REPORT

TO

WINSTON LANGLEY PTY LIMITED

ON

COMBINED PHASE 1 & 2 ENVIRONMENTAL SITE ASSESSMENT

AT

45-47 TENNYSON AVENUE & 105 EASTERN ROAD, TURRAMURRA NSW

Reference: 689 – E1256 – AA

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Attention: Mr K. Golwala

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Document Status	
Author	Reviewed
	
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Revision Number	**Status**	**Date**
0	Final	20 June 2018

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Executive Summary

Compaction & Soil Testing Services Pty Ltd (CSTS) has been engaged by Mr David Hyne of Winston Langley Pty Limited on behalf of the Trustee for 45 Tennyson Avenue Unit Trust to conduct a combined Phase 1 & 2 Environmental Site Assessment at the site known as 45-47 Tennyson Avenue and 105 Eastern Road, Turramurra NSW. This assessment has been prepared in general accordance with the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites.*

The proposed development is for the creation of a retail building to operate a fresh food grocer, along with two (2) additional retail premises and a nursery/café/flower store. Car-parking is to be provided on-grade within the west of the site, and within a basement car-park beneath the majority of the site. A publicly accessible orchard is to be created within the north-west of the site, and a native garden bordering the east and south of the site.

The objectives of the investigation were to:

- Determine the potential for site contamination,
- Assess whether the site is suitable, from a contamination perspective, for the proposed land use,
- Provide conclusions and recommendations regarding the contamination status of the site.

Based on available historical information, the site was likely used for agricultural and horticultural uses until 1954, whereby Ampol Petroleum Limited established the service station within the south-west of the site. The remainder of the site likely remained used for nursery operations until 1964, when the eastern portion of the site was redeveloped. In the 1960s - 1970s, the eastern and northern portion of the site was used as a bus depot, prior to re-establishing nursery operations in the 1980s.

At the time of inspection on 08 May 2018, the site contained two (2) commercial occupants, being a retail nursery and café occupying the north and eastern portions of the site, and a service station and mechanical workshop occupying the south-western portion of the site. Three (3) USTs are currently in use within the service station site, with evidence of a fourth tank that may have been removed or decommissioned previously observed to the west of the mechanical workshop. Within the carpark of the nursery, fill points for two (2) former USTs were observed, with a third suspected UST located to the east of the entrance of the main building. No information was provided regarding the possible destruction or decommissioning of these tanks. Three (3) groundwater monitoring wells were also observed within the nursery carpark, appearing to target the suspected UST, the fill points for the former USTs and a down-gradient position near the site boundary.

Fourteen (14) soil bores were advanced throughout the site to terminal depths of between 0.2m bgl to 3.0m bgl, with a total of thirty-one (31) soil samples recovered. A total of three (3) groundwater samples were also recovered for analysis.

The laboratory analysis of the soil samples detected concentrations of Arsenic, Chromium, Copper, Lead, Nickel, Zinc, BTEX, TRH, PAH. Based on the location of samples in comparison to the proposed land-use setting (retail occupancies and publicly accessible orchard and native gardens), all of the detected concentrations were within the respective HILs for the proposed development.

Within the proposed public orchard and native garden area, one (1) sample (BH9 0.2m) recorded a TRH F3 value in excess of the respective ESL criterion. Though this value exceeded the criterion, based on the proposed development and the creation of a publicly accessible orchard at this location, minor excavations and replacement with suitable growing medium will be required. The importation of suitable growing medium is considered adequate to alleviate the potential ecological impact arising from the minor elevated concentration of TRH F3. No other ecological risks were identified within the soil samples.

Laboratory analysis of the groundwater samples detected concentrations of Arsenic, Chromium, Copper, Nickel, Zinc and PAH. The detected concentrations of Copper, Nickel and Zinc within all samples exceeded the Marine Waters criteria, whilst Nickel within MW1 and MW3 also exceeded the drinking water criteria. CSTS considers the concentrations of Copper and Zinc may be attributable to potentially leaking water supply infrastructure. The detected concentrations of Arsenic and Chromium were within the respective Marine Waters and Drinking Water criteria.

The elevated concentration of Acenaphthene (PAH) was detected in MW1 down-gradient of a suspected UST, though was not recorded in MW3, further down-gradient, indicating that the concentration was not persisting beyond the site boundary. The source of the elevated concentration is considered to likely be remnant from the suspected UST, which would be removed from site during redevelopment works for the creation of basement parking. Removal of the suspected source during the redevelopment would likely result in a decrease in the PAH concentrations.

Though elevated concentrations of Nickel were encountered throughout the site, no groundwater wells were identified within 500m of the site, limiting the potential for the wider community to access the groundwater. The receiving marine waters are also a considerable distance from the site and may result in the concentrations dissipating. Additionally, the groundwater within the surrounding area is generally not considered a source of drinking water.

It is anticipated that the existing groundwater monitoring wells are to be removed during the redevelopment of the site, further limiting access to the groundwater. A sealed basement design would also eliminate future site users from accessing the groundwater. As such, the pathway between potentially impacted groundwater and possible receptors is considered incomplete. Therefore, the condition of the groundwater is considered to not impact upon the suitability of the site for the proposed development.

Based on the conducted assessment, CSTS has concluded that the site known as 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW is of a **suitable condition**, from a contamination perspective, for the proposed land use, and does not pose an unacceptable risk to human health or the surrounding environment in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)*.

CSTS recommends that, during the process of development, should any indicators of potential contamination be encountered, this office is contacted immediately for further assessment. Should there be any change in the proposed development, all conclusions and recommendations are to be reviewed. Specifically, if the proposed development will involve an alternate final land use, the findings of this report may require revision and further assessment may be necessary.

Should you have any queries about the methodology, findings, conclusions or recommendations of this assessment, please do not hesitate to contact our office on (02) 9675 7522.

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Abbreviations

ACM	Asbestos Containing Material
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment & Conservation Council
ARMCANZ	Agriculture, and Resource Management Council of Australia and New Zealand
B(a)P	Benzo(a)pyrene
B(a)P TEQ	Benzo(a)pyrene Toxicity Equivalent Quotient
bgl	Below Ground Level
BTEXN	Benzene, Toluene, Ethyl-benzene, Xylene, Naphthalene
CSTS	Compaction & Soil Testing Services Pty Ltd
COC	Chain of Custody
DA	Development Application
DECCW	Department of Climate Change & Water
DLWC	Department of Land & Water Conservation
DMR	Department of Mineral Resources
DP	Deposit Plan
DPI	Department of Primary Industries
DQI	Data Quality Indicator
DQO	Data Quality Objective
EIL	Environmental Investigation Level
EPA	Environment Protection Authority
EPL	Environment Protection Licence
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
GHSL	Groundwater Health Screening Level
GIL	Groundwater Investigation Level
GW	Groundwater
FA/AF	Friable Asbestos/Asbestos Fibres
HIL	Health Based Investigation Levels
HSL	Health Screening Levels
IEC	International Electrotechnical Commission
ISO	International Organisation for Standardisation
Km	Kilometre
L	Litre
LEP	Local Environment Plan
LGA	Local Government Area
LOR	Limit of Reporting

m	Metre
m^2	Square Metre
mg/kg	Milligrams per Kilogram
mL	Millilitre
mm	Millimetre
MTBE	Methyl Tert-Butyl Ether
MW	Monitoring Well
N/A	Not Applicable
NATA	National Association for Testing Authorities
ND	No Detection
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NL	Not Limiting
NSW	New South Wales
OCP	Organochlorine Pesticides
OEH	Office of Environment & Heritage
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PID	Photo-Ionisation Detector
POEO Act	Protection of the Environment Operations Act 1997
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percentage Difference
SAQP	Sampling, Analysis and Quality Plan
SOP	Standard Operating Procedure
SWL	Standing Water Level
TCA	Trichloroacetic Acid
TCE	Trichloroethylene
TRH	Total Recoverable Petroleum Hydrocarbons
µg/L	Microgram per Litre
UPSS	Underground Petroleum Storage System
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

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1 Introduction

1.1 Background

Compaction & Soil Testing Services Pty Ltd (CSTS) has been engaged by Mr David Hyne of Winston Langley Pty Limited on behalf of the Trustee for 45 Tennyson Avenue Unit Trust to conduct a Combined Phase 1 & 2 Environmental Site Assessment (ESA) at the site known as 45-47 Tennyson Avenue and 105 Eastern Road, Turramurra NSW (the site). This assessment has been prepared in general accordance with the NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*.

1.2 Proposed Development

The proposed development is for the creation of a retail building to operate a fresh food grocer, along with two (2) additional retail premises and a nursery/café/flower store. Car-parking is to be provided on-grade within the west of the site, and within a basement car-park beneath the majority of the site. A publicly accessible orchard is to be created within the north-west of the site, and a native garden bordering the east and south of the site.

1.3 Objectives

The objectives of the investigation were to:

- Determine the potential for site contamination,
- Assess whether the site is suitable, from a contamination perspective, for the proposed land use,
- Provide conclusions and recommendations regarding the contamination status of the site.

2 Scope of Works

In order to achieve the objectives, the following scope of works was undertaken:

- Review of available previous environmental reports, local geology and information pertaining to the site,
- Site inspection to determine the existing site condition and potential areas of environmental concern,
- Excavation of fourteen (14) boreholes for the assessment of material condition and the recovery of samples,
- Recovery and laboratory transfer of thirty-one (31) primary soil samples for contamination status assessment,
- Recovery and laboratory transfer of two (2) intra-laboratory duplicate soil samples, two (2) inter-laboratory duplicate soil samples, one (1) soil trip blank sample and one (1) soil trip spike sample for quality assurance and quality control,
- Recovery and laboratory transfer of three (3) primary groundwater samples for contamination status assessment,
- Recovery and laboratory transfer of one (1) intra-laboratory duplicate groundwater sample, one (1) inter-laboratory duplicate groundwater sample, one (1) water trip blank sample and one (1) water trip spike sample for quality assurance and quality control,

- Correlation of data and compilation of this Environmental Site Assessment.

3 Site Details

3.1 Site Identification

The site identification information is provided within Table A.

Table A: Site Identification

Street Address	45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW 2074
Lot and Plan Number	Lot 1 DP4323, Lot 3 DP515147, Lot 1 DP515147
Site Area (approx.)	5,085m^2
Geographic Coordinates[1]	Lat: 33^0 43' 12", Long: 150^0 07' 53"
Land Zoning	R2 – Low Density Residential
Local Government Area	Ku-Ring-Gai Council
Parish	Gordon
County	Cumberland

1. *Approximate Centre of Site*

3.2 Site Condition

On the day of sampling (08 May 2018) the site consisted of large rectangular shaped block, bordered by Tennyson Avenue to the south, Eastern Road to the west, Alice Street to the north and residential dwellings to the east. The surrounding area is generally low-density residential, with a local shop precinct along Eastern Road to the south of Tennyson Avenue.

The site contained two (2) commercial occupants, being a retail nursery and café (Area A) occupying the north and eastern portions of the site, and a service station and mechanical workshop (Area B) occupying the south-western portion of the site.

3.2.1 Area A: Retail Nursery (45-47 Tennyson Avenue)

Within the retail nursery, the main shop is located along the western boundary, adjacent the service station building. To the north of the main shop, shade-clothed covered awnings with seating for the café exist, with plant displays and paved grounds to the west of the café seating. To the east of the café seating, the company truck parking and loading area exists, sealed with asphalt and concrete. South of the loading area, the customer car-park (of concrete construction) exists, running southerly along the eastern boundary to Tennyson Avenue. To the south of the main building, a small covered awning extends for bulk material storage, with pallet racking extending further south. Offices and supply storage buildings, and the amenities building, border the southern boundary. Gardens exist between the buildings and car-park and their respective boundaries.

Within the car-park area, a suspected underground storage tank (UST) exists to the east of the main building, and two (2) USTs are anticipated to exist to the south of the main building, to the north of the amenities building. Fill points were observed near the suspected USTs. Three (3) groundwater monitoring wells (MW) exist within the site, with MW1 located near the UST east of the main building, MW2 located adjacent the brick retaining wall within the car-park, and MW3 located in close proximity to the two (2) suspected USTs in the south of the site.

The buildings evident on the site appeared in a state of good repair, and were presented in a clean and tidy manner, though CSTS notes that the site has undergone recent refurbishment based on the occupant's website. The concrete appeared in relatively good condition, though limited cracking was observed, predominantly in the south of the site. The paving within the north-west of the site was in good condition and all plants observed within the site appeared to be in good health with no visible indicators of distress. No offensive odours were observed within the site or encountered soils.

During the extraction of groundwater for sampling, a red-brown (rust-coloured) staining was observed upon the sample tubing and during the preliminary stages of groundwater extraction. The groundwater became slightly turbid to clear during the purging process. No offensive odours were noted emanating from the encountered groundwater.

3.2.2 Area B: Service Station (105 Eastern Road)

Within the service station site, the main shop is located centrally along the eastern boundary, with a canopy extending westerly, covering four (4) fuel bowsers. To the north of the main shop, four (4) mechanical service bays exist, with another bay (likely used for emission testing) located to the rear of the main shop, connected to the other service bays. To the west of the service bays, a small patch of repaired concrete indicates prior works to decommission a UST has been undertaken. Based on discussions with the current occupants, the tank has not been used for at least two (2) decades and no indication of its prior contents was provided.

To the south of the buildings, a small shed (Vodafone Electrical and Radio Transmission hut) exists along the eastern boundary. To the north and west of this shed, a shipping container used for the storage of supplies is located, and parking for customer vehicles and trailers-for-hire is provided. Beneath this vehicle parking area, the tank farm exists, containing three (3) tanks for the storage of unleaded, premium unleaded and diesel fuels. Access driveways servicing the service station are provided from Tennyson Avenue, and two (2) from Eastern Road. The pricing display board is located to the south of the southern driveway, with an electrical transmitter tower and supply located to the south of the pricing display board. Customer vehicles for the mechanical workshop are parked around the borders of the site.

The entire surface of the site was concrete sealed, and appeared in relatively good condition, with the exception of some noticeable patch works. Based on the location of the concrete patches, they were likely associated with upgrades to the underground petroleum storage system (UPSS) infrastructure, drainage and UST abandonment. The buildings within the site appeared in good condition, with no evidence of flaking paint or damage, and no obvious signs of staining were noted in or around the service bays. Some scrap steel was observed piled along the northern boundary and near the ice-storage freezer between the second and third service bays. A small stockpile of waste tyres, estimated to be less than 50 tyres, were located between the two (2) northernmost service bays. The tyres were neatly stacked and appeared to be awaiting collection for disposal. During the walk-over of the site, no offensive odours were observed. However, during soil sampling, petroleum-like odours were observed within samples recovered to the south of the

tank farm and near the pricing display board, and minor odours were observed near the abandoned UST to the west of the service bays.

No groundwater was encountered within the service station site.

