90
		Endrin	mg/kg	0.2	0.3	0.2	60 - 140	125
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	75
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	103

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102721.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	89
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthene	mg/kg	0.1	3.3	4	60 - 140	82
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	91
		Anthracene	mg/kg	0.1	3.5	4	60 - 140	87
		Fluoranthene	mg/kg	0.1	3.5	4	60 - 140	87
		Pyrene	mg/kg	0.1	3.2	4	60 - 140	79
		Benzo(a)pyrene	mg/kg	0.1	3.2	4	60 - 140	79
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74

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.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102722.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	89
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthene	mg/kg	0.1	3.3	4	60 - 140	82
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	91
		Anthracene	mg/kg	0.1	3.5	4	60 - 140	87
		Fluoranthene	mg/kg	0.1	3.5	4	60 - 140	87
		Pyrene	mg/kg	0.1	3.2	4	60 - 140	79
		Benzo(a)pyrene	mg/kg	0.1	3.2	4	60 - 140	79
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
LB102723.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	90
		Acenaphthylene	mg/kg	0.1	3.7	4	60 - 140	93
		Acenaphthene	mg/kg	0.1	3.4	4	60 - 140	85
		Phenanthrene	mg/kg	0.1	3.4	4	60 - 140	86
		Anthracene	mg/kg	0.1	3.6	4	60 - 140	89
		Fluoranthene	mg/kg	0.1	3.3	4	60 - 140	82
		Pyrene	mg/kg	0.1	3.5	4	60 - 140	88
		Benzo(a)pyrene	mg/kg	0.1	4.1	4	60 - 140	102
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	78
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	76
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PCBs in Soil

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102721.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	104
LB102722.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	96
LB102723.002	Arochlor 1260	mg/kg	0.2	0.4	0.4	60 - 140	101

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102807.002	Arsenic, As	mg/kg	3	52	50	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	102
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	101
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	103
	Lead, Pb	mg/kg	1	51	50	80 - 120	101
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	104
	Zinc, Zn	mg/kg	0.5	52	50	80 - 120	105
LB102808.002	Arsenic, As	mg/kg	3	52	50	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	103
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	102
	Copper, Cu	mg/kg	0.5	53	50	80 - 120	105
	Lead, Pb	mg/kg	1	51	50	80 - 120	103
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	104
	Zinc, Zn	mg/kg	0.5	53	50	80 - 120	105
LB102809.002	Arsenic, As	mg/kg	3	52	50	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	102
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	102
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	104
	Lead, Pb	mg/kg	1	51	50	80 - 120	102
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	104
	Zinc, Zn	mg/kg	0.5	52	50	80 - 120	105
LB102810.002	Arsenic, As	mg/kg	3	52	50	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	103
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	102
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	104
	Lead, Pb	mg/kg	1	51	50	80 - 120	102
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	104
	Zinc, Zn	mg/kg	0.5	53	50	80 - 120	106
LB102812.002	Arsenic, As	mg/kg	3	50	50	80 - 120	101
	Cadmium, Cd	mg/kg	0.3	50	50	80 - 120	100
	Chromium, Cr	mg/kg	0.3	50	50	80 - 120	100

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/Waste Solids/Materials by ICPOES (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102812.002		Copper, Cu	mg/kg	0.5	51	50	80 - 120	102
		Lead, Pb	mg/kg	1	50	50	80 - 120	101
		Nickel, Ni	mg/kg	0.5	51	50	80 - 120	101
		Zinc, Zn	mg/kg	0.5	51	50	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102721.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	42	40	60 - 140	105
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80
LB102722.002		TRH C10-C14	mg/kg	20	42	40	60 - 140	105
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	42	40	60 - 140	105
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80
LB102723.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	75
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	42	40	60 - 140	105
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	95
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	70

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102730.002	Monocyclic	Benzene	mg/kg	0.1	2.0	2.9	60 - 140	68
	Aromatic	Toluene	mg/kg	0.1	2.3	2.9	60 - 140	79
		Ethylbenzene	mg/kg	0.1	1.8	2.9	60 - 140	63
		m/p-xylene	mg/kg	0.2	4.6	5.8	60 - 140	79
		o-xylene	mg/kg	0.1	2.1	2.9	60 - 140	74
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d8-toluene (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.4	5	60 - 140	108
LB102733.002	Monocyclic	Benzene	mg/kg	0.1	2.3	2.9	60 - 140	78
	Aromatic	Toluene	mg/kg	0.1	2.9	2.9	60 - 140	101
		Ethylbenzene	mg/kg	0.1	2.5	2.9	60 - 140	84
		m/p-xylene	mg/kg	0.2	5.2	5.8	60 - 140	89
		o-xylene	mg/kg	0.1	2.5	2.9	60 - 140	88
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	91
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	95
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	5	60 - 140	118

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102730.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	88
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	80
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	89
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d8-toluene (Surrogate)	mg/kg	-	3.8	5	60 - 140	76
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.4	5	60 - 140	108
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	122
LB102733.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	87
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	72
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	91
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	5	60 - 140	91
		d8-toluene (Surrogate)	mg/kg	-	4.7	5	60 - 140	95
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	5	60 - 140	118

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.

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102733.002	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	83

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%
SE152983.002	LB102855.004	Mercury	mg/L	0.0001	0.0089	-0.0116	0.008	111

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153116.001	LB102867.004	Mercury	mg/kg	0.01	0.25	0.04	0.2	107
SE153116.020	LB102868.004	Mercury	mg/kg	0.01	0.26	0.03	0.2	114
SE153116.039	LB102869.004	Mercury	mg/kg	0.01	0.24	0.04	0.2	99
SE153116.058	LB102870.004	Mercury	mg/kg	0.01	0.26	0.02	0.2	117

OC Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE153116.002	LB102721.026		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	0.2	90
			Aldrin	mg/kg	0.1	<0.1	0.2	85
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	70
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	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	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.05	<0.05	0.2	75
			Endrin	mg/kg	0.2	<0.2	0.2	90
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			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	0.2	130
			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)	mg/kg	-	0.16	-	101
SE153116.027	LB102722.026		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	0.2	90
			Aldrin	mg/kg	0.1	<0.1	0.2	90
			Beta BHC	mg/kg	0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	<0.1	0.2	80
			Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
			o,p'-DDE	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	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	-	-
			Dieldrin	mg/kg	0.05	<0.05	0.2	85
			Endrin	mg/kg	0.2	<0.2	0.2	100
			o,p'-DDD	mg/kg	0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	-	-

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.

OC Pesticides in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE153116.027	LB102722.026		p,p'-DDT	mg/kg	0.1	<0.1	0.2	65
			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)	mg/kg	-	0.15	-	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Original	Spike	Recovery%
SE153091.002	LB102723.026		Naphthalene	mg/kg	0.1	0	4	89
			2-methylnaphthalene	mg/kg	0.1	0	-	-
			1-methylnaphthalene	mg/kg	0.1	0	-	-
			Acenaphthylene	mg/kg	0.1	0	4	93
			Acenaphthene	mg/kg	0.1	0	4	88
			Fluorene	mg/kg	0.1	0	-	-
			Phenanthrene	mg/kg	0.1	0.01	4	87
			Anthracene	mg/kg	0.1	0	4	92
			Fluoranthene	mg/kg	0.1	0.01	4	85
			Pyrene	mg/kg	0.1	0.01	4	90
			Benzo(a)anthracene	mg/kg	0.1	0.01	-	-
			Chrysene	mg/kg	0.1	0	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.01	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	0.01	-	-
			Benzo(a)pyrene	mg/kg	0.1	0	4	104
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	0	-	-
			Benzo(ghi)perylene	mg/kg	0.1	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	0	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	0.242	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	0.121	-	-
			Total PAH (18)	mg/kg	0.8	0	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.41	-	80
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.38	-	72
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	-	90

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153103.008	LB102807.004	Arsenic, As	mg/kg	3	54	4	50	99
		Cadmium, Cd	mg/kg	0.3	48	<0.3	50	96
		Chromium, Cr	mg/kg	0.3	55	7.0	50	95
		Copper, Cu	mg/kg	0.5	55	5.6	50	99
		Lead, Pb	mg/kg	1	63	17	50	94
		Nickel, Ni	mg/kg	0.5	51	1.4	50	99
		Zinc, Zn	mg/kg	0.5	120	75	50	98
SE153116.003	LB102808.004	Arsenic, As	mg/kg	3	50	5	50	91
		Cadmium, Cd	mg/kg	0.3	44	0.4	50	88
		Chromium, Cr	mg/kg	0.3	53	9.2	50	87
		Copper, Cu	mg/kg	0.5	77	48	50	57 ④
		Lead, Pb	mg/kg	1	110	75	50	66 ④
		Nickel, Ni	mg/kg	0.5	49	4.5	50	89
		Zinc, Zn	mg/kg	0.5	260	220	50	92
SE153116.022	LB102809.004	Arsenic, As	mg/kg	3	49	3	50	92
		Cadmium, Cd	mg/kg	0.3	45	<0.3	50	89
		Chromium, Cr	mg/kg	0.3	52	6.5	50	91
		Copper, Cu	mg/kg	0.5	53	3.5	50	99
		Lead, Pb	mg/kg	1	55	13	50	84
		Nickel, Ni	mg/kg	0.5	47	1.4	50	91
		Zinc, Zn	mg/kg	0.5	65	15	50	100
SE153116.041	LB102810.004	Arsenic, As	mg/kg	3	49	9	50	81
		Cadmium, Cd	mg/kg	0.3	43	0.3	50	86

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.