The vegetation (grass and trees) within the council land (nature strip) surrounding the site appeared in good health with no evidence of vegetative distress or die-back, indicating that the site was not impacting upon vegetative health.

3.3 Landscape Characteristics

The site has an elevation of approximately 164m – 161m AHD, sloping gently to the south. Reference to the NSW DMR (1983) *Sydney 1:100,000 Geological Series Sheet 9130* indicates that the natural geology of the site is mapped to consist of Triassic age Ashfield Shale, characterised by black to dark grey shale and laminate. Reference to the NSW DECCW (2009) *Sydney 1:100,000 Soil Landscape Series Sheet 9130* indicates that the soil landscape of the site is mapped as Glenorie Erosional landscapes comprised of shallow to moderately deep red and brown podzolic soils. Reference to the NSW DLWC (1997) *Hornsby/Mona Vale Acid Sulfate Soil Risk Map* indicates that the site is located within an area of no known occurrence.

Surface water is anticipated to flow over sealed portions of the site in a southerly direction to street drainage on Tennyson Avenue, with limited infiltration of soils in unsealed areas. Though surface water is expected to flow southerly, the closest surface water receiver is Cockle Creek, located approximately 3km north-west of the site. Groundwater is anticipated to follow the topography of the site, and flow generally southerly. Based on Geo-logix (2015a), no registered groundwater bores exist within 500m of the site. Three (3) groundwater monitoring wells exist within the site, specifically, within the eastern portion of the site (the nursery), located near disused USTs. The standing water level (SWL) within the monitoring wells range from 1.8m bgl to 3.1m bgl. Though the heights of the monitoring wells were not surveyed, comparison of the SWLs to the observed elevation difference onsite indicates that groundwater flows southerly to south-easterly, as anticipated. Refer to Table B.

No monitoring wells exist within the boundary of the service station site. A search of the NSW DPI (Office of Water) on 05 June 2018 recorded no registered groundwater monitoring wells exist within 500m of the site.

Table B: Groundwater Bores Within the Site

Well ID	Location	Date Inspected	Final Depth (m bgl)	SWL (m bgl)
MW1	East of Main Shop Entrance	08/05/2018	5.2	1.8
MW2	South-Eastern Car-Park	08/05/2018	5.6	2.6
MW3	North of Amenity Building	08/05/2018	5.3	3.1

Notes: SWL = Standing Water Level

3.4 Regulatory Searches

As of 16 April 2018, two (2) sites within Turramurra were recorded on the list of NSW contaminated sites notified to the NSW EPA. Both sites are service stations and are located approximately 1.5km south-east and 1.5km south-west of the site. These sites are both identified as regulation not being required under the CLM Act. A search of the Contaminated Land Register on 07 June 2018 did not record any notices for sites within the suburb of Turramurra.

A search of the POEO Public Register on 07 June 2018 did not record any licences, applications or notices within the suburb of Turramurra.

Refer to Appendix F.

4 Previous Reports

4.1 Geo-Logix Pty Ltd (2015a), Phase 1 Environmental Site Assessment; 45-47 Tennyson Avenue, Turramurra NSW 2074

Geo-Logix Pty Ltd conducted a site inspection on 20 February 2015. As this was a Phase 1 assessment, no intrusive investigation was conducted.

Geo-Logix Pty Ltd determined that the site was an 'L' shaped block, comprising 3,675m^2 and was occupied by a retail nursery and café. The main building was located at the approximate centre of the western boundary, with the café and associated seating and plant displays to the north, car-parking to the east and bulk goods display and storage to the south. Dip and fill points for two (2) USTS were observed within the southern portion of the car-park, and a third suspected UST to the east of the main shop.

The historical review indicated that the site was privately owned from the 1900s and operated as an apple orchard and possible market gardens for a part of the time until the 1950s to 1960s. The site was owned by Ampol Petroleum Pty Limited from 1954-1968 and was vacant based on the 1961 aerial image. From 1968 – 1978, the site was owned by RND Holdings Pty Limited and operated as a bus depot. From 1978 to 2002, the site was operated as a nursery and landscaping supply shop, after which a café was added and operated as a nursery and café.

A review of Council records indicated that a DA application on 04 November 1977 *DA#77/112) was submitted to change the site from a bus depot into a garden centre. One of the recommendations of the Council was that the existing fuel tanks be removed or filled to the satisfaction of Council. No destruction certificates or evidence of this being conducted, or any information pertaining to the size, content and type of USTs present was provided.

Anecdotal evidence suggests that OPPs (Malathion, Omethoate and Dimethoate) were historically used on the site, though a previous investigation conducted in 1996 did not identify OPPs within the soil. However, it is noted that the assessment was limited to two (2) samples.

Based on the historical review, Geo-Logix Pty Limited determined that the following potentially contaminating activities have occurred onsite;

- Operation of orchards, market gardens and retail nursery,
- Operation of a bus depot, with associated mechanical activities and USTs,
- Demolition of former site structures.

Geo-Logix Pty Limited concluded that there is potential for contamination to occur on the site and requires further investigation.

4.2 Geo-Logix (2015b), *Phase 1 Environmental Site Assessment Report; 105 Eastern Road Turramurra, NSW 2074*

Geo-Logix Pty Ltd conducted a site inspection on 03 July 2015. As this was a Phase 1 assessment, no intrusive investigation was conducted.

Geo-Logix Pty Ltd determined the site to be approximately 1,410m^2 and rectangular in shape. The main building comprising the shop and the mechanical workshop is located within the north-eastern portion of the site, with the canopy extending westerly from the shop over the four (4) existing fuel bowsers. A possible UST abandonment or removal to the north-west of the shop, adjacent the mechanic service bay was evident, based on patched concrete work. To the south-east of the canopy, fill and dip points indicate the location of the tank farm, with three (3) to five (5) USTs suspected of being within the tank farm. No groundwater monitoring wells were recorded onsite. A shipping container for the storage of parts and supplies, and hire trailers were also stored along the southern boundary.

Based on the available historical information, Geo-Logix Pty Ltd considered that the site remained as vacant undeveloped land until the mid-1950s when it was developed into the service station. Since then, the site has remained operational as a service station.

Based on the historical and ongoing use of the site as a service station, Geo-Logix Pty Ltd considered there is potential for soil and groundwater contamination to exist within the site. Therefore, further investigation of the site for contamination was recommended.

4.3 Leighton O'Brien Pty Ltd (2016 – 2018) Statistical Inventory Analysis Site Reports

CSTS has reviewed the site reports produced by Leighton O'Brien Pty Ltd regarding the storage of fuel at 105 Eastern Road, Turramurra NSW. The provided information pertained to September 2016 through March 2018. The information was collated daily and statistically analysed monthly.

Four (4) site reports were reviewed, containing summaries for six (6) month periods. The reports found that overall the results that were obtained were satisfactory. Minor discrepancies were noted throughout the period, though were generally corrected for analysis and attributed to the dip reading rather than a sudden loss or gain of product. During the nineteen (19) months of monitoring, only two (2) incidents were recorded where a monthly result was less than satisfactory. Tank 2 (Premium Unleaded) recorded a 'fail' result in March 2017 whilst Tank 1 (Unleaded) recorded a 'flag' result in December 2017.

CSTS reviewed the specific tank reports for the incidents, which identified that during March 2017, an unacceptable trend of loss from Tank 2 was identified, with Leighton

O'Brien Pty Ltd recommending investigation. The cause appears to have been addressed, with the trend being corrected during the following months. The incident flagged in December 2017 arose from notable increases in the losses compared to the previous month. This was attributed to inaccurate dip readings, and recommended greater care to be taken to eliminate poor data. This trend appears to have been addressed in the following months.

5 Site History

Tables C-E contains a summary of the ownership history of the site, adopted from Geo-Logix Pty Ltd (2015a) and Geo-logix Pty Ltd (2015b). Table F contains a summary of information gathered from the historical aerial photographs of the site within the Geo-Logix Pty Ltd (2015a) and Geo-logix Pty Ltd (2015b), as interpreted by CSTS.

In summary, the site was likely used for agricultural and horticultural uses until 1954, whereby Ampol Petroleum Limited established the service station within the south-west of the site. The remainder of the site likely remained used for nursery operations until 1964, when the eastern portion of the site was redeveloped. In the 1960s - 1970s, the eastern and northern portion of the site was used as a bus depot, prior to re-establishing nursery operations in the 1980s.

Table C: Ownership History of Lot 1 DP515147

Date	Owner & Occupation
Lot 1 DP515147	
1997 – to date	GDR Automotive Services Pty Limited
1991 – 1997	Antoon Gerrit Vanderbent, Technician
1982 – 1991	Ampol Limited
1966 – 1982	Ampol Petroleum Limited
Lot 2 & Part Lot 3 DP4323 Area: 1 Roods 37 ¾ perches (1,967m^2 Approx.)	
1954 – 1966	Ampol Petroleum Limited
1941 – 1954	Violet Helen May Binder, Widow
1907 – 1941	Herbert Binder, Labourer

Adapted from Geo-Logix Pty Ltd (2015b)

Table D: Ownership History of Lot 2 DP515147

Date	Owner & Occupation
Lot 2 DP515147	
2002 – to date	Parkers Nursery Pty Ltd (formerly Turramurra Produce and Sand Pty Ltd)
1988 – 2002	Turramurra Produce and Sand Pty Ltd
Lot 2 DP515147 Area: 1 Roods 37 ¾ perches (1,967m^2 Approx.)	
1985 – 1988	Turramurra Produce and Sand Pty Ltd
1978 – 1985	Herana Pty Limited
1968 – 1978	RND Holdings Pty Limited
1966 – 1968	Ampol Petroleum Limited
Part Lots 2 & 3 DP4323 Area: 1 Roods 37 ¾ perches (1,967m^2 Approx.)	
1954 – 1966	Ampol Petroleum Limited
1941 – 1954	Violet Helen May Binder, Widow
1907 – 1941	Herbert Binder, Labourer

Adapted from Geo-Logix Pty Ltd (2015a)

Table E: Ownership History of Lot 1 DP4323

Date	Owner & Occupation
Lot 1 DP4323	
2002 – to date	Parkers Nursery Pty Ltd (formerly Turramurra Produce and Sand Pty Ltd)
1985 – 2002	Turramurra Produce and Sand Pty Ltd
1978 – 1985	Herana Pty Limited
1968 – 1978	RND Holdings Pty Limited
1964 – 1668	Frederick Percy Jennings, Motor Mechanic Ralph William Jennings, Master Butcher
1922 – 1964	John Jennings, Gardener
Lot 1 DP4323 Area: 1 Roods 27 ¾ perches (1,714m^2 Approx.)	
1922 – 1922	John Jennings, Gardener
1908 – 1922	George Wilkinson Kershaw, Nurseryman

Adapted from Geo-Logix Pty Ltd (2015a)

Table F: Review of Historical Aerial Imagery

Date	Site	Surrounding Land
1930	The resolution of the image is unclear. The site appears to contain a residential dwelling (at the approximate location of the current nursery building) and is surrounded by vegetation (possible nursery or market-garden operations).	Tennyson Avenue, Eastern Road and Alice Street are visible and form the southern, western and northern boundaries respectively. At least two structures, assumed to be residential dwellings, form the eastern boundary. Residential development appears to be underway to the east and south of the site, whilst orchards are visible to the west of Eastern Road. The land north of Alice Street appears to be small farm lots. Further west, more evidence of urban development in the form of residential housing is evident.
1951	The resolution of the image is clearer than 1930. The site appears to have established gardens surrounding the house, with market-garden or orchards. The current service station area appears to be heavily vegetated.	The sites to the east, south and west appear to be similar to 1930 imagery. Further residential development is visible to the north of Alice Street, with increased vegetation noted to the north-east of the site.
1961	The site appears to be undergoing redevelopment. The previous residential structure has been removed and the immediate surrounding ground to the east and north appears disturbed. The land within the south-west of the site has been developed into the service station.	Residential development within the surrounding area has intensified. Previously vacant agricultural land to the east and south of the site has been redeveloped into detached housing and what appears to be a row of local shops respectively. The orchard to the west of Eastern Road is in the process of subdivision, with two (2) new roads with cul-de-sac ends having been formed. The land to the north of Alice Street has

Date	Site	Surrounding Land
		also been subdivided and redeveloped into smaller lots of detached dwellings.
1970	This image is zoomed in further than 1961. The service station appears relatively unchanged since 1962. Within the east of the site, a building has been created near the location of the former residential dwelling, with multiple buses parked to the east and south of the new structure. The northern portion of the site (including north of the service station) appears to be heavily vegetated, with two (2) small structures near the boundary with the service station.	The subdivisions to the west of Eastern Road and north of Alice Street appear to be completed, with detached residential dwellings evident. The areas to the east and south of the site appear relatively unchanged.
1982	The service station portion of the site appears relatively unchanged since 1970. The previous office structure for the bus depot remains, though an addition to the east of the structure appears evident, and a small structure along the southern boundary has been created. The buses have been removed and what appears to be greenhouses / nursery operations appear to have commenced within the northern (previously vegetated) area of the site.	To the south of the local shops, a car-park has been created to further service the shopping mall. The local surrounds appear relatively unchanged, consisting of detached residential dwellings. Multiple properties in the surrounding area have added swimming pools in the rear yards. The surrounds otherwise appear relatively unchanged since 1970.
1991	The service station site appears relatively unchanged since 1982. Within the nursery area, a small structure (awning) has been added to the south of the main building. The structure within the northern portion appears to have a new roof. The site appears otherwise relatively unchanged.	The surrounding area appears relatively unchanged since 1982.
1998	The service station site appears relatively unchanged since 1991. Multiple cars are stored within the south-eastern corner of the site. The nursery appears relatively unchanged since 1991. The growing area within the north-	The surrounding area appears relatively unchanged since 1991.

Date	Site	Surrounding Land
	western corner of the site has been reconfigured with pathways and rows of plants.	
2005	The main building of the service station has been added to, with another mechanic bay added to the rear (east) of the building. Within the nursery area, the structure within the northern portion appears to be covered with shade-cloth. Numerous products for sale are observed to the south of the main building. The large trees bordering the south-east have grown considerably since 1991. The site otherwise appears relatively unchanged.	Minor residential redevelopments (knock-down/rebuild) have been undertaken in the wider surrounding area. The property adjacent the eastern boundary has been developed as a townhouse complex. The surrounding area otherwise appears relatively unchanged since 1998.
2014	The site appears relatively unchanged since 2005. The vegetation bordering the site has become notably thicker.	Additional townhouses have been created to the south-east of the site, on the southern side of Tennyson Avenue. The surrounding area appears relatively unchanged since 2005.
2018	Solar panels have been added to the shop building and workshops within the service station site. The site appears otherwise relatively unchanged since 2014.	The surrounding area appears relatively unchanged since 2014.

Adapted from Geo-Logix Pty Ltd (2015a), Geo-Logix Pty Ltd (2015b) and Nearmap (2018)

6 Conceptual Site Model

The conceptual site model containing the potential contaminants of concern, likely sources, potential pathways and receptors is presented in Table G.

Table G: Conceptual Site Model

Contaminant of Concern	Potential Sources	Potential Pathways	Receptors
Heavy Metals	• Operation of service station and mechanics workshop • Leaching from older building constructions • Leaks from Leaded fuel storage • Demolition practices of older structures	• Dermal Contact • Ingestion • Plant Uptake • Groundwater Infiltration	• Current site users • Future site users • Construction workers
BTEXN	• Maintenance of buses • Operation of service station and mechanics workshop • Storage of fuels	• Dermal Contact • Ingestion • Groundwater Infiltration	• Current site users • Future site users • Construction workers
VOCs	• Maintenance of buses • Operation of service station and mechanics workshop • Storage of fuels and waste oils	• Groundwater infiltration • Vapour intrusion	• Current site users • Future site users • Construction workers
MTBE	• Maintenance of buses • Operation of service station and mechanics workshop • Storage of fuels and waste oils	• Groundwater infiltration	• Current site users • Future site users • Construction workers
TRH	• Spills & leaks from stored fuels & vehicles • Vehicle deposition • Vehicle maintenance	• Vapour intrusion • Groundwater Infiltration • Ingestion • Dermal contact	• Current site users • Future site users • Construction workers
PAH	• Spills & leaks from stored fuels & vehicles • Vehicle deposition • Vehicle maintenance	• Dermal Contact • Ingestion • Plant Uptake • Groundwater Infiltration	• Current site users • Future site users • Construction workers
Synthetic Pyrethroids	• Historic market garden & orchard operations • Nursery operations	• Dermal Contact • Ingestion • Plant Uptake	• Current site users • Future site users • Construction workers
Carbamates	• Historic market garden & orchard operations • Nursery operations	• Dermal Contact • Ingestion • Plant Uptake	• Current site users • Future site users • Construction workers
Pesticides (OCPs / OPPs)	• Historic market garden & orchard operations • Nursery operations	• Dermal Contact • Ingestion • Plant Uptake	• Current site users • Future site users • Construction workers
PCB	• Leaks from hydraulic fluids or solvents • Electrical equipment/transformers	• Dermal Contact • Ingestion • Groundwater infiltration	• Current site users • Future site users • Construction workers
Phenols	• Maintenance of buses • Operation of service station and mechanics workshop • Storage of fuels and waste oils	• Dermal Contact • Ingestion • Groundwater infiltration	• Current site users • Future site users • Construction workers
Asbestos	• Poor historical demolition practices	• Airborne migration of fibres	• Current site users • Future site users • Construction workers • Neighbouring community

7 Data Quality Objectives

The Data Quality Objective (DQO) process was applied to the investigation to ensure that all data collection activities were appropriate and achieved the project objectives. The DQO process consists of seven (7) steps, outlined below, which define the type, quality, and quantity of data needed to support decisions relating to the environmental condition of a site.

7.1 Step 1: State the Problem

The site has a number of potential sources of contamination, as outlined within Section 6. The 'problem' as it stands, is that the site may contain contamination which has the potential to affect the suitability of the property for the proposed retail use with publicly accessible orchards and native gardens. The purpose of this investigation is to determine the condition of the site and to provide recommendations where necessary.

7.2 Step 2: Identify the Decision

Data is required in order to determine the condition of the site. It will be necessary to decide: 'Is the site suitable for the proposed retail use with publicly accessible orchards and native gardens?' To allow for the decision to be made, it will be necessary to consider the following questions:

- What are the potential sources of contamination at the site?
- Does the material within the site contain contaminants?
- Where contaminants are present, do the concentrations have the potential to adversely impact on human health or the environment?
- What, if any, remediation action is required?

7.3 Step 3: Identify Inputs to the Decision

In order to inform the decision, the following aspects are to be considered;

- Visual and olfactory observations of the site condition during the assessment,
- Results of soil samples recovered from the fourteen (14) soil bores,
- Results of groundwater samples recovered from three (3) existing groundwater monitoring wells,
- The proposed varied uses of the site and the results of the soil and groundwater samples in regard to their locality.

7.4 Step 4: Define the Study Boundaries

The boundaries of the study area are the site boundaries (Appendix A). The vertical extent of the assessment is the depth of the proposed bulk excavation, ranging from approximately 2.2m bgl (towards the south) and approximately 5.5m bgl (towards the north). The assessment of groundwater is limited to the encountered groundwater to a depth of approximately 5.6m bgl. The study is temporally limited to the day of sampling, that is, 08 May 2018.

7.5 Step 5: Develop a Decision Rule

The assessment includes a comparison of individual soil sample results to the Residential A and the Commercial / Industrial D Health Investigation Levels (HILs, whilst the individual groundwater sample results are compared to the Groundwater Investigation Levels (GILs). These thresholds are detailed within *Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater* of the *National*

Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013), published by the National Environment Protection Council.

The assessment criteria are outlined and justified in Section 11.

7.6 Step 6: Specify Limits on Decision Errors

Two types of decision errors may occur due to uncertainties or limitations in the project data set:

- A site is deemed uncontaminated when, in fact, it is contaminated,
- A site is deemed contaminated when, in fact, it is uncontaminated.

The consequences for incorrectly assessing a site as posing an unacceptable risk are considered less significant than the consequences for incorrectly assessing a site as posing acceptable risk.

Factors that may contribute to one of the above decision errors include:

- Sampling error – the sampling program does not adequately detect the variability of a contaminant from point to point across the site. That is, the samples collected are not representative of the site conditions,
- Measurement error – may occur through the sample collection, handling, preparation, analysis, and data reduction processes.

To minimise the potential for decision errors to occur, Data Quality Indicators (DQIs) have been determined as discussed in Section 10, covering; Completeness, Comparability, Representativeness, Precision and Accuracy. Compliance with the DQIs is considered to provide a sufficient level of confidence to minimise the potential for decision errors.

7.7 Step 7: Optimise the Design

In order to optimise the design, a sampling plan was implemented as outlined within Section 8.1. Quality assurance and quality control procedures were implemented as outlined within Sections 9.1 and 9.2.

8 Sampling and Analysis Plan & Sampling Methodology

8.1 Sampling and Analysis Plan

8.1.1 Soil Sampling for Chemical Analysis

The site covers an area of approximately 5,120m^2, thereby requiring fourteen (14) sampling locations in accordance with the NSW EPA (1995) *Contaminated Sites; Sampling Design Guidelines.* Depth sampling followed a targeted approach to assess the various soil profiles and suspected impacted areas. A minimum of one (1) soil profile was assessed at each location.

A total of fourteen (14) primary soil samples were recovered for laboratory analysis. The recovered samples were analysed for range of contaminants including;

- 8 Priority Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc),
- BTEXN (Benzene, Toluene, Ethyl-benzene, Xylene, Naphthalene),
- TRH (Total Recoverable Petroleum Hydrocarbons),
- VOCs (Volatile Organic Compounds),

- PAHs (Polycyclic Aromatic Hydrocarbons),
- OCP/OPP (Organochlorine and Organophosphorus Pesticides),
- PCBs (Polychlorinated Biphenyls),
- Phenols,
- Synthetic Pyrethroids,
- Carbamates,
- Asbestos fibres.

8.1.2 Groundwater Sampling for Chemical Analysis

Three (3) groundwater monitoring wells exist within the site installed by others. The groundwater monitoring wells are located within the nursery area of the site, and appear to target locations of disused USTs, and potential offsite migration. CSTS does not know the specifics of the wells regarding the date of installation, the construction, installation or development process that was implemented. The groundwater monitoring wells were reviewed and deemed to be of a serviceable condition.

A total of three (3) samples were recovered from the wells and analysed for concentrations of 8 priority metals, BTEX, VOCs, TRH, PAH, Phenols and PCBs.

8.2 Sampling Methodology

8.2.1 Soil Sampling Methodology

Soil samples were recovered directly from the material held within the auger, taking care to ensure that the sampled material had not been in direct contact with the auger head. To ensure the material sampled was representative of the depth of recovery, a thin outer-layer of material was discarded prior to sampling.

Fresh disposable nitrile gloves were used to recover each individual sample and transfer a portion of the material into a laboratory supplied 250mL glass sample jar with Teflon seal lid. A replicate sample (approximately 500mL) was recovered for analysis of Asbestos fibres and placed within a snap-lock bag. This sample was also screened with a Photo-Ionisation Detection (PID) Meter for the potential presence of volatile compounds.

8.2.2 Groundwater Sampling Methodology

To detect whether any free-phase petroleum hydrocarbons were present within the groundwater, an interface meter was used. No free-phase petroleum hydrocarbons were detected within the groundwater monitoring wells.

Groundwater sampling was conducted using a Sample-Pro low-flow micro-purge pump. The pump was lowered into the monitoring well and activated at a flow rate of approximately 0.3L/min. The extracted groundwater was monitored for consistency in stabilisation parameters to indicate the encountering of formation water rather than stagnant bore water. Each monitoring well was purged for not less than 25 minutes until the stabilisation parameters were met. Refer to Appendix D. Calibrated groundwater monitoring equipment was utilised. The calibration certificates are located within Appendix E.

After adequate purging, the sampling tube was placed to transfer sample water to appropriately prepared sample containers supplied by the analytical laboratory. For each sample, the following containers were filled;

- 1 x 500ml Amber glass bottle with Teflon-lined lid,
- 1 x 125ml Opaque plastic bottle preserved with Nitric acid,
- 1 x 25ml Opaque plastic bottle preserved with Sulphuric acid,
- 2 x 40ml glass vials preserved with Hydrochloric acid.

New sample tubing and a new dedicated bladder were used for the purging and sampling of each groundwater monitoring well. The pump casing was decontaminated by washing in a 3% solution of phosphate free detergent (Decon 90) and rinsing with de-ionised water prior to assessing each monitoring well.

Due to technical difficulties onsite, the low-flow micro-purge pump system was not able to adequately sample MW2. A new dedicated bailer was lowered within the well to recover sufficient water volume for analysis.

8.3 Sample Handling Procedures

Once the samples had been recovered, they were labelled with the project code and a unique sample ID. The samples for chemical analysis were placed within chilled transport containers to begin the cool down process required prior to chemical analysis. The primary samples, intra-laboratory duplicate samples, trip spike and trip blank samples were transported under chain of custody procedures to Envirolab Services Pty Ltd, whilst the inter-laboratory duplicate samples were transported to SGS Australia Pty Ltd.

Upon receipt of the samples, a technician from the laboratories checked the condition of the samples to confirm the integrity of the sample container seals and that the samples were received in an appropriate condition.

9 Quality Assurance and Quality Control

9.1 Field Quality Measures

9.1.1 Standard Operating Procedures

Site works were conducted by an experienced Environmental Consultant on 08 May 2018 in accordance with the CSTS (2014) *Field Manual on Standard Operating Procedures for Environmental Sampling and Monitoring*. This includes but is not limited to; the methods of sampling, decontamination of sampling equipment, sample preparation and storage, the documentation of site conditions, and the completion of chain of custody documentation.

9.1.2 Duplicate Samples

Duplicate samples were recovered to analyse the precision and reproducibility of the conducted analysis. The duplicate samples were labelled with an identification number not known to the laboratory, and analysed in the same way as the primary samples. Duplicate samples are analysed by calculating the relative percentage difference (RPD) of the laboratory results for the duplicate and corresponding primary sample. The RPD is a method of normalising two values and allows a comparison between values. For this project, an RPD of 30% was considered acceptable. In cases where one (1) or both of the concentrations were less than 5

times the laboratory Limit of Reporting (LOR), an RPD of 100% was considered acceptable.

9.1.2.1 Soil RPD Results

Upon analysis, the following RPDs were in excess of the acceptance criteria:

- Zinc in BH1 0.5m and B1,
- Zinc in BH1 0.5m and S1,
- Chromium in BH10 0.5m and S2,
- Zinc in BH10 0.5m and S2.

Refer to Table H.

In regard to the RPD exceedances, variation between primary and duplicate samples are expected as the duplicate samples were discrete samples rather than split samples from a larger primary sample. As a conservative measure, the higher concentration was adopted as the guiding value in order to minimise the potential to underestimate the level of contamination present.

9.1.2.2 Groundwater RPD Results

Upon analysis, the following RPDs were in excess of the acceptance criteria:

- Arsenic in MW1 and S1,
- Chromium in MW1 and S1,
- Copper in MW1 and S1.

Refer to Table I.

In regard to the RPD exceedances, the concentrations detected were generally low, exacerbating the variation between samples. As a conservative measure, the higher concentration was adopted as the guiding value in order to minimise the potential to underestimate the level of contamination present.

9.1.3 Trip Spike

The trip spike sample assesses the loss of volatile compounds through field handling and transport procedures. The trip spike is a clean sand or water sample spiked with a known concentration of BTEX by the analytical laboratory. The sample is transported to and from the site with the primary samples, and is analysed to determine the percentage of BTEX recovered.

Upon analysis, the recovery rates for the soil trip spike were between 96% and 98% of the known concentration. The recovery rates for the water trip spike were between 75% and 90% of the known concentration. Therefore, the field and transport procedures were considered satisfactory for minimising the potential loss of volatile compounds from the primary samples.

Refer to Table J.

9.1.4 Trip Blank

The trip blank sample assesses the potential for the primary sample to be affected by external and environmental factors during transport between the site and laboratory. The trip blank sample consists of blank sand or water which is transported to and from the site and laboratory with the primary samples.

Upon analysis of the soil and water trip blank samples, no concentrations of BTEX were detected. As such, there is a minimal potential for cross-contamination to have occurred during the field and trip handling procedures. Refer to Table K.

9.1.5 Decontamination Check

The purpose of the rinsate sample is to provide data relating to the effectiveness of the decontamination process. The sample consists of laboratory supplied de-ionised water which is poured over a piece of sample equipment after decontamination and recovered for analysis.

No decontamination check samples were recovered or analysed. The use of dedicated sampling equipment and compliance with standard operating procedures were deemed sufficient for minimising the potential for cross-contamination to occur.