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES (continued)

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153116.041	LB102810.004	Chromium, Cr	mg/kg	0.3	56	14	50	83
		Copper, Cu	mg/kg	0.5	47	0.6	50	94
		Lead, Pb	mg/kg	1	56	19	50	73
		Nickel, Ni	mg/kg	0.5	45	2.3	50	86
		Zinc, Zn	mg/kg	0.5	53	9.0	50	88
SE153116.062	LB102812.004	Arsenic, As	mg/kg	3	55	8	50	94
		Cadmium, Cd	mg/kg	0.3	51	4.7	50	93
		Chromium, Cr	mg/kg	0.3	63	18	50	91
		Copper, Cu	mg/kg	0.5	85	41	50	88
		Lead, Pb	mg/kg	1	83	46	50	73
		Nickel, Ni	mg/kg	0.5	52	4.5	50	95
		Zinc, Zn	mg/kg	0.5	170	130	50	74

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153054.001	LB102730.004	Monocyclic	Benzene	mg/kg	0.1	2.0	<0.1	2.9	69
		Aromatic	Toluene	mg/kg	0.1	2.6	<0.1	2.9	89
			Ethylbenzene	mg/kg	0.1	1.9	<0.1	2.9	66
			m/p-xylene	mg/kg	0.2	4.9	<0.2	5.8	84
			o-xylene	mg/kg	0.1	2.3	<0.1	2.9	80
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.2	4.7	-	104
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.5	-	99
			d8-toluene (Surrogate)	mg/kg	-	4.6	3.9	-	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.2	-	90
		Totals	Total Xylenes*	mg/kg	0.3	7.3	<0.3	-	-
			Total BTEX	mg/kg	0.6	14	<0.6	-	-
SE153115.002	LB102733.004	Monocyclic	Benzene	mg/kg	0.1	1.8	<0.1	2.9	63
		Aromatic	Toluene	mg/kg	0.1	2.7	<0.1	2.9	92
			Ethylbenzene	mg/kg	0.1	2.1	<0.1	2.9	73
			m/p-xylene	mg/kg	0.2	4.5	<0.2	5.8	77
			o-xylene	mg/kg	0.1	2.3	<0.1	2.9	78
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.7	-	70
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.9	-	73
			d8-toluene (Surrogate)	mg/kg	-	3.7	3.9	-	74
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5.1	-	104
		Totals	Total Xylenes*	mg/kg	0.3	6.7	<0.3	-	-
			Total BTEX	mg/kg	0.6	13	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153054.001	LB102730.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	86
			TRH C6-C9	mg/kg	20	<20	<20	23.2	77
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.2	4.7	-	104
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	4.5	-	99
			d8-toluene (Surrogate)	mg/kg	-	4.6	3.9	-	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.5	4.2	-	90
		VPH F	Benzene (F0)	mg/kg	0.1	2.0	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	104
SE153115.002	LB102733.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	84
			TRH C6-C9	mg/kg	20	<20	<20	23.2	69
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.5	3.7	-	70
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.6	3.9	-	73
			d8-toluene (Surrogate)	mg/kg	-	3.7	3.9	-	74
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.2	5.1	-	104
		VPH F	Benzene (F0)	mg/kg	0.1	1.8	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	101

MATRIX SPIKE DUPLICATES

SE153116 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 Documents/MP-AU-ENV-QU-022 QA QC Plan.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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood**
Order Number	(Not specified)
Samples	4

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
SGS Reference	**SE153116 R0**
Date Received	01 Jun 2016
Date Reported	10 Jun 2016

COMMENTS

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

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

Sample #27: Asbestos found in 5x3mm cement sheet fragment, in >2 to <7mm fraction.
Sample #64: Asbestos found in 4x2mm cement sheet fragments, in >2 to <7mm fraction.

Samples #59, 61, 70 were ashed after initial stereo microscope examination, re-examined and trace analysis performed on samples where asbestos has not been detected.
No trace asbestos fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Yusuf Kuthpudin
Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre ID in bulk materials — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification
SE153116.059	TP25 0.5-0.8 FCP	Other	15x15x4mm cement sheet fragment	30 May 2016	No Asbestos Detected
SE153116.061	TP25 1.0-1.3 FCP	Other	90x40x4mm cement sheet fragments	30 May 2016	No Asbestos Detected
SE153116.063	TP25 1.5-1.8 FCP	Other	50x35x4mm cement sheet fragment	30 May 2016	Amosite & Chrysotile Asbestos Detected
SE153116.070	FCP1 Ground Surface FCP	Other	50x25x4mm Rock material	30 May 2016	No Asbestos Detected

METHOD SUMMARY

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).

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 Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

COC received 2/6/16 @ 12:59pm

SGS Alexandria Environmental

SE153116 COC
Received: 01 – Jun – 2016

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Sampling details: Soil	Sampling details: Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
1	BH1	0-0.1	31/05/2016	-	SG/SP		✓			✓		✓	✓			YES
2	BH1	0.15-0.25	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
3	BH2	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
	BH2	0.2-0.3	31/05/2016	-	SG/SP											YES
4	BH3	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES
	BH3	0.2-0.3	31/05/2016	-	SG/SP											YES
5	BH4	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
	BH4	0.2-0.3	31/05/2016	-	SG/SP											YES
6	TP5	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES
7	TP5	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
8	TP5	1.05-1.15	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
9	BH6	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Odisho		1/6/16 @ 2pm

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

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Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
	BH6	0.2-0.3	31/05/2016	-	SG/SP											YES
10	BH7	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
11	BH7	0.3-0.6	31/05/2016	-	SG/SP		✓					✓				YES
12	BH8	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES
	BH8	0.2-0.5	31/05/2016	-	SG/SP											YES
13	TP9	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
	TP9	0.2-0.3	30/05/2016	-	SG/SP											YES
14	TP10	0-0.15	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
15	TP10	0.5-0.8	30/05/2016	-	SG/SP		✓									YES
16	TP10	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
17	TP10	1.5-1.8	30/05/2016	-	SG/SP		✓									YES
18	TP10	1.85-1.95	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Odisho		1/6/16 @ 2pm

Legend:

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SP Soil sample (plastic bag)
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PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH Job No: 13757/2

Project:

Project Manager: AB Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type										
	Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
19	TP11	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
20	TP11	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
21	TP11	1.0-1.3	31/05/2016	-	SG/SP		✓									YES
22	TP11	1.45-1.55	31/05/2016	-	SG/SP		✓									YES
23	TP12	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES
	TP12	0.2-0.3	30/05/2016	-	SG/SP											YES
24	TP13	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓	✓			YES
25	TP13	0.2-0.5	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
26	TP13	0.55-0.65	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
27	TP14	0-0.15	30/05/2016	-	SG/SP		✓			✓			✓			YES
28	TP14	0.5-0.8	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
29	TP14	1.05-1.15	30/05/2016	-	SG/SP		✓									YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Celisho		1/6/16 @ 2pm

Legend:

WG Water sample, glass bottle
WP Water sample, plastic bottle
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SP Soil sample (plastic bag)
✓ Test required
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Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type											
	Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
30	TP15	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
	TP15	0.2-0.3	30/05/2016	-	SG/SP											YES
31	TP16	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES
32	TP16	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
33	TP16	1.0-1.3	31/05/2016	-	SG/SP		✓									YES
34	TP16	1.5-1.8	31/05/2016	-	SG/SP		✓									YES
35	TP16	2.0-2.2	31/05/2016	-	SG/SP		✓									YES
36	TP16	2.25-2.35	31/05/2016	-	SG/SP		✓									YES
37	TP17	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
38	TP17	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
39	TP17	1.0-1.3	31/05/2016	-	SG/SP		✓									YES
40	TP17	1.5-1.8	31/05/2016	-	SG/SP		✓									YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A Odisho		1/6/16 @ 2pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle			✓	Test required

* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

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PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO:	**SGS ENVIRONMENTAL SERVICES** **UNIT 16** **33 MADDOX STREET** **ALEXANDRIA NSW 2015**	**Sampling By:** JH	**Job No:** 13757/2
			Project:
PH:	**02 8594 0400** **FAX: 02 8594 0499**	**Project Manager:** AB	**Location:** Warriewood
ATTN:	**MS EMILY YIN**		

Results required by: Standard Turnaround Time

Sampling details				Sample type											
Location		Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
41	TP17	2.05-2.15	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
42	TP18	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
	TP18	0.2-0.3	30/05/2016	-	SG/SP											YES
43	TP19	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
44	TP19	0.5-0.8	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
45	TP19	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
46	TP19	1.55-1.65	30/05/2016	-	SG/SP		✓									YES
47	TP20	0-0.15	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
48	TP20	0.5-0.8	30/05/2016	-	SG/SP		✓									YES
49	TP20	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
50	TP20	1.55-1.65	30/05/2016	-	SG/SP		✓									YES
51	TP21	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Calisho		1/6/16 @ 2pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle			✓	Test required

* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

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ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type											
Location	Depth (m)	Date	Time	Soil	Material	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
TP21	0.2-0.3	30/05/2016	-	SG/SP											YES
52 TP22	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
TP22	0.2-0.3	30/05/2016	-	SG/SP											YES
53 TP23	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES
TP23	0.2-0.3	30/05/2016	-	SG/SP											YES
54 TP24	0-0.15	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓		✓			YES
55 TP24	0.5-0.8	30/05/2016	-	SG/SP		✓									YES
56 TP24	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
57 TP24	1.55-1.65	30/05/2016	-	SG/SP		✓									YES
58 TP25	0-0.15	30/05/2016	-	SG/SP		✓			✓			✓			YES
59 TP25	0.5-0.8	30/05/2016	-		FCP								✓		YES
60 TP25	0.5-0.8	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Collins		1/6/16 @ 2pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle	FCP	Fibro Cement Piece (plastic bag)	✓	Test required

* Purge & Trap

GEOTECHNIQUE PTY LTD

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Project:

Project Manager: AB **Location:** Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type											
Location	Depth (m)	Date	Time	Soil	Material	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
61 TP25	1.0-1.3	30/05/2016	-		FCP								✓		YES
62 TP25	1.0-1.3	30/05/2016	-	SG/SP		✓						✓			YES
63 TP25	1.5-1.8	30/05/2016	-		FCP								✓		YES
64 TP25	1.5-1.8	30/05/2016	-	SG/SP		✓						✓			YES
65 TP25	1.85-1.95	30/05/2016	-	SG/SP		✓									YES
66 TP26	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓	✓			YES
67 TP26	0.25-0.35	30/05/2016	-	SG/SP		✓									YES
68 TP27	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES
69 TP27	0.35-0.45	30/05/2016	-	SG/SP		✓									YES
70 FCP1	Ground Surface	30/05/2016	-		FCP								✓		YES
71 FCP1	0-0.1	30/05/2016	-	SP								✓			YES
72 Duplicate D1		30/05/2016	-	SG		✓	✓	✓	✓	✓					YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Caish		1/6/16 @ 4pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle	FCP	Fibro Cement Piece (plastic bag)	✓	Test required

* Purge & Trap

GEOTECHNIQUE PTY LTD

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Results required by: Standard Turnaround Time

Sampling details				Sample type											
Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
73 Duplicate D2		30/05/2016	-	SG		✓			✓						YES
74 Duplicate D3		30/05/2016	-	SG		✓									YES
75 Duplicate D4		30/05/2016	-	SG		✓									YES
76 Rinsate R1		30/05/2016	-		WG/Vial	✓									YES
77 Rinsate R2		31/05/2016	-		WG/Vial	✓									YES
78 Tripspike TS1				Sand										✓	YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A-Odisho		1/6/16 @ 1pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle	FCP	Fibro Cement Piece (plastic bag)	✓	Test required

* Purge & Trap

SAMPLE RECEIPT ADVICE

SE153116

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood**
Order Number	(Not specified)
Samples	78

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	Wed 1/6/2016
Report Due	Thu 9/6/2016
SGS Reference	**SE153116**

SUBMISSION DETAILS

This is to confirm that 78 samples were received on Wednesday 1/6/2016. Results are expected to be ready by Thursday 9/6/2016. Please quote SGS reference SE153116 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	72 Soil,2 Water,4 FCP	Type of documentation received	COC
Date documentation received	2/6/16@12:59pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.2°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

For pH results refer SE153116A.
12 samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

SAMPLE RECEIPT ADVICE

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1 0-0.1	13	28	-	-	7	-	-	-
002	BH1 0.15-0.25	13	28	25	11	7	10	12	8
003	BH2 0-0.15	13	28	-	-	7	-	-	-
004	BH3 0-0.15	-	28	-	-	7	-	-	-
005	BH4 0-0.15	13	28	-	-	7	-	-	-
006	TP5 0-0.15	-	28	-	-	7	-	-	-
007	TP5 0.5-0.8	13	28	25	11	7	10	12	8
008	TP5 1.05-1.15	13	28	25	11	7	10	12	8
009	BH6 0-0.15	-	28	-	-	7	-	-	-
010	BH7 0-0.15	13	28	-	-	7	-	-	-
011	BH7 0.3-0.6	13	-	-	-	7	-	-	-
012	BH8 0-0.15	-	28	-	-	7	-	-	-
013	TP9 0-0.15	13	28	-	-	7	-	-	-
014	TP10 0-0.15	-	28	25	11	7	10	12	8
015	TP10 0.5-0.8	-	-	-	-	7	-	-	-
016	TP10 1.0-1.3	-	-	-	-	7	-	-	-
017	TP10 1.5-1.8	-	-	-	-	7	-	-	-
018	TP10 1.85-1.95	13	28	25	11	7	10	12	8
019	TP11 0-0.15	13	28	-	-	7	-	-	-
020	TP11 0.5-0.8	13	28	25	11	7	10	12	8
021	TP11 1.0-1.3	-	-	-	-	7	-	-	-
022	TP11 1.45-1.55	-	-	-	-	7	-	-	-
023	TP12 0-0.15	-	28	-	-	7	-	-	-
024	TP13 0-0.15	13	28	-	-	7	-	-	-

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
025	TP13 0.2-0.5	-	28	25	11	7	10	12	8
026	TP13 0.55-0.65	13	28	25	11	7	10	12	8
027	TP14 0-0.15	-	28	-	-	7	-	-	-
028	TP14 0.5-0.8	13	28	25	11	7	10	12	8
029	TP14 1.05-1.15	-	-	-	-	7	-	-	-
030	TP15 0-0.15	13	28	-	-	7	-	-	-
031	TP16 0-0.15	-	28	-	-	7	-	-	-
032	TP16 0.5-0.8	-	28	25	11	7	10	12	8
033	TP16 1.0-1.3	-	-	-	-	7	-	-	-
034	TP16 1.5-1.8	-	-	-	-	7	-	-	-
035	TP16 2.0-2.2	-	-	-	-	7	-	-	-
036	TP16 2.25-2.35	-	-	-	-	7	-	-	-
037	TP17 0-0.15	13	28	-	-	7	-	-	-
038	TP17 0.5-0.8	13	28	25	11	7	10	12	8
039	TP17 1.0-1.3	-	-	-	-	7	-	-	-
040	TP17 1.5-1.8	-	-	-	-	7	-	-	-
041	TP17 2.05-2.15	13	28	25	11	7	10	12	8
042	TP18 0-0.15	13	28	-	-	7	-	-	-
043	TP19 0-0.15	13	28	-	-	7	-	-	-
044	TP19 0.5-0.8	-	28	25	11	7	10	12	8
045	TP19 1.0-1.3	-	-	-	-	7	-	-	-
046	TP19 1.55-1.65	-	-	-	-	7	-	-	-
047	TP20 0-0.15	13	28	25	11	7	10	12	8
048	TP20 0.5-0.8	-	-	-	-	7	-	-	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Exchangeable Cations and Cation Exchange Capacity	OC Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Metals in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
049	TP20 1.0-1.3	-	-	-	-	7	-	-	-
050	TP20 1.55-1.65	-	-	-	-	7	-	-	-
051	TP21 0-0.15	-	28	-	-	7	-	-	-
052	TP22 0-0.15	13	28	-	-	7	-	-	-
053	TP23 0-0.15	-	28	-	-	7	-	-	-
054	TP24 0-0.15	-	28	25	11	7	10	12	8
055	TP24 0.5-0.8	-	-	-	-	7	-	-	-
056	TP24 1.0-1.3	-	-	-	-	7	-	-	-
057	TP24 1.55-1.65	-	-	-	-	7	-	-	-
058	TP25 0-0.15	-	28	-	-	7	-	-	-
060	TP25 0.5-0.8	13	28	25	11	7	10	12	8
062	TP25 1.0-1.3	-	-	-	-	7	-	-	-
064	TP25 1.5-1.8	-	-	-	-	7	-	-	-
065	TP25 1.85-1.5	-	-	-	-	7	-	-	-
066	TP26 0-0.15	13	28	-	-	7	-	-	-
067	TP26 0.25-0.35	-	-	-	-	7	-	-	-
068	TP27 0-0.15	-	28	-	-	7	-	-	-
069	TP27 0.35-0.45	-	-	-	-	7	-	-	-
072	Duplicate D1	-	28	25	11	7	10	12	8

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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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

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	Total Recoverable Metals in Soil/Waste	VOC's in Soil
073	Duplicate D2	28	7	-
074	Duplicate D3	-	7	-
075	Duplicate D4	-	7	-
078	Tripspike TS1	-	-	12