Table H: Soil RPD Results

Analyte	LOR[1]	LOR[2]	Concentrations (mg/kg)		RPD (%)	Concentrations (mg/kg)		RPD (%)	Concentrations (mg/kg)		RPD (%)	Concentrations (mg/kg)		RPD (%)
			BH1 0.5m	B1		BH1 0.5m	S1		BH10 0.5m	B2		BH10 0.5m	S2	
Arsenic	4	3	5	5	0	5	7	33	11	11	0	11	8	32
Cadmium	0.4	0.3	<0.4	<0.4	-	<0.4	<0.3	-	<0.4	<0.4	-	<0.4	<0.3	-
Chromium	1	0.3	19	20	5	19	18	5	27	24	12	27	15	**57**
Copper	1	0.5	6	6	0	6	6.5	8	2	3	40	2	2.8	33
Lead	1	1	20	16	22	20	15	29	15	15	0	15	13	14
Mercury	0.1	0.05	<0.1	<0.1	-	<0.1	<0.05	-	<0.1	<0.1	-	<0.1	<0.05	-
Nickel	1	0.5	6	5	18	6	2.3	89	4	3	29	4	1.6	86
Zinc	1	0.5	21	14	**40**	21	15	**33**	7	7	0	7	12	**53**
Total PAH	0.05	0.8	<0.05	<0.05	-	<0.05	<0.8	-	<0.05	<0.05	-	<0.05	<0.8	-
B(a)P TEQ	0.5	0.3	<0.5	<0.5	-	<0.5	<0.3	-	<0.5	<0.5	-	<0.5	<0.3	-
B(a)P	0.05	0.1	<0.05	<0.05	-	<0.05	<0.1	-	<0.05	<0.05	-	<0.05	<0.1	-
Benzene	0.2	0.1	<0.2	<0.2	-	<0.2	<0.1	-	<0.2	<0.2	-	<0.2	<0.1	-
Toluene	0.5	0.1	<0.5	<0.5	-	<0.5	<0.1	-	<0.5	<0.5	-	<0.5	<0.1	-
Ethyl-benzene	1	0.1	<1	<1	-	<1	<0.1	-	<1	<1	-	<1	<0.1	-
Xylene	1	0.3	<1	<1	-	<1	<0.3	-	<1	<1	-	<1	<0.3	-
Naphthalene	1	0.1	<1	<1	-	<1	<0.1	-	<1	<1	-	<1	0.2	-
TRH F1	25	25	<25	<25	-	<25	<25	-	<25	<25	-	<25	<25	-
TRH F2	50	25	<50	<50	-	<50	<25	-	<50	<50	-	<50	<25	-
TRH F3	100	90	<100	<100	-	<100	<90	-	<100	<100	-	<100	<90	-
TRH F4	100	120	<100	<100	-	<100	<120	-	<100	<100	-	<100	<120	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179 & SGS Australia Pty Ltd Analytical Report SE178970

1. *Laboratory Limit of Reporting for Primary and 'B' samples*
2. *Laboratory Limit of Reporting for 'S' samples*

Table I: Groundwater RPD Results

Analyte	LOR[1]	LOR[2]	Concentrations		RPD (%)	Concentrations		RPD (%)
			MW1	B1		MW1	S1	
Arsenic	1	1	1	1	0	1	5	**133**
Cadmium	0.1	0.1	<0.1	<0.1	-	<0.1	<0.1	-
Chromium	1	1	<1	<1	-	<1	2	**120**
Copper	1	1	1	1	0	1	5	**133**
Lead	1	1	<1	<1	-	<1	1	67
Mercury	0.05	0.1	<0.05	<0.05	0	<0.05	<0.1	-
Nickel	1	1	22	21	5	22	24	9
Zinc	1	5	45	43	5	45	48	6
Total PAH	1	1	1.5	2.0	29	1.5	2	29
B(a)P	1	0.1	<1	<1	-	<1	<0.1	-
Benzene	1	0.5	<1	<1	-	<1	<0.5	-
Toluene	1	0.5	<1	<1	-	<1	<0.5	-
Ethyl-benzene	1	0.5	<1	<1	-	<1	<0.5	-
Xylene	3	1.5	<3	<3	-	<3	<1.5	-
Naphthalene	1	0.5	<1	<1	-	<1	<0.5	-
TRH C_6-C_9	10	40	<10	<10	-	<10	<40	-
TRH C_{10}-C_{14}	50	50	<50	<50	-	<50	<50	-
TRH C_{15}-C_{28}	100	200	<100	<100	-	<100	<200	-
TRH C_{29}-C_{36}	100	200	<100	<100	-	<100	<200	-
TRH C_{10}-C_{36}	250	450	<250	<250	-	<250	<450	-
TRH F1	10	50	<10	<10	-	<10	<50	-
TRH F2	50	60	<50	<50	-	<50	<60	-
TRH F3	100	500	<100	<100	-	<100	<500	-
TRH F4	100	500	<100	<100	-	<100	<500	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191419 & SGS Australia Pty Ltd Analytical Report SE178971

1. *Laboratory Limit of Reporting for Primary and 'B' samples*
2. *Laboratory Limit of Reporting for 'S' samples*

Table J: Trip Spike Recovery

Sample	Benzene	Toluene	Ethyl-benzene	o-Xylene	m+p Xylene
Trip Spike (Soil)	98%	98%	96%	96%	96%
Trip Spike (Water)	75%	82%	85%	90%	88%
Assessment Criteria	70 – 130	70 – 130	70 – 130	70 – 130	70 – 130

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179 & 191419

Table K: Trip Blank Recovery

Sample ID	Unit of Measure	Benzene	Toluene	Ethyl-Benzene	o-Xylene	m+p Xylene
Trip Blank (Soil)	mg/kg	<0.2	<0.5	<1	<1	<2
Trip Blank (Water)	µg/L	<1	<1	<1	<1	<2
Acceptable Range		No Detection Above Laboratory Limit of Reporting				

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179 & 191419

9.2 Laboratory Quality Assessment

9.2.1 Quality Assurance

Envirolab Services Pty Ltd and SGS Australia Pty Ltd are accredited by NATA (NATA accreditation numbers 2901 and 2562) for chemical testing services. SGS Australia Pty Ltd and Envirolab Services Pty Ltd have quality systems compliant to ISO/IEC 17025 and work to documented procedures in accordance with this standard. This includes but is not limited to; participation in proficiency testing, use of certified reference materials and statistical analysis of quality control data.

9.2.2 Quality Control

Quality control samples are included in the laboratories' testing schedules at or above frequencies stipulated within the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)* and in accordance with their NATA accreditation. These include the use of calibration standards, calibration verification standards, method blanks, matrix spikes and duplicates, laboratory control samples, surrogates and internal standards.

CSTS has reviewed the QA/QC performance of Envirolab Services Pty Ltd and SGS Australia Pty Ltd in relation to chemical analysis. CSTS has compared the results of the QA/QC performance to the laboratory acceptance criteria specific to the analyte and QC measure.

Upon review of Envirolab Services Pty Ltd QA/QC data relating to soil samples, the following failures were identified;

- Laboratory duplicate – Mercury,
- Laboratory duplicate – Copper,
- Laboratory duplicate – Nickel.

An explanation for the potential cause of the RPD failures was not provided by Envirolab Services Pty Ltd. CSTS notes that 'triplicate' sample results were provided in the analytical data for the corresponding samples. To minimise the potential for error, CSTS has adopted the higher concentration of the primary and triplicate sample pairing.

All QA/QC measures were compliant within the analysis of water samples by Envirolab Services Pty Ltd.

Upon review of SGS Australia Pty Ltd Statement of QA/QC performance relating to soil samples, the following failures were identified;

- Laboratory Duplicate – Cadmium,
- Matrix Spike Recovery – Mercury,
- Matrix Spike Recovery – Chromium,
- Matrix Spike Recovery – Copper,
- Matrix Spike Recovery – Nickel,
- Matrix Spike Recovery – Lead,
- Matrix Spike Recovery – Zinc.

In regard to the laboratory duplicate RPD failure of Cadmium and matrix spike recovery failures of Nickel, Lead and Zinc, these exceedances were attributed to sample heterogeneity. The failure of the Matrix Spike recovery – Mercury, Chromium and Copper, were a consequence of matrix interference.

Upon further review of the QA/QC results, the failures were attributable to samples from unrelated projects included within the batch for analysis.

Upon review of SGS Australia Pty Ltd Statement of QA/QC performance relating to groundwater samples, all DQO objectives were met.

CSTS considers the data is reliable and useable for the purpose of this assessment.

10 QA/QC Data Evaluation

Data Quality Indicators (DQI) are used to document and quantify compliance, or otherwise with the requirements of the Data Quality Objectives (DQO). They are used to assess the reliability of the field procedures and analytical results. The DQIs are Completeness, Comparability, Representativeness, Precision, and Accuracy. Evaluation of the DQIs is documented in Table L.

Table L: Data Quality Indicators

DQI	Consideration		Compliance
Completeness[1]	Field	All critical locations sampled	A total of thirty-one (31) soil samples were collected from fourteen (14) boreholes excavated within the site. A total of three (3) groundwater samples were recovered from three (3) existing monitoring wells within the nursery area.
		All samples collected (from grid and at depth)	All samples were collected in accordance with the sampling plan
		SOPs appropriate and complied with	All samples were collected in accordance with relevant guidelines, industry practices, and Australian Standards
		Experienced sampler	Samples were recovered by suitably qualified and experienced samplers
		Documentation correct	All required documentation was completed including written site records and photographic logs
	Laboratory	All critical samples analysed according to SAQP	All of the recovered samples were analysed by NATA accredited laboratories
		All analytes analysed according to SAQP	Each recovered sample was analysed for the analytes required by the SAQPs in accordance with the context for which the sample was recovered

DQI	Consideration		Compliance
		Appropriate methods and LORs	Envirolab Services and SGS Australia Pty Ltd are suitably qualified NATA accredited laboratories, therefore the appropriate methods and LORs were adopted for the testing, as outlined within the analytical reports
		Sample documentation complete	Appropriate chain of custody documentation was completed. Sample receipts were provided detailing the condition of the samples upon receipt
		Sample holding times complied with	All samples were analysed within the appropriate holding times as detailed in *NEPM 2013*
Comparability[2]	Field	Same SOPs used on each occasion	Each sample was recovered in accordance with the SOPs
		Experienced sampler	Samples were recovered by suitably qualified and experienced sampler
		Climatic conditions	The samples were collected over a period of less than nine (9) hours, therefore the climatic conditions are deemed to have a negligible impact on the comparability of the samples.
		Same types of samples collected	The type of samples collected was consistent
	Laboratory	Sample analytical methods used	Envirolab Services and SGS Australia Pty Ltd are suitably qualified NATA accredited laboratories, therefore the appropriate methods were adopted for the testing, as outlined within the analytical reports
		Sample LORs	Envirolab Services and SGS Australia Pty Ltd are suitably qualified NATA accredited laboratories, therefore the appropriate LORs were adopted for the testing, as outlined within the analytical reports
		Same laboratories	Envirolab Services Pty Ltd conducted the analysis of all of the primary samples as well as the intra-laboratory duplicate samples. SGS Australia Pty Ltd conducted the analysis of the inter-laboratory duplicate samples
		Same units	The same units were used for the respective analytes
esent ative[3]	Field	Appropriate media sampled according to SAQP	All samples were recovered in accordance with the SAQP

DQI	Consideration		Compliance
		All media identified in SAQP	The investigation was limited to the analysis of the soil and groundwater
	Laboratory	All samples analysed according to SAQP	Envirolab Services and SGS Australia Pty Ltd are suitably qualified NATA accredited laboratories, therefore all samples were analysed in accordance with the appropriate requirements
Precision[4]	Field	SOPs appropriate and complied with	All samples were recovered in accordance with the SOPs
	Laboratory	Laboratory and inter-laboratory duplicates	Laboratory and inter-laboratory duplicates are analysed as a component of the standard operating procedures of Envirolab Services and SGS Australia Pty Ltd in accordance with the conditions of their NATA accreditation
		Field duplicates	Intra-laboratory and inter-laboratory soil duplicate samples were recovered at a rate of approximately 6% respectively. Intra-laboratory and inter-laboratory groundwater duplicate samples were recovered at a rate of approximately 33% respectively. The duplicate samples were labelled with sample IDs not known to the laboratories and analysed as detailed within Section 9.1.
		Laboratory-prepared volatile trip spikes	A laboratory-prepared volatile trip spike was prepared and analysed by Envirolab Services Pty Ltd as detailed within Section 9.1
Accuracy[5]	Field	SOPs appropriate and complied with	All samples were recovered in accordance with the SOPs
	Laboratory	Analysis of field blanks, rinsate blanks, reagent blanks, method blanks, matrix spikes, matrix spike duplicates, surrogate spikes, reference materials, laboratory control samples, and laboratory-prepared spikes	Laboratory quality assurance and quality control samples were analysed by Envirolab Services and SGS Australia Pty Ltd, as summarised in Section 9.2.

Notes: SOP = Standard Operating Procedures; SAQP = Sampling, Analysis and Quality Plan; LOR = Limit of Reporting

1. *A measure of the amount of useable data (expressed as %) from a data collection activity.*
2. *The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.*

3. *The confidence (expressed qualitatively) that data are representative of each media present on the site.*
4. *A quantitative measure of the variability (or reproducibility) of data.*
5. *A quantitative measure of the closeness of reported data to the true value.*

11 Assessment Criteria

11.1 Soil Assessment Criteria

CSTS has been advised that the proposed land use is for retail use to operate a fresh food grocer, along with two (2) additional retail premises and a nursery/café/flower store. CSTS considers this land use complies with the description of commercial/industrial land use within the NEPM 2013.

A publicly accessible orchard is to be created within the north-west of the site, and a native garden bordering the east and south of the site. As a conservative approach, the results from analysis within these areas are to be assessed against the residential land use with accessible gardens.

Therefore, the results of the laboratory analysis for samples pertaining to the retail area have been compared to the following criteria (refer to Table M):

- Health-based Investigation Levels for commercial/industrial land use,
- Health Screening Levels for vapour intrusion in commercial/industrial land, adopting values for sands at 0 - <1m,
- Management Limits for TRH fractions F1-F4 in soils, for commercial and industrial land,
- Generic Ecological Investigation and Screening Levels for commercial/industrial space for aged contamination.

Table M: HIL D Assessment Criteria

Analyte	Unit	HIL D[1]	HSL D[2]	EIL/ESL	Management Limit[3]
Priority Metals					
Arsenic	mg/kg	3,000	–	160	–
Cadmium	mg/kg	900	–	–	–
Chromium	mg/kg	3,600	–	–	–
Copper	mg/kg	240,000	–	–	–
Lead	mg/kg	1,500	–	1,800	–
Mercury	mg/kg	180	–	–	–
Nickel	mg/kg	6,000	–	–	–
Zinc	mg/kg	400,000	–	–	–
Polycyclic Aromatic Hydrocarbons					
Total PAH	mg/kg	4,000	–	–	–
B(a)P	mg/kg	–	–	1.4	–
B(a)P TEQ[4]	mg/kg	40	–	–	–
Volatile Organic Compounds					
Benzene	mg/kg	–	3	75	–
Toluene	mg/kg	–	NL	135	–
Ethyl-benzene	mg/kg	–	NL	165	–
Xylene	mg/kg	–	230	180	–

Analyte	Unit	HIL D[1]	HSL D[2]	EIL/ESL	Management Limit[3]
Naphthalene	mg/kg	–	NL	370	–
MTBE	µg/L	–	–	–	–
TCE	mg/kg	–	–	–	–
1,1,1-TCA	mg/kg	–	–	–	–
PCE	mg/kg	–	–	–	–
Cis-1,2-dichloroethene	mg/kg	–	–	–	–
Vinyl Chloride	mg/kg	–	–	–	–
Total Recoverable Petroleum Hydrocarbons					
TRH F1	mg/kg	–	260	215	700
TRH F2 (>C_{10}-C_{16}) – Naphthalene	mg/kg	–	–	–	–
TRH F2 (>C_{10}-C_{16}) (inc. Naphthalene)	mg/kg	–	–	170	1,000
TRH F3	mg/kg	–	–	1,700	3,500
TRH F4	mg/kg	–	–	3,300	10,000
Organochlorine Pesticides					
DDT + DDE + DDD	mg/kg	3,600	–	640[5]	–
Aldrin + Dieldrin	mg/kg	45	–	–	–
Chlordane	mg/kg	530	–	–	–
Endosulfan	mg/kg	2,000	–	–	–
Endrin	mg/kg	100	–	–	–
Heptachlor	mg/kg	50	–	–	–
HCB	mg/kg	80	–	–	–
Methoxychlor	mg/kg	2,500	–	–	–
Total OCP	mg/kg	-	-	-	-
Polychlorinated Biphenyls					
PCB	mg/kg	7	–	–	–
Phenols					
Total Phenols	mg/kg	240,000	–	–	–
Other Pesticides					
Chlorpyrifos	mg/kg	2,000	–	–	–
Bifenthrin	mg/kg	4,500	–	–	–
Total OPP	mg/kg	–	–	–	–
Synthetic Pyrethroids	mg/kg	–	–	–	–
Carbamates					
Carbaryl	mg/kg	–	–	–	–
Carbofuran	mg/kg	–	–	–	–
Molinate	mg/kg	–	–	–	–
Asbestos					
Asbestos	mg/kg	No Detection[6]	–	–	–
Asbestos – ACM (>7mm)	%w/w	–	0.05	–	–

Analyte	Unit	HIL D[1]	HSL D[2]	EIL/ESL	Management Limit[3]
Asbestos – FA/AF	%w/w	–	0.001	–	–

Adapted from Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: NL = Not Limiting; ND = No Detection

1. *Commercial / industrial, includes premises such as shops, offices, factories and industrial sites.*
2. *Investigation level for vapour intrusion, sand 0m to <1m*
3. *Adopted from Commercial and Industrial Management Limits for coarse soils*
4. *Calculated by multiplying the concentration of each carcinogenic PAH in the sample by its potency relative to B(a)P and summing these products*
5. *DDT value only*
6. *No quantitative analysis was conducted for Asbestos, therefore a criterion of 'No Detection' has been adopted*

The results of the laboratory analysis of samples relating to the publicly accessible orchards and native garden areas have been compared to the following criteria (refer to Table N):

- Health-based Investigation Levels for residential land use with accessible gardens,
- Health Screening Levels (HSLs) for vapour intrusion for low density residential, adopting values for sands at 0 - <1m,
- Management Limits for TRH fractions F1-F4 in soils, for residential, parkland and public open space,
- Generic Ecological Investigation and Screening Levels for urban residential and public open space for aged contamination (EIL/ESLs).

Table N: HIL A Assessment Criteria

Analyte	Unit	HIL A[1]	HSL A[2]	EIL/ESL	Management Limits[3]
Priority Metals					
Arsenic	mg/kg	100	–	100	–
Cadmium	mg/kg	20	–	–	–
Chromium	mg/kg	100	–	–	–
Copper	mg/kg	6,000	–	–	–
Lead	mg/kg	300	–	1,100	–
Mercury	mg/kg	10	–	–	–
Nickel	mg/kg	400	–	–	–
Zinc	mg/kg	7,400	–	–	–
Polycyclic Aromatic Hydrocarbons					
PAH	mg/kg	300	–	–	–
B(a)P	mg/kg	–	–	0.7	–
B(a)P TEQ[4]	mg/kg	3	–	–	–
Volatile Organic Compounds					
Benzene	mg/kg	–	0.5	50	–
Toluene	mg/kg	–	160	85	–
Ethyl-benzene	mg/kg	–	55	70	–
Xylene	mg/kg	–	40	105	–
Naphthalene	mg/kg	–	3	170	–
MTBE	µg/L	–	–	–	–
TCE	mg/kg	–	–	–	–
1,1,1-TCA	mg/kg	–	–	–	–
PCE	mg/kg	–	–	–	–
Cis-1,2-dichloroethene	mg/kg	–	–	–	–
Vinyl Chloride	mg/kg	–	–	–	–
Total Recoverable Petroleum Hydrocarbons					
TRH F1	mg/kg	–	45	180	700
TRH F2 ($>C_{10}$-C_{16}) – Naphthalene	mg/kg	–	110	–	–
TRH F2 ($>C_{10}$-C_{16}) (inc. Naphthalene)	mg/kg	–	–	120	1,000
TRH F3	mg/kg	–	NL	300	2,500
TRH F4	mg/kg	–	NL	2,800	10,000
Organochlorine Pesticides					
DDT + DDE + DDD	mg/kg	240	–	180[5]	–
Aldrin + Dieldrin	mg/kg	6	–	–	–
Chlordane	mg/kg	50	–	–	–
Endosulfan	mg/kg	270	–	–	–
Endrin	mg/kg	10	–	–	–
Heptachlor	mg/kg	6	–	–	–
HCB	mg/kg	10	–	–	–
Methoxychlor	mg/kg	300	–	–	–

Total OCP					
Polychlorinated Biphenyls					
PCB	mg/kg	1	–	–	–
Phenols					
Total Phenols	mg/kg	3,000	–	–	–
Other Pesticides					
Chlorpyrifos	mg/kg	160	–	–	–
Bifenthrin	mg/kg	600	–	–	–
Total OPP	mg/kg	–	–	–	–
Synthetic Pyrethroids	mg/kg	–	–	–	–
Carbamates					
Carbaryl	mg/kg	–	–	–	–
Carbofuran	mg/kg	–	–	–	–
Molinate	mg/kg	–	–	–	–
Asbestos					
Asbestos	mg/kg	No Detection[6]	–	–	–
Asbestos – ACM (>7mm)	%w/w	-	0.01	ND	ND
Asbestos – FA/AF	%w/w	-	0.001	ND	ND

Adapted from Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: NL = Not Limiting; ND = No Detection

1. *Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry)), also includes childcare centres, preschools and primary schools.*
2. *HSL A & HSL B – Investigation level for vapour intrusion, sand 0m to <1m*
3. *Adopted from Residential, Parkland and Public Open Space Management Limits for coarse soils*
4. *Calculated by multiplying the concentration of each carcinogenic PAH in the sample by its potency relative to B(a)P and summing these products*
5. *DDT Only*
6. *No quantitative analysis was conducted for Asbestos, therefore a criterion of 'No Detection' has been adopted*

11.2 Groundwater Assessment Criteria

In order to assess the condition of the groundwater, the results of analysis have been compared to the following criteria (refer to Table O);

- Groundwater Investigation Levels (GILs) for Marine Waters and Drinking Water – NEPM 2013,
- Groundwater Health Screening Levels (GHSL) for vapour intrusion for low-high residential land use, adopting values for sand at 2m - <4m.

Table O: Groundwater Assessment Criteria

Analyte	UOM	LOR	Marine Waters	Drinking Water	HSL - A Vapour Intrusion
Metals & Metalloids					
Arsenic	µg/L	1	-	10	-
Cadmium	µg/L	0.1	0.7[3]	2	-
Chromium	µg/L	1	4.4	50	-
Copper	µg/L	1	1.3	2,000	-
Lead	µg/L	1	4.4	10	-
Mercury	µg/L	0.1	0.1[3]	1	-
Nickel	µg/L	1	7	20	-
Zinc	µg/L	5	15	3,000[8]	-
Chlorinated Alkanes					
1,1,1,2-tetrachloroethane	µg/L	0.5	-	-	-
1,1,1-trichloroethane	µg/L	0.5	-	-	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-	-	-
1,1,2-trichloroethane	µg/L	0.5	1,900	-	-
1,1-dichloroethane	µg/L	0.5	-	-	-
1,2,3-trichloropropane	µg/L	0.5	-	-	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-	-	-
1,2-dichloroethane	µg/L	0.5	-	3	-
1,2-dichloropropane	µg/L	0.5	-	-	-
1,3-dichloropropane	µg/L	0.5	-	-	-
2,2-dichloropropane	µg/L	0.5	-	-	-
Bromodichloromethane	µg/L	0.5	-	250	-
Dibromochloromethane	µg/L	0.5	-		-
Chloroform	µg/L	0.5	-		-
Carbon Tetrachloride	µg/L	0.5	-	3	-
Chloroethane	µg/L	5	-	-	-
Chloromethane	µg/L	5	-	-	-
Dichlorodifluromethane	µg/L	5	-	-	-
Trichlorofluoromethane	µg/L	1	-	-	-
Chlorinated Alkenes					
1,1,2,2-tetrachloroethylene	µg/L	0.5	70	50	-
1,1-dichloroethene	µg/L	0.5	-	30	-
1,1-dichloropropene	µg/L	0.5	-	-	-
2-chlorotoluene	µg/L	0.5	-	-	-
4-chlorotoluene	µg/L	0.5	-	-	-
Cis-1,2-dichloroethene	µg/L	0.5	0.5	60	-
Trans-1,2-dichloroethene	µg/L	0.5	0.5		-
Cis-1,3-dichloropropene	µg/L	0.5	-	100	-
Trans-1,3-dichloropropene	µg/L	0.5	-		-
Trichloroethene	µg/L	0.5	330[6]	-	-
Vinyl Chloride	µg/L	0.3	100[6]	0.3[4]	-
Miscellaneous Hydrocarbons					
1,2-dibromoethane	µg/L	0.5	-	-	-
Bromoform	µg/L	0.5	-	-	-
Bromomethane	µg/L	10	-	-	-
Dibromomethane	µg/L	0.5	-	-	-

Analyte	UOM	LOR	Marine Waters	Drinking Water	HSL - A Vapour Intrusion
Monocyclic Aromatic Hydrocarbons					
1,2,4-trimethyl benzene	µg/L	0.5	-	-	-
1,3,5-trimethyl benzene	µg/L	0.5	-	-	-
4,isopropopyl Toluene	µg/L	0.5	-	-	-
Bromobenzene	µg/L	0.5	-	-	-
Isopropylbenzene	µg/L	0.5	-	-	-
n-butyl benzene	µg/L	0.5	-	-	-
n-propyl benzene	µg/L	0.5	-	-	-
Sec-butyl benzene	µg/L	0.5	-	-	-
Styrene	µg/L	0.5	30	30	-
Tert-butyl benzene	µg/L	0.5	-	-	-
Polycyclic Aromatic Hydrocarbons					
Naphthalene	µg/L	0.02	50	-	NL
Acenaphthylene	µg/L	0.01	-	-	-
Acenaphthene	µg/L	0.01	-	-	-
Fluorene	µg/L	0.01	-	-	-
Phenanthrene	µg/L	0.01	0.6[6]	-	-
Anthracene	µg/L	0.01	0.1[6]	-	-
Fluoranthene	µg/L	0.01	1[6]	-	-
Pyrene	µg/L	0.01	-	-	-
Benzo(a)anthracene	µg/L	0.01	-	-	-
Chrysene	µg/L	0.01	-	-	-
Benzo(b,j+k)fluoranthene	µg/L	0.02	-	-	-
Benzo(a)pyrene	µg/L	0.01	-	0.01	-
Indeno(1,2,3-c,d)pyrene	µg/L	0.01	-	-	-
Dibenzo(a,h)anthracene	µg/L	0.01	-	-	-
Benzo(g,h,i)perylene	µg/L	0.01	-	-	-
Carcinogenic PAH (B(a)P TEQ)	µg/L	0.012	-	-	-
Total PAH (Sum)	µg/L	0.1	-	-	-
BTEX					
Benzene	µg/L	0.5	50	1	800
Toluene	µg/L	0.5	180	800	NL
Ethyl-benzene	µg/L	0.5	5	300	NL
m+p- Xylene	µg/L	0.5	200	600	NL
o-Xylene	µg/L	0.5	350		
Chlorinated Benzenes					
1,2,3-trichlorobenzene	µg/L	0.5	-	30	-
1,2,4-Trichlorobenzene	µg/L	0.5	20		-
1,2-dichlorobenzene	µg/L	0.5	-	1,500	-
1,3-dichlorobenzene	µg/L	0.5	-	-	-
1,4-dichlorobenzene	µg/L	0.3	-	40	-
TRH NEPM 1999					
TRH C_6-C_9	µg/L	20	-	-	-
TRH C_{10}-C_{14}	µg/L	50	-	-	-
TRH C_{15}-C_{28}	µg/L	100	-	-	-
TRH C_{29}-C_{36}	µg/L	50	-	-	-
TRH C_{10}-C_{36}	µg/L	100	-	-	-
TRH NEPM 2013					
TRH F1	µg/L	20	-	-	1,000
TRH F2	µg/L	60	-	-	1,000
TRH F3	µg/L	200	-	-	-
TRH F4	µg/L	100	-	-	-
Phenols					
Total Phenolics	µg/L	50	400	-	-
Polychlorinated Biphenyls					
Arochlor 1016	µg/L	2	-	-	-
Arochlor 1221	µg/L	2	-	-	-

Analyte	UOM	LOR	Marine Waters	Drinking Water	HSL - A Vapour Intrusion
Arochlor 1232	µg/L	2	-	-	-
Arochlor 1242	µg/L	2	-	-	-
Arochlor 1248	µg/L	2	-	-	-
Arochlor 1254	µg/L	2	-	-	-
Arochlor 1260	µg/L	2	-	-	-
Total PCBs	µg/L	2	-	-	-

1. *Australian Drinking Water Guidelines (NHMRC 2016)*
2. *95% Marine Trigger Values for Marine Water (ANZECC/ARMCANZ 2000)*
3. *99% species protection as recommended by ANZECC/ARMCANZ 2000*
4. *Laboratory limit of reporting is adopted as the criterion in absence of EPA endorsed assessment value*
5. *Laboratory limit of reporting is adopted as this greater than the criterion*
6. *Indicative Interim Working Level (ANZECC/ARMCANZ 2000)*
7. *Vapour intrusion level for HSL A and HSL B in sand 2-4m (NEPM 2013) as a conservative approach*
8. *Value for Aesthetic consideration*

12 Results

The laboratory analysis of the recovered samples was undertaken by experienced technicians from Envirolab Services Pty Ltd and SGS Australia Pty Ltd in accordance with relevant Australian Standards and the conditions of their NATA accreditation.