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
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Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
001	BH1 0-0.1	9	1	1
002	BH1 0.15-0.25	9	1	1
003	BH2 0-0.15	-	1	1
004	BH3 0-0.15	-	1	1
005	BH4 0-0.15	-	1	1
006	TP5 0-0.15	-	1	1
007	TP5 0.5-0.8	-	1	1
008	TP5 1.05-1.15	9	1	1
009	BH6 0-0.15	-	1	1
010	BH7 0-0.15	-	1	1
011	BH7 0.3-0.6	-	1	1
012	BH8 0-0.15	-	1	1
013	TP9 0-0.15	-	1	1
014	TP10 0-0.15	-	1	1
015	TP10 0.5-0.8	-	1	1
016	TP10 1.0-1.3	-	1	1
017	TP10 1.5-1.8	-	1	1
018	TP10 1.85-1.95	9	1	1
019	TP11 0-0.15	-	1	1
020	TP11 0.5-0.8	-	1	1
021	TP11 1.0-1.3	-	1	1
022	TP11 1.45-1.55	-	1	1
023	TP12 0-0.15	-	1	1
024	TP13 0-0.15	9	1	1

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
025	TP13 0.2-0.5	-	1	1
026	TP13 0.55-0.65	9	1	1
027	TP14 0-0.15	9	1	1
028	TP14 0.5-0.8	-	1	1
029	TP14 1.05-1.15	-	1	1
030	TP15 0-0.15	-	1	1
031	TP16 0-0.15	-	1	1
032	TP16 0.5-0.8	-	1	1
033	TP16 1.0-1.3	-	1	1
034	TP16 1.5-1.8	-	1	1
035	TP16 2.0-2.2	-	1	1
036	TP16 2.25-2.35	-	1	1
037	TP17 0-0.15	-	1	1
038	TP17 0.5-0.8	-	1	1
039	TP17 1.0-1.3	-	1	1
040	TP17 1.5-1.8	-	1	1
041	TP17 2.05-2.15	9	1	1
042	TP18 0-0.15	-	1	1
043	TP19 0-0.15	-	1	1
044	TP19 0.5-0.8	-	1	1
045	TP19 1.0-1.3	-	1	1
046	TP19 1.55-1.65	-	1	1
047	TP20 0-0.15	-	1	1
048	TP20 0.5-0.8	-	1	1

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre ID in bulk materials	Gravimetric Determination of Asbestos in Soil	Mercury in Soil	Moisture Content
049	TP20 1.0-1.3	-	-	1	1
050	TP20 1.55-1.65	-	-	1	1
051	TP21 0-0.15	-	-	1	1
052	TP22 0-0.15	-	-	1	1
053	TP23 0-0.15	-	-	1	1
054	TP24 0-0.15	-	9	1	1
055	TP24 0.5-0.8	-	-	1	1
056	TP24 1.0-1.3	-	-	1	1
057	TP24 1.55-1.65	-	-	1	1
058	TP25 0-0.15	-	9	1	1
059	TP25 0.5-0.8 FCP	1	-	-	-
060	TP25 0.5-0.8	-	9	1	1
061	TP25 1.0-1.3 FCP	1	-	-	-
062	TP25 1.0-1.3	-	9	1	1
063	TP25 1.5-1.8 FCP	1	-	-	-
064	TP25 1.5-1.8	-	9	1	1
065	TP25 1.85-1.5	-	-	1	1
066	TP26 0-0.15	-	9	1	1
067	TP26 0.25-0.35	-	-	1	1
068	TP27 0-0.15	-	-	1	1
069	TP27 0.35-0.45	-	-	1	1
070	FCP1 Ground Surface FCP	1	-	-	-
071	FCP1 0-0.1	-	9	-	-
072	Duplicate D1	-	-	1	1

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Mercury in Soil	Metals in Water (Dissolved) by ICPOES	Moisture Content
073	Duplicate D2	-	1	-	1
074	Duplicate D3	-	1	-	1
075	Duplicate D4	-	1	-	1
076	Rinsate R1	1	-	7	-
077	Rinsate R2	1	-	7	-

The above table represents SGS' 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 .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood - pH**
Order Number	(Not specified)
Samples	78

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
SGS Reference	**SE153116A R0**
Date Received	1/6/2016
Date Reported	6/6/2016

COMMENTS

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

SIGNATORIES

Dong Liang
Metals/Inorganics Team Leader

pH in soil (1:5) [AN101] Tested: 6/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116A.001	BH1 0.15-0.25 SOIL - 31/5/2016 SE153116A.002	BH2 0-0.15 SOIL - 31/5/2016 SE153116A.003	BH4 0-0.15 SOIL - 31/5/2016 SE153116A.005	TP5 0.5-0.8 SOIL - 31/5/2016 SE153116A.007
pH	pH Units	-	7.4	8.0	7.4	6.6	8.3

PARAMETER	UOM	LOR	TP5 1.05-1.15 SOIL - 31/5/2016 SE153116A.008	BH7 0-0.15 SOIL - 31/5/2016 SE153116A.010	BH7 0.3-0.6 SOIL - 31/5/2016 SE153116A.011	TP9 0-0.15 SOIL - 30/5/2016 SE153116A.013	TP10 1.85-1.95 SOIL - 30/5/2016 SE153116A.018
pH	pH Units	-	7.3	6.2	6.2	7.7	8.4

PARAMETER	UOM	LOR	TP11 0-0.15 SOIL - 30/5/2016 SE153116A.019	TP11 0.5-0.8 SOIL - 30/5/2016 SE153116A.020	TP13 0-0.15 SOIL - 30/5/2016 SE153116A.024	TP13 0.55-0.65 SOIL - 30/5/2016 SE153116A.026	TP14 0.5-0.8 SOIL - 30/5/2016 SE153116A.028
pH	pH Units	-	7.6	8.0	8.7	7.6	7.7

PARAMETER	UOM	LOR	TP15 0-0.15 SOIL - 30/5/2016 SE153116A.030	TP17 0-0.15 SOIL - 31/5/2016 SE153116A.037	TP17 0.5-0.8 SOIL - 31/5/2016 SE153116A.038	TP17 2.05-2.15 SOIL - 31/5/2016 SE153116A.041	TP18 0-0.15 SOIL - 30/5/2016 SE153116A.042
pH	pH Units	-	6.8	7.9	7.0	5.3	6.2

PARAMETER	UOM	LOR	TP19 0-0.15 SOIL - 30/5/2016 SE153116A.043	TP20 0-0.15 SOIL - 30/5/2016 SE153116A.047	TP22 0-0.15 SOIL - 30/5/2016 SE153116A.052	TP25 0.5-0.8 SOIL - 30/5/2016 SE153116A.060	TP26 0-0.15 SOIL - 30/5/2016 SE153116A.066
pH	pH Units	-	8.6	7.7	6.3	7.9	6.8

METHOD	METHODOLOGY SUMMARY
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl2) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.

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 calculated 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.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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 Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

STATEMENT OF QA/QC PERFORMANCE

SE153116A R0

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood - pH**
Order Number	(Not specified)
Samples	78

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
SGS Reference	**SE153116A R0**
Date Received	01 Jun 2016
Date Reported	06 Jun 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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 (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	25 Soils	Type of documentation received	COC
Date documentation received	2/6/16@12:59pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.2°C
Sample container provider	SGS	Turnaround time requested	Two Days
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

SE153116A 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.

pH in soil (1:5) — **Method: ME-(AU)-[ENV]AN101**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1 0-0.1	SE153116A.001	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
BH1 0.15-0.25	SE153116A.002	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
BH2 0-0.15	SE153116A.003	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
BH4 0-0.15	SE153116A.005	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP5 0.5-0.8	SE153116A.007	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP5 1.05-1.15	SE153116A.008	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
BH7 0-0.15	SE153116A.010	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
BH7 0.3-0.6	SE153116A.011	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP9 0-0.15	SE153116A.013	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP10 1.85-1.95	SE153116A.018	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP11 0-0.15	SE153116A.019	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP11 0.5-0.8	SE153116A.020	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP13 0-0.15	SE153116A.024	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP13 0.55-0.65	SE153116A.026	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP14 0.5-0.8	SE153116A.028	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP15 0-0.15	SE153116A.030	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP17 0-0.15	SE153116A.037	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP17 0.5-0.8	SE153116A.038	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP17 2.05-2.15	SE153116A.041	LB102650	31 May 2016	01 Jun 2016	07 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP18 0-0.15	SE153116A.042	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP19 0-0.15	SE153116A.043	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP20 0-0.15	SE153116A.047	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP22 0-0.15	SE153116A.052	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP25 0.5-0.8	SE153116A.060	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016
TP26 0-0.15	SE153116A.066	LB102650	30 May 2016	01 Jun 2016	06 Jun 2016	06 Jun 2016	07 Jun 2016	06 Jun 2016

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.

No surrogates were required for this job.

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.

No method blanks were required for this job.

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.

pH in soil (1:5) — **Method: ME-(AU)-[ENV]AN101**

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153116A.018	LB102650.014	pH	pH Units	-	8.4	8.4	31	0
SE153116A.042	LB102650.025	pH	pH Units	-	6.2	6.2	32	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.

pH in soil (1:5) — **Method: ME-(AU)-[ENV]AN101**

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB102650.003	pH	pH Units	-	7.5	7.415	98 - 102	101
LB102650.030	pH	pH Units	-	7.5	7.415	98 - 102	101

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.

No matrix spikes were required for this job.

MATRIX SPIKE DUPLICATES

SE153116A 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 Documents/MP-AU-ENV-QU-022 QA QC Plan.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.

SGS Alexandria Environmental

SE153116A COC

Received: 01–Jun–2016

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH

Job No: 13757/2

Project:

Project Manager: AB

Location: Warriewood

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Sample type: Soil	Sample type: Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
1	BH1	0-0.1	31/05/2016	-	SG/SP		✓			✓		✓	✓			YES
2	BH1	0.15-0.25	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
3	BH2	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
	BH2	0.2-0.3	31/05/2016	-	SG/SP					✓		✓				YES
4	BH3	0-0.15	31/05/2016	-	SG/SP		✓									YES
	BH3	0.2-0.3	31/05/2016	-	SG/SP					✓						YES
5	BH4	0-0.15	31/05/2016	-	SG/SP		✓									YES
	BH4	0.2-0.3	31/05/2016	-	SG/SP					✓		✓				YES
6	TP5	0-0.15	31/05/2016	-	SG/SP		✓									YES
7	TP5	0.5-0.8	31/05/2016	-	SG/SP		✓			✓						YES
8	TP5	1.05-1.15	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
9	BH6	0-0.15	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
										✓						YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Odisho		1/6/16 @ 2pm

Legend:

WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

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PENRITH NSW 2751

Tel: (02) 4722 2700
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TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH Job No: 13757/2

Project:

Project Manager: AB Location: Warriewood

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Sample type: Soil	Sample type: Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
	BH6	0.2-0.3	31/05/2016	-	SG/SP											YES
10	BH7	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
11	BH7	0.3-0.6	31/05/2016	-	SG/SP		✓					✓				YES
12	BH8	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES
	BH8	0.2-0.5	31/05/2016	-	SG/SP											YES
13	TP9	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
	TP9	0.2-0.3	30/05/2016	-	SG/SP											YES
14	TP10	0-0.15	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
15	TP10	0.5-0.8	30/05/2016	-	SG/SP		✓									YES
16	TP10	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
17	TP10	1.5-1.8	30/05/2016	-	SG/SP		✓									YES
18	TP10	1.85-1.95	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
1																YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Odisho		1/6/16 @ 2pm

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

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TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
19	TP11	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
20	TP11	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
21	TP11	1.0-1.3	31/05/2016	-	SG/SP		✓									YES
22	TP11	1.45-1.55	31/05/2016	-	SG/SP		✓									YES
23	TP12	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES
	TP12	0.2-0.3	30/05/2016	-	SG/SP											YES
24	TP13	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓	✓			YES
25	TP13	0.2-0.5	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
26	TP13	0.55-0.65	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
27	TP14	0-0.15	30/05/2016	-	SG/SP		✓			✓			✓			YES
28	TP14	0.5-0.8	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
29	TP14	1.05-1.15	30/05/2016	-	SG/SP		✓									YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Celisho		1/6/16 @ 2pm

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

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UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH Job No: 13757/2

Project:

Project Manager: AB Location: Warriewood

Results required by: Standard Turnaround Time

	Location	Depth (m)	Date	Time	Sample type: Soil	Sample type: Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
30	TP15	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
	TP15	0.2-0.3	30/05/2016	-	SG/SP											YES
31	TP16	0-0.15	31/05/2016	-	SG/SP		✓			✓						YES
32	TP16	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
33	TP16	1.0-1.3	31/05/2016	-	SG/SP		✓									YES
34	TP16	1.5-1.8	31/05/2016	-	SG/SP		✓									YES
35	TP16	2.0-2.2	31/05/2016	-	SG/SP		✓									YES
36	TP16	2.05-2.15	31/05/2016	-	SG/SP		✓									YES
37	TP17	0-0.15	31/05/2016	-	SG/SP		✓			✓		✓				YES
38	TP17	0.5-0.8	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
39	TP17	1.0-1.3	31/05/2016	-	SG/SP		✓									YES
40	TP17	1.5-1.8	31/05/2016	-	SG/SP		✓									YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. COLISTO		1/6/16 @ 2pm

Legend:

WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

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TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type										
	Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
41	TP17	2.05-2.15	31/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓			YES
42	TP18	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
	TP18	0.2-0.3	30/05/2016	-	SG/SP											YES
43	TP19	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
44	TP19	0.5-0.8	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓					YES
45	TP19	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
46	TP19	1.55-1.65	30/05/2016	-	SG/SP		✓									YES
47	TP20	0-0.15	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓				YES
48	TP20	0.5-0.8	30/05/2016	-	SG/SP		✓									YES
49	TP20	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
50	TP20	1.55-1.65	30/05/2016	-	SG/SP		✓									YES
51	TP21	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Edisho		1/6/16 @ 2pm

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH Job No: 13757/2

Project:

Project Manager: AB Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type											
Location	Depth (m)	Date	Time	Soil	Material	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
TP21	0.2-0.3	30/05/2016	-	SG/SP											YES
52 TP22	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓				YES
TP22	0.2-0.3	30/05/2016	-	SG/SP											YES
53 TP23	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES
TP23	0.2-0.3	30/05/2016	-	SG/SP											YES
54 TP24	0-0.15	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓		✓			YES
55 TP24	0.5-0.8	30/05/2016	-	SG/SP		✓									YES
56 TP24	1.0-1.3	30/05/2016	-	SG/SP		✓									YES
57 TP24	1.55-1.65	30/05/2016	-	SG/SP		✓									YES
58 TP25	0-0.15	30/05/2016	-	SG/SP		✓									YES
59 TP25	0.5-0.8	30/05/2016	-		FCP				✓			✓			YES
60 TP25	0.5-0.8	30/05/2016	-	SG/SP		✓	✓	✓	✓	✓	✓	✓	✓		YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Colisno		1/6/16 @ 2pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle	FCP	Fibro Cement Piece (plastic bag)	✓	Test required

* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

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PENRITH NSW 2751

Tel: (02) 4722 2700
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TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH

Job No: 13757/2

Project:

Project Manager: AB

Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type											
	Location	Depth (m)	Date	Time	Soil	Material	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
61	TP25	1.0-1.3	30/05/2016	-		FCP								✓		YES
62	TP25	1.0-1.3	30/05/2016	-	SG/SP		✓						✓			YES
63	TP25	1.5-1.8	30/05/2016	-		FCP								✓		YES
64	TP25	1.5-1.8	30/05/2016	-	SG/SP		✓						✓			YES
65	TP25	1.85-1.95	30/05/2016	-	SG/SP		✓						✓			YES
66	TP26	0-0.15	30/05/2016	-	SG/SP		✓			✓		✓	✓			YES
67	TP26	0.25-0.35	30/05/2016	-	SG/SP		✓									YES
68	TP27	0-0.15	30/05/2016	-	SG/SP		✓			✓						YES
69	TP27	0.35-0.45	30/05/2016	-	SG/SP		✓									YES
70	FCP1	Ground Surface	30/05/2016	-		FCP								✓		YES
71	FCP1	0-0.1	30/05/2016	-	SP								✓			YES
72	Duplicate D1		30/05/2016	-	SG		✓	✓	✓	✓	✓					YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	A. Caish		1/6/16 @ 4pm

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)
WP	Water sample, plastic bottle	FCP	Fibro Cement Piece (plastic bag)	✓	Test required

* Purge & Trap

SAMPLE RECEIPT ADVICE

SE153116A

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood - pH**
Order Number	(Not specified)
Samples	78

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	Wed 1/6/2016
Report Due	Mon 6/6/2016
SGS Reference	**SE153116A**

SUBMISSION DETAILS

This is to confirm that 78 samples were received on Wednesday 1/6/2016. Results are expected to be ready by Monday 6/6/2016. Please quote SGS reference SE153116A when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	25 Soils	Type of documentation received	COC
Date documentation received	2/6/16@12:59pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.2°C
Sample container provider	SGS	Turnaround time requested	Two Days
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

SAMPLE RECEIPT ADVICE

SE153116A

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood - pH

SUMMARY OF ANALYSIS

No.	Sample ID	pH in soil (1:5)
001	BH1 0-0.1	1
002	BH1 0.15-0.25	1
003	BH2 0-0.15	1
005	BH4 0-0.15	1
007	TP5 0.5-0.8	1
008	TP5 1.05-1.15	1
010	BH7 0-0.15	1
011	BH7 0.3-0.6	1
013	TP9 0-0.15	1
018	TP10 1.85-1.95	1
019	TP11 0-0.15	1
020	TP11 0.5-0.8	1
024	TP13 0-0.15	1

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116A

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood - pH

SUMMARY OF ANALYSIS

No.	Sample ID	pH in soil (1:5)
026	TP13 0.55-0.65	1
028	TP14 0.5-0.8	1
030	TP15 0-0.15	1
037	TP17 0-0.15	1
038	TP17 0.5-0.8	1
041	TP17 2.05-2.15	1
042	TP18 0-0.15	1
043	TP19 0-0.15	1
047	TP20 0-0.15	1

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116A

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood - pH

SUMMARY OF ANALYSIS

No.	Sample ID	pH in soil (1:5)
052	TP22 0-0.15	1
060	TP25 0.5-0.8	1
066	TP26 0-0.15	1

The above table represents SGS' 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 .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood - Additional**
Order Number	(Not specified)
Samples	79