12.1 Soil Analysis – Proposed Retail Area

The laboratory analysis detected Arsenic, Chromium, Copper, Lead, Nickel, Zinc, BTEX and Total PAH within the recovered soil samples. All of the detected concentrations were within the respective HIL/HSL D criteria for commercial/industrial land-use.

The detected concentrations were also within the applicable EIL/ESL criteria for commercial/industrial land-use.

No concentrations of Cadmium, Mercury, TRH F1 – F4, B(a)P, B(a)P TEQ, VOCs, Phenols, PCBs, OCPs, other Pesticides, Carbamates or Asbestos were detected within any of the recovered samples above the respective LORs.

Refer to Table P.

12.2 Soil Analysis – Proposed Public Orchard Area

The laboratory analysis detected Arsenic, Chromium, Copper, Lead, Nickel, Zinc, TRH F2, TRH F3, TRH F4, B(a)P and Total PAH within the recovered soil samples. All of the detected concentrations were within the respective HIL A criteria for residential land-use with accessible soils.

With the exception of TRH F3 within BH9, all of the detected concentrations were also within the applicable EIL/ESL criteria for urban residential and public open space. The concentration of TRH F3 within BH9 exceeded the respective EIL/ESL criteria.

No concentrations of Cadmium, Mercury, BTEXN, TRH F1, VOCs, B(a)P TEQ, Phenols, OCPs, other pesticides, Carbamates or Asbestos were detected within any of the recovered samples above the respective LORs.

Refer to Table Q.

12.3 Groundwater Analysis

The laboratory analysis detected concentrations of Arsenic, Chromium, Copper, Nickel, Zinc and Acenaphthene (PAH) within the recovered groundwater samples. The concentrations of Arsenic and Chromium were within the respective groundwater criteria. Acenaphthene (PAH) does not have assessment criteria for comparison.

The concentrations of Copper, Nickel and Zinc within all samples exceeded the respective Marine Waters criteria. Furthermore, the concentrations of Nickel in MW1 and MW3 exceeded the respective Drinking Water criteria.

No concentrations of Cadmium, Lead, Mercury, Chlorinated Alkanes, Chlorinated Alkenes, Miscellaneous Hydrocarbons, Monocyclic Aromatic Hydrocarbons, BTEX, TRH, Chlorinated Benzenes, Phenols or PCBs were detected within any of the recovered samples above the respective LORs.

Refer to Table R.

Table P: Laboratory Analysis – Proposed Retail Area

Borehole ID	Depth (m)	Priority Metals								TRH					VOCs										
		Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	TRH F1 (mg/kg)	TRH F2(mg/kg)	TRH F2 (inc. Naphthalene) (mg/kg)	TRH F3 (mg/kg)	TRH F4 (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Naphthalene (mg/kg)	MTBE (µg/L)	TCE (mg/kg)	1,1,1-TCA (mg/kg)	PCE (mg/kg)	Cis-1,2-dichloroethene (mg/kg)	Vinyl Chloride (mg/kg)
LOR		4	0.4	1	1	1	0.1	1	1	25	50	50	100	100	0.2	0.5	1	1	0.1	1	1	1	1	1	1
BH1	0.5	5	<0.4	19	6	20	<0.1	6	21	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	7	<0.4	38	8	17	<0.1	10	21	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	2.5	4	<0.4	8	3	15	<0.1	<1	1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH3	0.5	5	<0.4	19	5	33	<0.1	4	25	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	5	<0.4	26	5	17	<0.1	8	14	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH4	0.5	<4	<0.4	11	55	41	<0.1	3	47	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	6	<0.4	27	7	18	<0.1	8	17	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	2.5	6	<0.4	33	4	15	<0.1	8	18	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH5	0.5	4	<0.4	17	2	14	<0.1	3	13	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	5	<0.4	29	4	17	<0.1	10	21	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	2.5	4	<0.4	9	1	13	<0.1	<1	2	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH6	0.5	8	<0.4	35	8	14	<0.1	18	18	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	<4	<0.4	5	14	19	<0.1	1	2	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH10	0.5	11	<0.4	27	2	15	<0.1	4	12[2]	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	0.1	<1	<1	<1	<1	<1	<1
	1.5	<4	<0.4	5	<1	14	<0.1	<1	<1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	2.5	<4	<0.4	9	6	17	<0.1	<1	1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH11	0.5	4	<0.4	15	<1	15	<0.1	2	4	<25	<50	<50	<100	<100	1	<0.5	<1	<1	0.2	<1	<1	<1	<1	<1	<1
	1.5	6	<0.4	8	<1	6	<0.1	<1	<1	<25	<50	<50	<100	<100	2	5	1	6	0.2	<1	<1	<1	<1	<1	<1
	2.3	<4	<0.4	7	7	10	<0.1	<1	1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH12	1.0	7	<0.4	13	<1	14	<0.1	<1	2	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.8	<4	<0.4	15	2	12	<0.1	<1	<1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH13	1.0	6	<0.4	27	3	13	<0.1	6	15	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	2.0	5	<0.4	6	<1	15	<0.1	<1	<1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH14	0.5	<4	<0.4	18	3	15	<0.1	6	12	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	5	<0.4	10	<1	15	<0.1	<1	1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	2.5	<4	<0.4	5	<1	23	<0.1	<1	<1	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
HIL D		3,000	900	3,600	240,000	1,500	180	6,000	400,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL D		-	-	-	-	-	-	-	-	260	NL	-	-	-	3	NL	NL	230	NL	-	-	-	-	-	-
EIL/ESL		160	-	-	-	1,800	-	-	-	215	-	170	1,700	3,300	75	135	165	180	370	-	-	-	-	-	-
Management Limit		-	-	-	-	-	-	-	-	700	-	1,000	3,500	10,000	-	-	-	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179, SGS Australia Pty Ltd Analytical Report SE178970, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)

Notes: Shaded = Exceeds HSL D Criteria; Bold = Exceeds EIL/ESL Criteria; Italicised = Exceeds Management Limit; NL = Not Limiting

1. *Value adopted from intra-laboratory duplicate sample*
2. *Value adopted from inter-laboratory duplicate sample*
3. *Value adopted from laboratory 'triplicate' sample*

Table P: Laboratory Analysis – Proposed Retail Area (Continued)

Borehole ID	Depth (m)	PAH			Phenol	OCPs									Other Pesticides				PCBs	Carbamates			Asbestos		
		B(a)P (mg/kg)	B(a)P TEQ (mg/kg)	Total PAH (mg/kg)	Phenols (Total) (mg/kg)	DDT+DDE+DDD (mg/kg)	Aldrin & Dieldrin (mg/kg)	Chlordane (mg/kg)	Endosulfan (mg/kg)	Endrin (mg/kg)	Heptachlor (mg/kg)	HCB (mg/kg)	Methoxychlor (mg/kg)	OCP (Total) (mg/kg)	Chlorpyrifos(mg/kg)	Bifenthrin (mg/kg)	OPP (Total) (mg/kg)	Sythnetic Pyrethroids (Total) (mg/kg)	PCBs (Total) (mg/kg)	Carbaryl (mg/kg)	Carbofuran (mg/kg)	Molinate (mg/kg)	Visible Asbestos Present	ACM (>7mm) (%w/w)	FA/AF Asbestos
LOR		0.05	0.5	0.05	5	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.1	1.8	0.1	0.5	1.2	7	0.1	0.5	0.5	0.5	-	0.01	0.001
BH1	0.5	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH3	0.5	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH4	0.5	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH5	0.5	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH6	0.5	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH10	0.5	<0.05	<0.5	0.1	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH11	0.5	<0.05	<0.5	0.2	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2.3	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH12	1.0	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.8	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-			
BH13	1.0	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	2.0	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH14	0.5	<0.05	<0.5	0.1	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
	2.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
HIL D		-	40	4,000	240,000	3,600	45	530	2,000	100	50	80	2,500	-	2,000	4,500	-	-	7	-	-	-			
HSL D		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EIL/ESL D		1.4	-	-	-	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limit		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179, SGS Australia Pty Ltd Analytical Report SE178970, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)

Notes: Shaded = Exceeds HSL D Criteria; Bold = Exceeds EIL/ESL Criteria; Italicised = Exceeds Management Limit; NL = Not Limiting

1. *Value adopted from intra-laboratory duplicate sample*
2. *Value adopted from inter-laboratory duplicate sample*
3. *Value adopted from laboratory 'triplicate' sample*

Table Q: Laboratory Analysis - Public Orchard & Native Garden Area

Borehole ID	Depth (m)	Priority Metals								TRH					VOCs											
		Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	TRH F1 (mg/kg)	TRH F2(mg/kg)	TRH F2 (inc. Naphthalene) (mg/kg)	TRH F3 (mg/kg)	TRH F4 (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	Naphthalene (mg/kg)	MTBE (µg/L)	TCE (mg/kg)	1,1,1-TCA (mg/kg)	PCE (mg/kg)	Cis-1,2-dichloroethene (mg/kg)	Vinyl Chloride (mg/kg)
LOR		4	0.4	1	1	1	0.1	1	1	25	50	50	100	100	0.2	0.5	1	1	0.1	1	1	1	1	1	1
BH2	0.5	5	<0.4	20	5	16	<0.1	4	52	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
	1.5	6	<0.4	27	4	15	<0.1	5	17	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH7	0.2	14	<0.4	32	42	10	<0.1	39	54	<25	<50	<50	<100	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH8	0.2	5	<0.4	32	10[3]	22	<0.1	6	19	<25	<50	<50	220	<100	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
BH9	0.2	16	<0.4	38	28[3]	23	<0.1	39[3]	37	<25	69	69	**340**	130	<0.2	<0.5	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
HIL A		100	20	100	6,000	300	10	400	7,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL A		-	-	-	-	-	-	-	-	45	110	-	-	-	0.5	160	55	40	3	-	-	-	-	-	-
EIL/ESL A		100	-	-	-	1,100	-	-	-	180	-	120	300	2,800	50	85	70	105	170	-	-	-	-	-	-
Management Limit		-	-	-	-	-	-	-	-	700	-	1,000	2,500	10,000	-	-	-	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179, SGS Australia Pty Ltd Analytical Report SE178970, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)

Notes: Shaded = Exceeds HSL A Criteria; Bold = Exceeds EIL/ESL Criteria; Italicised = Exceeds Management Limit; NL = Not Limiting

1. *Value adopted from intra-laboratory duplicate sample*
2. *Value adopted from inter-laboratory duplicate sample*
3. *Value adopted from laboratory 'triplicate' sample*

Table P: Laboratory Analysis – Proposed Public Orchard & Native Garden Area (Continued)

Borehole ID	Depth (m)	PAH			Phenol	OCPs									Other Pesticides				PCBs	Carbamates			Asbestos		
		B(a)P (mg/kg)	B(a)P TEQ (mg/kg)	Total PAH (mg/kg)	Phenols (Total) (mg/kg)	DDT+DDE+DDD (mg/kg)	Aldrin & Dieldrin (mg/kg)	Chlordane (mg/kg)	Endosulfan (mg/kg)	Endrin (mg/kg)	Hepthaclor (mg/kg)	HCB (mg/kg)	Methoxychlor (mg/kg)	OCP (Total) (mg/kg)	Chlorpyrifos(mg/kg)	Bifenthrin (mg/kg)	OPP (Total) (mg/kg)	Sythnetic Pyrethroids (Total) (mg/kg)	PCBs (Total) (mg/kg)	Carbaryl (mg/kg)	Carbofuran (mg/kg)	Molinate (mg/kg)	Visible Asbestos Present	ACM (>7mm) (%w/w)	FA/AF Asbestos
LOR		0.05	0.5	0.05	5	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.1	1.8	0.1	0.5	1.2	7	0.1	0.5	0.5	0.5	-	0.01	0.001
BH2	0.5	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
	1.5	<0.05	<0.5	<0.05	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-
BH7	0.2	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
BH8	0.2	0.1	<0.5	1.9	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
BH9	0.2	<0.05	<0.5	<0.05	<5	<0.1	<0.2	<0.2	<0.3	<0.1	<0.1	<0.1	<0.1	<1.8	<0.1	<0.5	<1.2	<7	<0.1	<0.5	<0.5	<0.5	No	<0.01	<0.001
HIL A		-	3	300	3,000	240	6	50	270	10	6	10	300	-	160	600	-	-	1	-	-	-			
HSL A		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EIL/ESL A		0.7	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management Limit		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191179, SGS Australia Pty Ltd Analytical Report SE178970, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)

Notes: Shaded = Exceeds HSL A Criteria; Bold = Exceeds EIL/ESL Criteria; Italicised = Exceeds Management Limit; NL = Not Limiting

1. *Value adopted from intra-laboratory duplicate sample*
2. *Value adopted from inter-laboratory duplicate sample*
3. *Value adopted from laboratory 'triplicate' sample*

Table R: Groundwater Sample Analysis (ug/L)

	Metals and Metalloids								Chlorinated Alkanes																			
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Bromodichloromethane	Dibromochloromethane	Chloroform	Carbon tetrachloride	Chloroethane	Chloromethane	Dichlorodifluromethane	Trichlorofluoromethane
LOR	1	0.1	1	1	1	0.05	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	10	10	10
MW1	5[10]	<0.1	2[11]	5[10]	<1	<0.05	**22**	45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<10	<10
MW2	<1	<0.1	<1	11	<1	<0.05	15	77	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<10	<10
MW3	1	<0.1	<1	4	<1	<0.05	**57**	22	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<10	<10
Drinking Water[1]	10	2	50	2,000	10	1	20	3,000[8]	-	-	-	-	-	-	-	3	-	-	-		250		3	-	-	-	-
Marine Aquatic Ecosystem[2]	-	0.7[3]	4.4	1.3	4.4	0.1[3]	7	15	-	-	-	1,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HSL A Vapour Intrusion[7]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191419, SGS Australia Pty Ltd Analytical Report SE178971, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: Bold = Exceeds Drinking Water Criteria; Shaded = Exceeds Marine Trigger Value; Italicised = Exceeds HSL A Criteria; NL = Not Limiting

1. *Australian Drinking Water Guidelines (NHMRC 2011)(NEPM 2013)*
2. *95% Marine Trigger Values for Marine Water (ANZECC/ARMCANZ 2000) (NEPM 2013)*
3. *99% species protection as recommended by ANZECC/ARMCANZ 2000*
4. *Laboratory limit of reporting is adopted as the criterion in absence of EPA endorsed assessment value*
5. *Laboratory limit of reporting is adopted as this greater than the criterion*
6. *Indicative Interim Working Level (ANZECC/ARMCANZ 2000)*
7. *Vapour intrusion level for HSL A and HSL B in Sand 2-4m (NEPM 2013)*
8. *Value for aesthetic consideration*
9. *Value adopted from intra-laboratory duplicate due to RPD exceedance*
10. *Value adopted from inter-laboratory duplicate due to RPD exceedance*

Table R: Groundwater Sample Analysis (µg/L) (Continued)