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
SGS Reference	**SE153116B R0**
Date Received	14/6/2016
Date Reported	16/6/2016

COMMENTS

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

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 15/6/2016

PARAMETER	UOM	LOR	BH1 0-0.1 SOIL - 31/5/2016 SE153116B.001	BH7 0.3-0.6 SOIL - 31/5/2016 SE153116B.011	BH8 0.2-0.5 SOIL - 30/5/2016 SE153116B.079
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.2**	<0.1	<0.1
Pyrene	mg/kg	0.1	**0.2**	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	**0.1**	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 15/6/2016

PARAMETER	UOM	LOR	BH8 0.2-0.5 SOIL - 30/5/2016 SE153116B.079
Arsenic, As	mg/kg	3	**4**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.3	**13**
Copper, Cu	mg/kg	0.5	**5.3**
Lead, Pb	mg/kg	1	**22**
Nickel, Ni	mg/kg	0.5	**1.3**
Zinc, Zn	mg/kg	0.5	**11**

Mercury in Soil [AN312] Tested: 15/6/2016

PARAMETER	UOM	LOR	BH8 0.2-0.5 SOIL - 30/5/2016 SE153116B.079
Mercury	mg/kg	0.01	**0.02**

Moisture Content [AN002] Tested: 15/6/2016

PARAMETER	UOM	LOR	BH8 0.2-0.5 SOIL - 30/5/2016 SE153116B.079
% Moisture	%w/w	0.5	**10**

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.
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.
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
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	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.

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 calculated 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.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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 Documents/MP-AU-ENV-QU-022 QA QC Plan.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. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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STATEMENT OF QA/QC PERFORMANCE

SE153116B R0

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood - Additional**
Order Number	(Not specified)
Samples	79

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
SGS Reference	**SE153116B R0**
Date Received	14 Jun 2016
Date Reported	16 Jun 2016

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' 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:

Extraction Date	Moisture Content	1 item
	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	3 items
Duplicate	Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES	1 item

SAMPLE SUMMARY

Sample counts by matrix	3 Soils	Type of documentation received	COC
Date documentation received	14/6/16@4:47pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.2°C
Sample container provider	SGS	Turnaround time requested	Next Day
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

SE153116B 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.

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH8 0.2-0.5	SE153116B.079	LB103214	30 May 2016	14 Jun 2016	27 Jun 2016	15 Jun 2016	27 Jun 2016	16 Jun 2016

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH8 0.2-0.5	SE153116B.079	LB103218	30 May 2016	14 Jun 2016	13 Jun 2016	15 Jun 2016†	20 Jun 2016	16 Jun 2016

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
BH1 0-0.1	SE153116B.001	LB103230	31 May 2016	14 Jun 2016	14 Jun 2016	15 Jun 2016†	25 Jul 2016	16 Jun 2016
BH7 0.3-0.6	SE153116B.011	LB103230	31 May 2016	14 Jun 2016	14 Jun 2016	15 Jun 2016†	25 Jul 2016	16 Jun 2016
BH8 0.2-0.5	SE153116B.079	LB103230	30 May 2016	14 Jun 2016	13 Jun 2016	15 Jun 2016†	25 Jul 2016	16 Jun 2016

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH8 0.2-0.5	SE153116B.079	LB103222	30 May 2016	14 Jun 2016	26 Nov 2016	15 Jun 2016	26 Nov 2016	16 Jun 2016

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 — **Method: ME-(AU)-[ENV]AN420**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1 0-0.1	SE153116B.001	%	70 - 130%	72
	BH7 0.3-0.6	SE153116B.011	%	70 - 130%	78
	BH8 0.2-0.5	SE153116B.079	%	70 - 130%	84
d14-p-terphenyl (Surrogate)	BH1 0-0.1	SE153116B.001	%	70 - 130%	80
	BH7 0.3-0.6	SE153116B.011	%	70 - 130%	106
	BH8 0.2-0.5	SE153116B.079	%	70 - 130%	114
d5-nitrobenzene (Surrogate)	BH1 0-0.1	SE153116B.001	%	70 - 130%	78
	BH7 0.3-0.6	SE153116B.011	%	70 - 130%	90
	BH8 0.2-0.5	SE153116B.079	%	70 - 130%	94

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 in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB103214.001	Mercury	mg/kg	0.01	<0.01

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB103230.001		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(ah)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)	%	-	78
		2-fluorobiphenyl (Surrogate)	%	-	76
		d14-p-terphenyl (Surrogate)	%	-	92

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Sample Number	Parameter	Units	LOR	Result
LB103222.001	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

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 in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153285.008	LB103214.014	Mercury	mg/kg	0.01	0.02	0.03	200	0
SE153285.016	LB103214.023	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 %
SE153461.001	LB103218.030	% Moisture	%w/w	0.5	20	17	35	16

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153461.001	LB103230.016		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
			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(ah)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	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	11
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE153285.008	LB103222.014	Arsenic, As	mg/kg	3	10	9	40	7
		Cadmium, Cd	mg/kg	0.3	0.8	0.6	70	27
		Chromium, Cr	mg/kg	0.3	17	16	33	6
		Copper, Cu	mg/kg	0.5	27	25	32	5
		Lead, Pb	mg/kg	1	150	250	30	48 ②
		Nickel, Ni	mg/kg	0.5	25	20	32	20
		Zinc, Zn	mg/kg	0.5	110	87	32	26
SE153285.017	LB103222.024	Arsenic, As	mg/kg	3	7	7	44	7
		Cadmium, Cd	mg/kg	0.3	0.5	0.5	86	3
		Chromium, Cr	mg/kg	0.3	13	14	34	8
		Copper, Cu	mg/kg	0.5	25	24	32	2
		Lead, Pb	mg/kg	1	21	22	35	4
		Nickel, Ni	mg/kg	0.5	6.1	6.6	38	7
		Zinc, Zn	mg/kg	0.5	45	45	34	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 %
LB103214.002	Mercury	mg/kg	0.01	0.21	0.2	70 - 130	103

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103230.002		Naphthalene	mg/kg	0.1	3.7	4	60 - 140	92
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	91
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	90
		Phenanthrene	mg/kg	0.1	3.7	4	60 - 140	93
		Anthracene	mg/kg	0.1	3.7	4	60 - 140	93
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	94
		Pyrene	mg/kg	0.1	3.6	4	60 - 140	89
		Benzo(a)pyrene	mg/kg	0.1	3.8	4	60 - 140	95
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	72
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	74
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB103222.002	Arsenic, As	mg/kg	3	53	50	80 - 120	107
	Cadmium, Cd	mg/kg	0.3	56	50	80 - 120	112
	Chromium, Cr	mg/kg	0.3	48	50	80 - 120	95
	Copper, Cu	mg/kg	0.5	48	50	80 - 120	96
	Lead, Pb	mg/kg	1	55	50	80 - 120	110
	Nickel, Ni	mg/kg	0.5	51	50	80 - 120	103
	Zinc, Zn	mg/kg	0.5	49	50	80 - 120	98

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 in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153116B.07	LB103214.004	Mercury	mg/kg	0.01	0.22	0.02	0.2	102

Total Recoverable Metals in Soil/Waste Solids/Materials by ICPOES

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE153116B.07	LB103222.004	Arsenic, As	mg/kg	3	58	4	50	107
9		Cadmium, Cd	mg/kg	0.3	57	<0.3	50	114
		Chromium, Cr	mg/kg	0.3	61	13	50	96
		Copper, Cu	mg/kg	0.5	56	5.3	50	102
		Lead, Pb	mg/kg	1	76	22	50	108
		Nickel, Ni	mg/kg	0.5	53	1.3	50	103
		Zinc, Zn	mg/kg	0.5	58	11	50	95

MATRIX SPIKE DUPLICATES

SE153116B 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 Documents/MP-AU-ENV-QU-022 QA QC Plan.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.

COC received 14/6/16 @ 4.47pm

SGS Alexandria Environmental

SE153116B COC
Received: 14 – Jun – 2016

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: 16 June 2016
SGS Ref No: SE153116

Sampling details				Sample type										
Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
BH1	0-0.1	31/05/2016	-	SG/SP				✓							YES
BH1	0.15-0.25	31/05/2016	-	SG/SP											YES
BH2	0-0.15	31/05/2016	-	SG/SP											YES
BH2	0.2-0.3	31/05/2016	-	SG/SP											YES
BH3	0-0.15	31/05/2016	-	SG/SP											YES
BH3	0.2-0.3	31/05/2016	-	SG/SP											YES
BH4	0-0.15	31/05/2016	-	SG/SP											YES
BH4	0.2-0.3	31/05/2016	-	SG/SP											YES
TP5	0-0.15	31/05/2016	-	SG/SP											YES
TP5	0.5-0.8	31/05/2016	-	SG/SP											YES
TP5	1.05-1.15	31/05/2016	-	SG/SP											YES
BH6	0-0.15	31/05/2016	-	SG/SP											YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	14/06/2016			14/6/16 4:47pm

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 FAX: 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: 16 June 2016
SGS Ref No: SE153116

Sampling details				Sample type											
Location	Depth (m)	Date	Time	Soil	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB	pH, CEC	ASBESTOS 0.001% w/w	ASBESTOS	BTEX	KEEP SAMPLE
BH6	0.2-0.3	31/05/2016	-	SG/SP											YES
BH7	0-0.15	31/05/2016	-	SG/SP											YES
BH7	0.3-0.6	31/05/2016	-	SG/SP				✓							YES
BH8	0-0.15	31/05/2016	-	SG/SP											YES
BH8	0.2-0.5	31/05/2016	-	SG/SP		✓		✓							YES
TP9	0-0.15	30/05/2016	-	SG/SP											YES
TP9	0.2-0.3	30/05/2016	-	SG/SP											YES
TP10	0-0.15	30/05/2016	-	SG/SP											YES
TP10	0.5-0.8	30/05/2016	-	SG/SP											YES
TP10	1.0-1.3	30/05/2016	-	SG/SP											YES
TP10	1.5-1.8	30/05/2016	-	SG/SP											YES
TP10	1.85-1.95	30/05/2016	-	SG/SP											YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	14/06/2016			14/6/16

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

SAMPLE RECEIPT ADVICE

SE153116B

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood - Additional**
Order Number	(Not specified)
Samples	79

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	Tue 14/6/2016
Report Due	Thu 16/6/2016
SGS Reference	**SE153116B**

SUBMISSION DETAILS

This is to confirm that 79 samples were received on Tuesday 14/6/2016. Results are expected to be ready by Thursday 16/6/2016. Please quote SGS reference SE153116B when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	3 Soils	Type of documentation received	COC
Date documentation received	14/6/16@4:47pm	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	10.2°C
Sample container provider	SGS	Turnaround time requested	Next Day
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

SAMPLE RECEIPT ADVICE

SE153116B

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood - Additional

SUMMARY OF ANALYSIS

No.	Sample ID	PAH (Polynuclear Aromatic Hydrocarbons) in Soil
001	BH1 0-0.1	25
011	BH7 0.3-0.6	25

CONTINUED OVERLEAF

The above table represents SGS' 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

SE153116B

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood - Additional

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Metals in Soil/Waste
079	BH8 0.2-0.5	1	1	25	7

The above table represents SGS' 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 .

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood**
Order Number	(Not specified)
Samples	2

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
SGS Reference	**SE153339 R0**
Date Received	8/6/2016
Date Reported	15/6/2016

COMMENTS

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

No respirable fibres detected in soil sample using trace analysis technique as per AS 4964-2004.

Sample #2: Asbestos found in 5x3mm cement sheet fragments, in >2 to <7mm fraction.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

S. Ravensdon.

Ravee Sivasubramaniam
Hygiene Team Leader

Fibre ID in bulk materials [AN602] Tested: 15/6/2016

PARAMETER	UOM	LOR	FCP2 Ground Surface MATERIAL - 7/6/2016 SE153339.001
Asbestos Detected	No unit	-	Yes

Gravimetric Determination of Asbestos in Soil [AN605] Tested: 10/6/2016

PARAMETER	UOM	LOR	FCP2 0-0.1 SOIL - 7/6/2016 SE153339.002
Total Sample Weight	g	1	**595**
ACM in >7mm Sample*	g	0.01	<0.01
AF/FA in >2mm to <7mm Sample*	g	0.0001	**0.0410**
AF/FA in <2mm Sample*	g	0.0001	<0.0001
Asbestos in soil (>7mm ACM)*	%w/w	0.01	<0.01
Asbestos in soil (>2mm to <7mm AF/FA)*	%w/w	0.001	**0.007**
Asbestos in soil (<2mm AF/FA)*	%w/w	0.001	<0.001
Asbestos in soil (<7mm AF/FA)*	%w/w	0.001	**0.007**
Fibre Type	No unit	-	CRY

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).
AN605	This technique gravimetrically determines the mass of Asbestos Containing Material retained on a 7mm Sieve and assumes that 15% of this ACM is asbestos. This calculated asbestos weight is then calculated as a percentage of the total sample weight.
AN605	This technique also gravimetrically determines the mass of Fibrous Asbestos (FA) and Asbestos Fines (AF) Containing Material retained on and passing a 2mm sieve post 7mm sieving. Assumes that FA and AF are 100% asbestos containing. This calculated asbestos weight is then calculated as a percentage of the total sample weight. This does not include free fibres which are only observed by standard trace analysis as per AN 602.
AN605	AMO = Amosite Detected CRY = Chrysotile Detected CRO = Crocidolite Detected ORG = Organic Fibres Detected SMF = Synthetic Mineral Fibres Detected UMF = Unknown Mineral Fibres Detected NAD = No Asbestos Detected
AN605	Insofar as is technically feasible, this report is consistent with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment Remediation and Management of Asbestos - Contaminated Sites in Western Australia - May 2009.

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 calculated 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.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

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 Documents/MP-AU-ENV-QU-022 QA QC Plan.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. 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.

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ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood**
Order Number	(Not specified)
Samples	1

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
SGS Reference	**SE153339 R0**
Date Received	08 Jun 2016
Date Reported	15 Jun 2016

COMMENTS

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

No respirable fibres detected in soil sample using trace analysis technique as per AS 4964-2004.

Sample #2: Asbestos found in 5x3mm cement sheet fragments, in >2 to <7mm fraction.

Asbestos analysed by Approved Identifiers Ravee Sivasubramaniam and Yusuf Kuthpudin .

SIGNATORIES

S. Ravee

Ravee Sivasubramaniam
Hygiene Team Leader

ANALYTICAL REPORT

RESULTS

Fibre ID in bulk materials — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification
SE153339.001	FCP2 Ground Surface	Other	80x50x4mm cement sheet fragment	07 Jun 2016	Chrysotile Asbestos Detected

METHOD SUMMARY

SE153339 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).

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 Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

COC received 9/6/16 @ 9:32 am

SGS Alexandria Environmental

SE153339 COC
Received: 08 – Jun – 2016

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400 **FAX:** 02 8594 0499

ATTN: MS EMILY YIN

Sampling By: JH **Job No:** 13757/2

Project:

Project Manager: AB **Location:** Warriewood

Results required by: 15 June 2016 (3 Days Turnaround Time)

	Sampling details				Sample type										
	Location	Depth (m)	Date	Time	Soil	Material	ASBESTOS 0.001% w/w	ASBESTOS							KEEP SAMPLE
1	FCP2	Ground Surface	7/06/2016	-		FCP		✓							YES
2	FCP2	0-0.1	7/06/2016	-	SP		✓								YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	9/06/2016	Suba	P. Buhay	08/06/16 @ 1640

Legend:

WG	Water sample, glass bottle	SG	Soil sample (glass jar)	SP	Soil sample (plastic bag)	* Purge & Trap
WP	Water sample, plastic bottle	FCP	Fibro Cement Piece (plastic bag)	✓	Test required	

SAMPLE RECEIPT ADVICE

SE153339

CLIENT DETAILS

Contact	Anwar Barbhuyia
Client	Geotechnique
Address	P.O. Box 880 PENRITH NSW 2751
Telephone	02 4722 2700
Facsimile	02 4722 6161
Email	anwar@geotech.com.au
Project	**13757-2 Warriewood**
Order Number	(Not specified)
Samples	2

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	Wed 8/6/2016
Report Due	Wed 15/6/2016
SGS Reference	**SE153339**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Wednesday 8/6/2016. Results are expected to be ready by Wednesday 15/6/2016. Please quote SGS reference SE153339 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Material, 1 Soil	Type of documentation received	COC
Date documentation received	9/6/16@9:32am	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	16.3°C
Sample container provider	SGS	Turnaround time requested	Three Days
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

SAMPLE RECEIPT ADVICE

SE153339

CLIENT DETAILS

Client Geotechnique

Project 13757-2 Warriewood

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre ID in bulk materials	Gravimetric Determination of Asbestos in Soil
001	FCP2 Ground Surface	1	-
002	FCP2 0-0.1	-	9

The above table represents SGS' 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 .