	Chlorinated Alkenes											Miscellaneous Hydrocarbons				Monocyclic Aromatic Hydrocarbons									
	Tetrachloroethene	1,1-Dichloroethene	1,1-dichloropropene	2-chlorotoluene	4-chlorotoluene	Cis-1,2-dichloroethene	Trans-1,2-dichloroethene	Cis-1,3-dichloropropene	Trans-1,3-dichlorpropene	Trichloroethene	Vinyl Chloride	1,2-dibromoethane	Bromoform	Bromomethane	Dibromomethane	1,2,4-trimethyl benzene	1,3,5-trimethyl benzene	4-isopropopyl Toluene	Bromobenzene	Isopropylbenzene	n-butyl benzene	n-propyl benzene	Sec-butyl benzene	Styrene	Tert-butyl benzene
LOR	1	1	1	1	1	1	1	1	1	1	1	1	1	10	1	1	1	1	1	1	1	1	1	1	1
MW1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Drinking Water[1]	50	30	-	-	-	60		100		-	0.3[5]			-	-	-	-	-	-	-	-	-	-	30	-
Marine Aquatic Ecosystem[2]	70	-	-	-	-	0.5	0.5	-	-	330[6]	100[6]	-	-	-	-	-	-	-	-	-	-	-	-	30	-
HSL A Vapour Intrusion[7]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191419, SGS Australia Pty Ltd Analytical Report SE178971, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: Bold = Exceeds Drinking Water Criteria; Shaded = Exceeds Marine Trigger Value; Italicised = Exceeds HSL A Criteria; NL = Not Limiting

11. *Australian Drinking Water Guidelines (NHMRC 2011)(NEPM 2013)*
12. *95% Marine Trigger Values for Marine Water (ANZECC/ARMCANZ 2000) (NEPM 2013)*
13. *99% species protection as recommended by ANZECC/ARMCANZ 2000*
14. *Laboratory limit of reporting is adopted as the criterion in absence of EPA endorsed assessment value*
15. *Laboratory limit of reporting is adopted as this greater than the criterion*
16. *Indicative Interim Working Level (ANZECC/ARMCANZ 2000)*
17. *Vapour intrusion level for HSL A and HSL B in Sand 2-4m (NEPM 2013)*
18. *Value for aesthetic consideration*
19. *Value adopted from intra-laboratory duplicate due to RPD exceedance*
20. *Value adopted from inter-laboratory duplicate due to RPD exceedance*

Table R: Groundwater Sample Analysis (µg/L) (Continued)

	Polycyclic Aromatic Hydrocarbons																	BTEX					Chlorinated Benzenes					
	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene	Carcinogenic PAH (as B(a)P TEQ)	Total PAH (sum)	Benzene	Toluene	Ethyl-benzene	m+p-Xylene	o-Xylene	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Chlorobenzene
LOR	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	5	1	1	1	1	2	1	1	1	1	1	1	1
MW1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<5	2	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1
MW2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<5	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1
MW3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<5	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1
Drinking Water[1]	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	1	800	300	600		30		1,500	-	40	300
Marine Aquatic Ecosystem[2]	50	-	-	-	0.6[6]	0.01[6]	1[6]	-	-	-	-	-	-	-	-	-	-	500	180	5	200	350	-	20	-	-	-	-
HSL A Vapour Intrusion[7]	NL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	800	NL	NL	NL		-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191419, SGS Australia Pty Ltd Analytical Report SE178971, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: Bold = Exceeds Drinking Water Criteria; Shaded = Exceeds Marine Trigger Value; Italicised = Exceeds HSL A Criteria; NL = Not Limiting

21. *Australian Drinking Water Guidelines (NHMRC 2011)(NEPM 2013)*
22. *95% Marine Trigger Values for Marine Water (ANZECC/ARMCANZ 2000) (NEPM 2013)*
23. *99% species protection as recommended by ANZECC/ARMCANZ 2000*
24. *Laboratory limit of reporting is adopted as the criterion in absence of EPA endorsed assessment value*
25. *Laboratory limit of reporting is adopted as this greater than the criterion*
26. *Indicative Interim Working Level (ANZECC/ARMCANZ 2000)*
27. *Vapour intrusion level for HSL A and HSL B in Sand 2-4m (NEPM 2013)*
28. *Value for aesthetic consideration*
29. *Value adopted from intra-laboratory duplicate due to RPD exceedance*
30. *Value adopted from inter-laboratory duplicate due to RPD exceedance*

Table R: Groundwater Sample Analysis (µg/L) (Continued)

	TRH NEPM 1999					TRH NEPM 2013				Phenols
	TRH C_6-C_9	TRH C_{10}-C_{14}	TRH C_{15}-C_{28}	TRH C_{29}-C_{36}	TRH C_{10}-C_{36}	TRH F1	TRH F2	TRH F3	TRH F4	Total Phenolics
LOR	10	50	100	100	250	10	50	100	100	50
MW1	<10	<50	<100	<100	<250	<10	<50	<100	<100	<0.05
MW2	<10	<50	<100	<100	<250	<10	<50	<100	<100	<0.05
MW3	<10	<50	<100	<100	<250	<10	<50	<100	<100	<0.05
Drinking Water[1]	-	-	-	-	-	-	-	-	-	-
Marine Aquatic Ecosystem[2]	-	-	-	-	-	-	-	-	-	400
HSL A Vapour Intrusion[7]	-	-	-	-	-	1,000	1,000	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191419, SGS Australia Pty Ltd Analytical Report SE178971, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: Bold = Exceeds Drinking Water Criteria; Shaded = Exceeds Marine Trigger Value; Italicised = Exceeds HSL A Criteria; NL = Not Limiting

1. *Australian Drinking Water Guidelines (NHMRC 2011)(NEPM 2013)*
2. *95% Marine Trigger Values for Marine Water (ANZECC/ARMCANZ 2000) (NEPM 2013)*
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7. *Vapour intrusion level for HSL A and HSL B in Sand 2-4m (NEPM 2013)*
8. *Value for aesthetic consideration*
9. *Value adopted from intra-laboratory duplicate due to RPD exceedance*
10. *Value adopted from inter-laboratory duplicate due to RPD exceedance*

Table R: Groundwater Sample Analysis (µg/L) (Continued)

	Polychlorinated Biphenyls							
	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Total PCBs
LOR	2	2	2	2	2	2	2	2
MW1	<2	<2	<2	<2	<2	<2	<2	<2
MW2	<2	<2	<2	<2	<2	<2	<2	<2
MW3	<2	<2	<2	<2	<2	<2	<2	<2
Drinking Water[1]	-	-	-	-	-	-	-	-
Marine Aquatic Ecosystem[2]	-	-	-	-	-	-	-	-
HSL A Vapour Intrusion[7]	-	-	-	-	-	-	-	-
HSL D Vapour Intrusion[8]	-	-	-	-	-	-	-	-

Adapted from Envirolab Services Pty Ltd Certificate of Analysis 191419, SGS Australia Pty Ltd Analytical Report SE178971, NEPC National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)
Notes: Bold = Exceeds Drinking Water Criteria; Shaded = Exceeds Marine Trigger Value; Italicised = Exceeds HSL A Criteria; NL = Not Limiting

1. *Australian Drinking Water Guidelines (NHMRC 2011)(NEPM 2013)*
2. *95% Marine Trigger Values for Marine Water (ANZECC/ARMCANZ 2000) (NEPM 2013)*
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8. *Value for aesthetic consideration*
9. *Value adopted from intra-laboratory duplicate due to RPD exceedance*
10. *Value adopted from inter-laboratory duplicate due to RPD exceedance*

13 Site Characterisation

The laboratory analysis of the soil samples detected concentrations of Arsenic, Chromium, Copper, Lead, Nickel, Zinc, BTEX, TRH, PAH within the recovered samples. Based on the location of samples in comparison to the proposed land-use setting (retail occupancies and publicly accessible orchard and native gardens), all of the detected concentrations were within the respective HILs for the proposed development.

Within the proposed public orchard and native garden area, one (1) sample (BH9 0.2m) recorded a TRH F3 value in excess of the respective ESL criterion. Though this value exceeded the criterion, based on the proposed development and the creation of a publicly accessible orchard at this location, minor excavations and replacement with suitable growing medium will be required. The importation of suitable growing medium is considered adequate to alleviate the potential ecological impact arising from the minor elevated concentration of TRH F3. No other ecological risks were identified within the soil samples.

Laboratory analysis of the groundwater samples detected concentrations of Arsenic, Chromium, Copper, Nickel, Zinc and PAH. The detected concentrations of Copper, Nickel and Zinc within all samples exceeded the Marine Waters criteria, whilst Nickel within MW1 and MW3 also exceeded the drinking water criteria. CSTS considers the concentrations of Copper and Zinc may be attributable to potentially leaking water supply infrastructure. The detected concentrations of Arsenic and Chromium were within the respective Marine Waters and Drinking Water criteria.

The elevated concentration of Acenaphthene (PAH) was detected in MW1 down-gradient of a suspected UST, though was not recorded in MW3, further down-gradient, indicating that the concentration was not persisting beyond the site boundary. The source of the elevated concentration is considered to likely be remnant from the suspected UST, which would be removed from site during redevelopment works for the creation of basement parking. Removal of the suspected source during the redevelopment would likely result in a decrease in the PAH concentrations.

Though elevated concentrations of Nickel were encountered throughout the site, no groundwater wells were identified within 500m of the site, limiting the potential for the wider community to access the groundwater. The receiving marine waters are also a considerable distance from the site and may result in the concentrations dissipating. Additionally, the groundwater within the surrounding area is generally not considered a source of drinking water.

It is anticipated that the existing groundwater monitoring wells are to be removed during the redevelopment of the site, further limiting access to the groundwater. A sealed basement design would also eliminate future site users from accessing the groundwater. As such, the pathway between potentially impacted groundwater and possible receptors is considered incomplete. Therefore, the condition of the groundwater is considered to not impact upon the suitability of the site for the proposed development.

14 Conclusions and Recommendations

Based on the conducted assessment, CSTS has concluded that the site known as 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW is of a **suitable condition**, from a contamination perspective, for the proposed land use, and does not pose an unacceptable risk to human health or the surrounding environment in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (Amended 2013)*.

CSTS recommends that, during the process of development, should any indicators of potential contamination be encountered, this office is contacted immediately for further assessment. Should there be any change in the proposed development, all conclusions and recommendations are to be reviewed. Specifically, if the proposed development will involve an alternate final land use, the findings of this report may require revision and further assessment may be necessary.

15 Limitations

This report pertains to the site known as 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW at the time of the visual assessment and sample recovery. Should there be any variations in the site conditions since the abovementioned date (such as the importation of fill, chemical spillage, illegal dumping etc.), further assessment will be required. Should any suspect material be encountered, we recommend that this office be contacted immediately for further assessment. Neither Compaction & Soil Testing Services Pty Ltd, nor any other reputable firm can give unqualified warranties on the condition of the site and subsurface conditions.

While Compaction & Soil Testing Services Pty Ltd takes all reasonable due care and diligence, we offer no absolute warranty for the material below or between the locations sampled and investigated. Unless otherwise stated, Compaction & Soil Testing Services Pty Ltd has made no effort to verify the validity of the information gathered from external sources, and assumes it provides a reliable foundation for the assessment. Compaction & Soil Testing Services Pty Ltd does not assume any liability for site conditions unobserved or inaccessible at the time of the investigation.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described within this report, then all recommendations are to be reviewed. No other warranty, expressed or implied, is made or intended. Copyright of this report remains the property of Compaction & Soil Testing Services Pty Ltd.

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Should you have any queries about the methodology, findings, conclusions or recommendations of this Combined Phase 1 & 2 Environmental Site Assessment, please do not hesitate to contact our office on (02) 9675 7522.

16 References

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Appendix A

Site Drawings

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Location** 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW *Source: Nearmap; Imagery Date: 20/01/2018*	Drawing No:	AA 001
	Approved:	CR			
	Date:	22/05/2018		Project Code:	E1256
	Scale:	Not to scale			

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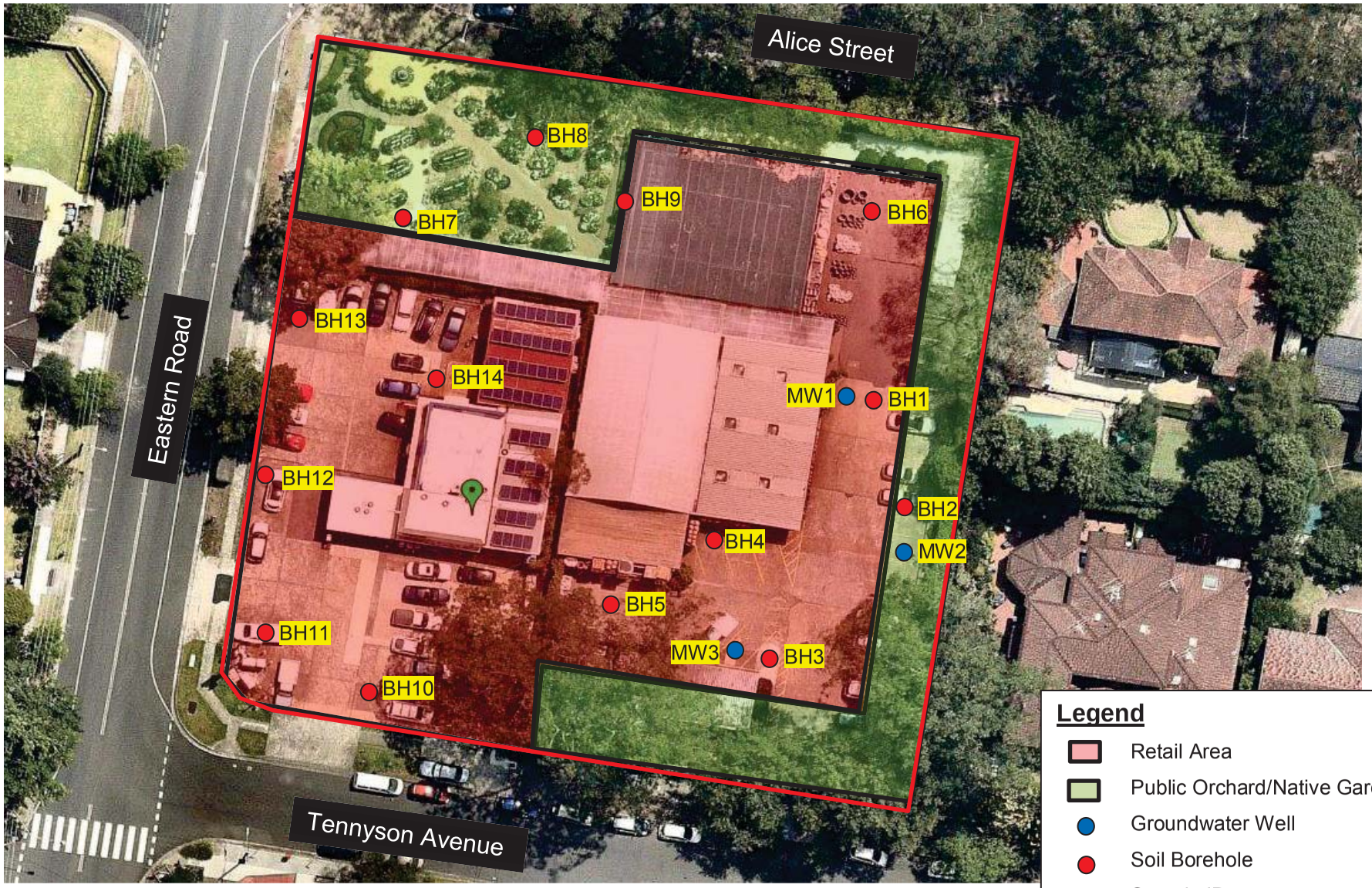
C.S.T.S.	Drawn:	CR	**Sampling Locations** 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW *Source: Nearmap; Imagery Date: 20/01/2018*	Drawing No:	AA 002
	Approved:	CR			
	Date:	22/05/2018		Project Code:	E1256
	Scale:	Not to scale			