12 Ashley Street, Chatswood, NSW 2067
tel: +61 2 9910 6200

email: sydney@envirolab.com.au
envirolab.com.au

Envirolab Services Pty Ltd - Sydney | ABN 37 112 535 645

CERTIFICATE OF ANALYSIS 147830

Client:
Geotechnique Pty Ltd
PO Box 880
Penrith
NSW 2751

Attention: A Barbhuyia

Sample log in details:

Your Reference:	**13757/2, Warriewood**		
No. of samples:	4 Soils		
Date samples received / completed instructions received	01/06/16	/	02/06/16

Analysis Details:
Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	9/06/16	/	7/06/16
Date of Preliminary Report:	Not Issued		

NATA accreditation number 2901. This document shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

ACCREDITED FOR TECHNICAL COMPETENCE

Organochlorine Pesticides in soil			
Our Reference:	UNITS	147830-1	147830-2
Your Reference	----------	Split S1	Split S2
	-		
Date Sampled	----------	30/05/2016	30/05/2016
Type of sample		Soil	Soil
Date extracted	-	03/06/2016	03/06/2016
Date analysed	-	04/06/2016	04/06/2016
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Surrogate TCMX	%	84	89

Acid Extractable metals in soil					
Our Reference:	UNITS	147830-1	147830-2	147830-3	147830-4
Your Reference	---------- -	Split S1	Split S2	Split S3	Split S4
Date Sampled	----------	30/05/2016	30/05/2016	30/05/2016	30/05/2016
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	03/06/2016	03/06/2016	03/06/2016	03/06/2016
Date analysed	-	03/06/2016	03/06/2016	03/06/2016	03/06/2016
Arsenic	mg/kg	<4	18	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	8	30	5	7
Copper	mg/kg	5	27	10	<1
Lead	mg/kg	21	24	15	9
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	6	2	4
Zinc	mg/kg	38	93	35	7

Moisture Our Reference: Your Reference	UNITS ----------	147830-1 Split S1	147830-2 Split S2	147830-3 Split S3	147830-4 Split S4
Date Sampled	- ----------	30/05/2016	30/05/2016	30/05/2016	30/05/2016
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	3/06/2016	3/06/2016	3/06/2016	3/06/2016
Date analysed	-	3/06/2016	3/06/2016	3/06/2016	3/06/2016
Moisture	%	13	15	9.6	25

Method ID	Methodology Summary
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			03/06/2016	[NT]	[NT]	LCS-8	03/06/2016
Date analysed	-			04/06/2016	[NT]	[NT]	LCS-8	04/06/2016
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	91%
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	87%
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	98%
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	92%
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	87%
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	88%
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	97%
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	102%
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	97%
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	LCS-8	95%
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NR]	[NR]
Surrogate TCMX	%		Org-005	89	[NT]	[NT]	LCS-8	89%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			03/06/2016	[NT]	[NT]	LCS-8	03/06/2016
Date analysed	-			03/06/2016	[NT]	[NT]	LCS-8	03/06/2016
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	LCS-8	103%
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	LCS-8	103%
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-8	100%
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-8	103%
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-8	97%
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	LCS-8	94%
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-8	96%
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	LCS-8	98%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NR: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

ENVIROLAB GROUP

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

coc received 2/6.

Job No: 147830. Coc.
Date Received: 1/6/2016 - 2/6/2016
Time Received: 17.00 - 13.40
Received by: PZ
Temp: Cool/Ambient 9.1
Cooling: Ice/Icepack
Security: Intact/Broken/None

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751

Tel: (02) 4722 2700
Fax: (02) 4722 6161

TO: ENVIROLAB SERVICES PTY LD
12 ASHLEY STREET
CHATSWOOD NSW 2067

PH: 02 9910 6200 **FAX:** 02 9910 6201

ATTN: MS AILEEN HIE

Sampling By: JH
Job No: 13757/2
Project:
Project Manager: AB
Location: Warriewood

Results required by: Standard Turnaround Time

Sampling details				Sample type										
Location	Depth (m)	Date	Time	Soil / Material	Water	Metals As, Cd, Cr, Cu, Pb, Hg, Ni and Zn	TPH* & BTEX	PAH	OCP	PCB				KEEP SAMPLE
Split S1	1	30/05/2016	-	SG		✓			✓					YES
Split S2	2	30/05/2016	-	SG		✓			✓					YES
Split S3	3	30/05/2016	-	SG		✓								YES
Split S4	4	30/05/2016	-	SG		✓								YES

Relinquished by			Received by		
Name	Signature	Date	Name	Signature	Date
ANWAR BARBHUYIA	AB	2/06/2016	P.Ley		2/6/2016 13.40 (Sample) 1/6/2016 17.00

Legend:
WG Water sample, glass bottle
WP Water sample, plastic bottle
SG Soil sample (glass jar)
FCP Fibro Cement Piece (plastic bag)
SP Soil sample (plastic bag)
✓ Test required
* Purge & Trap

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	Geotechnique Pty Ltd
Attention	A Barbhuyia

Sample Login Details	
Your Reference	13757/2, Warriewood
Envirolab Reference	**147830**
Date Sample Received	01/06/2016
Date Instructions Received	02/06/2016
Date Results Expected to be Reported	**09/06/2016**

Sample Condition	
Samples received in appropriate condition for analysis	YES
No. of Samples Provided	4 Soils
Turnaround Time Requested	Standard
Temperature on receipt (°C)	9.1
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Samples will be held for 1 month for water samples and 2 months for soil samples from date of receipt of samples

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolabservices.com.au	Email: jhurst@envirolabservices.com.au

Sample and Testing Details on following page

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

Sample Id	*Organochlorine Pesticides in soil*	*Acid Extractable metals in soil*
Split S1	✓	✓
Split S2	✓	✓
Split S3		✓
Split S4		✓

APPENDIX C

ENVIRONMENTAL NOTES

IMPORTANT INFORMATION REGARDING YOUR ENVIRONMENTAL SITE ASSESSMENT

These notes have been prepared by Geotechnique Pty Ltd, using guidelines prepared by the ASFE (Associated Soil and Foundation Engineers). The notes are offered to assist in the interpretation of your environmental site assessment report.

REASONS FOR AN ENVIRONMENTAL ASSESSMENT

Environmental site assessments are typically, though not exclusively, performed in the following circumstances:

- As a pre-acquisition assessment on behalf of a purchaser or a vendor, when a property is to be sold
- As a pre-development assessment, when a property or area of land is to be redeveloped, or the land use has changed, e.g. from a factory to a residential subdivision
- As a pre-development assessment of greenfield sites, to establish baseline conditions and assess environmental, geological and hydrological constraints to the development of e.g. a landfill
- As an audit of the environmental effects of previous and present site usage

Each circumstance requires a specific approach to assessment of soil and groundwater contamination. In all cases the objective is to identify and if possible quantify the risks that unrecognised contamination poses to the ongoing proposed activity. Such risks may be financial (clean-up costs or limitations in site use) and physical (health risks to site users or the public).

ENVIRONMENTAL SITE ASSESSMENT LIMITATIONS

Although information provided by an environmental site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment might not detect all contamination within a site. Contaminants could be present in areas that were not surveyed or sampled, or migrate to areas that did not show signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant that may occur; only the most likely contaminants are screened.

AN ENVIRONMENTAL SITE ASSESSMENT REPORT IS BASED ON A UNIQUE SET OF PROJECT SPECIFIC FACTORS

In the following events and in order to avoid cost problems, you should ask your consultant to assess any changes in the conclusion and recommendations made in the assessment:

- When the nature of the proposed development is changed e.g. if a residential development is proposed, rather than a commercial development
- When the size or configuration of the proposed development is altered e.g. if a basement is added
- When the location or orientation of the proposed structure is modified
- When there is a change of land ownership, or
- For application to an adjacent site

ENVIRONMENTAL SITE ASSESSMENT FINDINGS ARE PROFESSIONAL ESTIMATES

Site assessment identifies actual sub-surface conditions only at those points where samples are taken, when they are taken. Data obtained from the sampling and subsequent laboratory analyses are interpreted by geologists, engineers or scientists and opinions are drawn about the overall sub-surface conditions, the nature and extent of contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional, no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, however, steps can be taken to help minimise the impact. For this reason site owners should retain the services of their consultants throughout the development stages of the project in order to identify variances, conduct additional tests that may be necessary and to recommend solutions to problems encountered on site.

Soil and groundwater contamination is a field in which legislation and interpretation of legislation by government departments is changing rapidly. Whilst every attempt is made by Geotechnique Pty Ltd to be familiar with current policy, our interpretation of the investigation findings should not be taken to be that of the relevant authority. When approval from a statutory authority is required for a project, approval should be directly sought.

STABILITY OF SUB-SURFACE CONDITIONS

Sub-surface conditions can change by natural processes and site activities. As an environmental site assessment is based on conditions existing at the time of the investigation, project decisions should not be based on environmental site assessment data that may have been affected by time. The consultant should be requested to advise if additional tests are required.

ENVIRONMENTAL SITE ASSESSMENTS ARE PERFORMED FOR SPECIFIC PURPOSES AND CLIENTS

Environmental site assessments are prepared in response to a specific scope of work required to meet the specific needs of specific individuals e.g. an assessment prepared for a consulting civil engineer may not be adequate to a construction contractor or another consulting civil engineer.

An assessment should not be used by other persons for any purpose or by the client for a different purpose. No individual, other than the client, should apply an assessment, even for its intended purpose, without first conferring with the consultant. No person should apply an assessment for any purpose other than that originally contemplated, without first conferring with the consultant.

MISINTERPRETATION OF ENVIRONMENTAL SITE ASSESSMENTS

Costly problems can occur when design professionals develop plans based on misinterpretation of an environmental site assessment. In order to minimise problems, the environmental consultant should be retained to work with appropriate design professionals, to explain relevant findings and to review the adequacy of plans and specifications relative to contamination issues.

LOGS SHOULD NOT BE SEPARATED FROM THE REPORT

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists, based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these would not be redrawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however, contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. Should this occur, delays and disputes, or unanticipated costs may result.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of sub-surface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations, such as contractors.

READ RESPONSIBILITY CLAUSES CLOSELY

An environmental site assessment is based extensively on judgement and opinion; therefore, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. In order to aid in prevention of this problem, model clauses have been developed for use in written transmittals. These are definitive clauses, designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment and you are encouraged to read them closely. Your consultant will be happy to give full and frank answers to any questions you may have.