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C.S.T.S.	Drawn:	CR	**Sampling Locations & Development Areas** 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW *Source: Nearmap; Imagery Date: 20/01/2018*	Drawing No:	AA 003
	Approved:	CR			
	Date:	22/05/2018		Project Code:	E1256
	Scale:	Not to scale			

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Appendix B

Site Photographs

A: View of nursery taken from driveway, facing north

B: View of nursery area taken from near north-west corner, facing south

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA004
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

C: View of nursery taken from Eastern Road, facing north-east

D: View of nursery taken from Alice Street, facing south-east

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA005
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

E: View of nursery taken from Alice Street, facing south

F: View of shade-cloth covered café area within nursery, facing south-west

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA006
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

G: Photograph of disused UST within nursery carpark and monitoring well (MW1) in the background

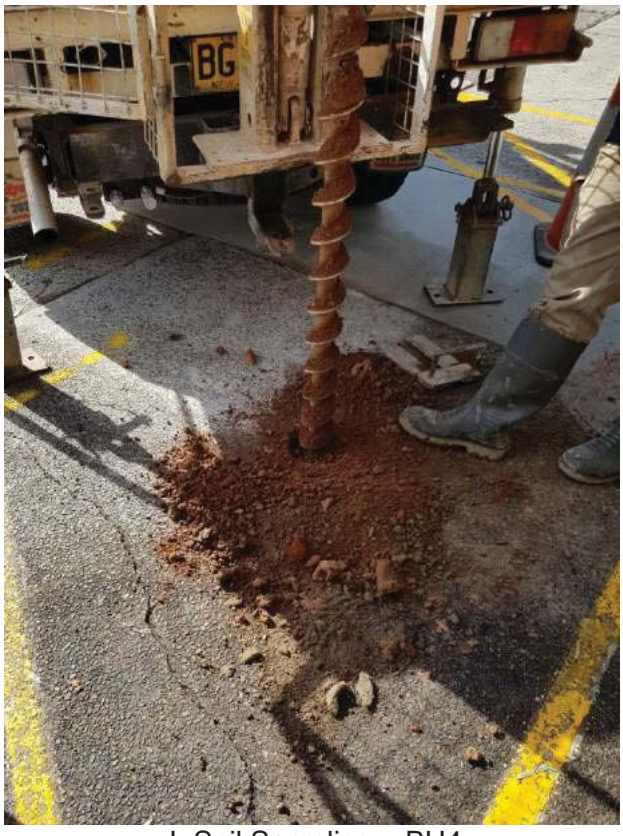
H: Disused UST fill points within nursery carpark

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA007
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

I: Groundwater Sampling Equipment in MW3



J: Soil Sampling – BH4

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA008
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

K: Hand-Auger – BH7

L: Close-up of material condition – BH7

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA009
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

M: BH9 location

N: Material Condition – BH9

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA010
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

O: Service station site condition, taken from southern boundary facing north

P: Service station site condition, taken from southern boundary facing west

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA011
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

Q: Electrical transformer located within south-western corner of service station

R: BH11 location

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA012
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

S: Service station site condition, taken from Eastern Road, facing east

T: Service station site condition, taken from Eastern Road (northern driveway), facing east

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA013
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

U: Disused UST within service station site

V: Material condition – BH10

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA014
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

W: Material condition – BH11

X: Material condition – BH13

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA015
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

Y: Mechanical workshop condition

Z: Stockpiled used tyres

Photographs taken by CSTS Environmental Consultant on 08/05/2018

Compaction & Soil Testing Services Pty Ltd

C.S.T.S.	Drawn:	CR	**Site Photographs** 45-47 Tennyson Avenue & 105 Eastern Road Turramurra NSW	Drawing No:	AA016
	Approved:	CR			
	Date:	28/05/2018		Project Code:	E1256
	Scale:	N/A			

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Appendix C

Borehole Logs

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH01
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : DM CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.15m			
				0.50m B1 BH1 0.5 S1				SILTY CLAY: Yellow Brown.			0.50: 0.0ppm
					1.0			1.00m			
			Not Encountered					CLAY: Red Brown. with Ironstone banding.			
				1.50m BH1 1.5				1.50m			1.50: 0.0ppm
								CLAY: Mottled Grey.			
					2.0						
				2.50m BH1 2.5				2.50m			2.50: 0.0ppm
								SANDSTONE / SHALE: Grey and Brown			
								2.70m			
								BOREHOLE BH01 TERMINATED AT 2.70 m Refusal			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH02
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : DM CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.15m			
				0.50m BH2 0.5				SILTY CLAY: Red Brown.			0.50: 0.0ppm
			Not Encountered					0.80m			
					1.0			CLAY: Grey Brown.			
				1.50m BH2 1.5							1.50: 0.0ppm
								2.00m			
					2.0			BOREHOLE BH02 TERMINATED AT 2.00 m Target depth			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH03
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : DM CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.15m			
				0.50m BH3 0.5				SILTY CLAY: Red Brown.			0.50: 0.0ppm
			Not Encountered					0.80m			
					1.0			CLAY: Grey Brown.			
				1.50m BH3 1.5							1.50: 0.0ppm
								2.00m			
					2.0			BOREHOLE BH03 TERMINATED AT 2.00 m Target depth			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH04
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : DM CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.15m SILT: Brown. trace sand.			
				0.50m BH4 0.5				0.50m SILTY CLAY: Yellow Brown.			0.50: 2.8ppm
								0.90m CLAY: Red Brown.			
			Not Encountered		1.0						
				1.50m BH4 1.5							1.50: 3.8ppm
					2.0						
				2.50m BH4 2.5							2.50: 0.5ppm
					3.0			3.00m BOREHOLE BH04 TERMINATED AT 3.00 m Target depth			
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH05
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : DM CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.15m SILTY CLAY: Brown Grey.			
				0.50m BH5 0.5							0.50: 0.0ppm
								0.80m CLAY: Brown Grey.			
					1.0						
			Not Encountered	1.50m BH5 1.5							1.50: 0.0ppm
					2.0			2.00m CLAY: Red mottled Grey.			
				2.50m BH5 2.5							2.50: 0.0ppm
								2.80m CLAY SHALY: Grey.			
					3.0			3.00m BOREHOLE BH05 TERMINATED AT 3.00 m Target depth			
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH06
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL						
PROGRESS												
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			0.03m ASPHALT 0.13m CRUSHED ROCK CRUSHED SANDSTONE 0.28m CLAY: Brown Grey.			
			Not Encountered	0.50m BH6 0.5				0.80m CLAY: Grey and Yellow Grey.			0.50: 0.0ppm
				1.50m BH6 1.5	1.0						1.50: 0.0ppm
					2.0			2.00m BOREHOLE BH06 TERMINATED AT 2.00 m Target depth			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH07
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Hand Auger MOUNTING : CONTRACTOR : SDI DRILLER : JS

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			Not Encountered	0.20m BH7 0.2	0.0			GRAVEL: Dark Grey. 0.20m			
								BOREHOLE BH07 TERMINATED AT 0.20 m Refusal			0.20: 0.0ppm
					1.0						
					2.0						
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH08
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Hand Auger MOUNTING : CONTRACTOR : SDI DRILLER : JS

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			Not Encountered	0.20m BH8 0.2	0.0			0.05m SAND: Yellow Brown. SILTY CLAY: Dark Brown Grey. with gravel. 0.30m			0.20: 0.0ppm
								BOREHOLE BH08 TERMINATED AT 0.30 m Refusal			
					1.0						
					2.0						
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH09
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Hand Auger MOUNTING : CONTRACTOR : SDI DRILLER : JS

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			Not Encountered	0.20m BH9 0.2	0.0			CLAY: Dark Brown Red.			0.20: 0.0ppm
								0.30m BOREHOLE BH09 TERMINATED AT 0.30 m Refusal			
					1.0						
					2.0						
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH10
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.13m			0.13: Minor hydrocarbon odour noted
				0.50m B2 BH10 0.5 S2				CLAY: Brown Grey.			0.50: 4.7ppm
								0.90m			0.90: Minor hydrocarbon odour noted
			Not Encountered		1.0			CLAY: Light Grey White. trace sand.			
				1.50m BH10 1.5							1.50: 0.1ppm
					2.0			2.00m			
								SANDSTONE: Light Grey			
				2.50m BH10 2.5				2.60m			2.50: 0.0ppm
								BOREHOLE BH10 TERMINATED AT 2.60 m Refusal			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH11
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
			Not Encountered	0.50m BH11 0.5	0.0			CONCRETE			
								0.13m			
								0.18m SAND: Yellow Brown.			0.18: Hydrocarbon odour noted
								SILTY SAND: Dark Brown.			
								0.33m			0.33: Hydrocarbon odour noted
								CLAY: Grey White.			
					1.0						0.50: 66.5ppm
				1.50m BH11 1.5							1.50: 64.9ppm
								1.80m			
								SANDSTONE: Yellow White			1.80: Hydrocarbon odour noted
					2.0						
				2.30m BH11 2.3				2.30m			2.30: 44.2ppm
								BOREHOLE BH11 TERMINATED AT 2.45 m Refusal			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

AGS 3_1 RTA 1_1 LIB 06.1 CSTS 1.0.GLB Log RTA NON-CORE DRILL HOLE E1256 LOGS.GPJ <<DrawingFile>> 23/05/2018 12:43

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH12
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE 0.13m			
								0.18m SAND: Yellow Brown.			
								SILTY SAND: Dark Brown. 0.33m			
								CLAY: Yellow Brown mottled Grey.			
			Not Encountered	1.00m BH12 1.0	1.0			1.20m			1.00: 0.0ppm
								CLAY: Grey. 1.70m			
								SANDSTONE: Red Brown			
				2.00m BH12 2.0	2.0			2.00m BOREHOLE BH12 TERMINATED AT 2.00 m Refusal			2.00: 0.0ppm
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

AGS 3_1 RTA 1_1 LIB 06.1 CSTS 1.0.GLB Log RTA NON-CORE DRILL HOLE E1256 LOGS.GPJ <<DrawingFile>> 23/05/2018 12:43

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH13
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE 0.13m			
								CLAY: Orange Brown. 0.50m			
								CLAY: Red Brown.			
			Not Encountered	1.00m BH13 1.0	1.0			1.20m			1.00: 0.0ppm
								CLAY: Grey. 1.80m			
								SANDSTONE: Grey Yellow			
				2.00m BH13 2.0	2.0			2.20m			2.00: 0.0ppm
								BOREHOLE BH13 TERMINATED AT 2.20 m Target depth			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH14
FILE / JOB NO : E1256
SHEET : 1 OF 1

PROJECT : Environmental Site Assessment
LOCATION : 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra NSW

POSITION : SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Light Vehicle CONTRACTOR : SDI DRILLER : DM

DATE STARTED : 8/5/18 DATE COMPLETED : 8/5/18 DATE LOGGED : 8/5/18 LOGGED BY : CR CHECKED BY : DM

DRILLING						MATERIAL					
PROGRESS											
DRILLING & CASING	WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			CONCRETE			
								0.13m SILTY SAND: Grey Brown.			
								0.25m CLAY: Orange Brown Grey.			0.25: Hydrocarbon odour noted
				0.50m BH14 0.5							0.50: 14.4ppm
					1.0						
			Not Encountered					1.20m CLAY: Red Orange Grey.			1.20: Mild hydrocarbon odour noted
				1.50m BH14 1.5							1.50: 12.3ppm
					2.0			2.10m SANDSTONE: Light Grey White			2.10: Very minor hydrocarbon odour noted
				2.50m BH14 2.5							2.50: 1.1ppm
								2.80m BOREHOLE BH14 TERMINATED AT 2.80 m Refusal			
					3.0						
					4.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

C.S.T.S.
Compaction & Soil Testing Services Pty Ltd
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Appendix D

Groundwater Stabilisation Parameter Field Sheets

Groundwater Stabilisation Parameter Sheet

Client: WINSTON LANGLEY		Job No.:	E1256
Project: 45-47 TENNYSON AVE, TURRAMURRA		Well No.:	mw 1
Location: PHASE 1&2 ESA		Height (m ~~AHD~~):	5.2m deep.

WELL FINISH

X	Gatic Cover		Standpipe		PVC Pipe

WELL PURGE DETAILS

Method:	Low flow micro purge	SWL – Before:	1.8m
Date:	08/05/2018	Time – Before:	07:00
Undertaken By:	CR	Total Vol Removed:	8L.
Pump Type:	bladder	PID (ppm):	1.8ppm

PURGING/SAMPLING MEASUREMENTS

Time (min)	Volume (L)	SWL (m)	Temp (°C)	pH	EC (µS/cm)	Eh (mV)	DO (ppm)	Turbidity (NTUs)
				+/- 0.05	+/- 3%	+/- 10 mV	+/- 10%	+/- 10%
0	0	1.8	12.4	4.94	972	138	8.16	-
5	-	-	16.9	5.02	956	72	2.99	
12	5	2.7	17.8	5.03	1038	60	1.03	
17	5.5	3.2	18.5	5.05	1022	59	0.98	
25	8	3.4	18.4	5.04	1054	59	0.97	

Tested By: CR.	Remarks: VERY TURBID. RED BROWN (RUST) COLOURING

Groundwater Stabilisation Parameter Sheet

Client: WINSTON LANGLEY		Job No.:	E125G
Project: PHASE 1 & 2 ESA		Well No.:	MW2
Location: TURRAMURRA.		Height (~~m~~ AHD):	5.6m deep
WELL FINISH			
X Gatic Cover	Standpipe		PVC Pipe
WELL PURGE DETAILS			
Method:	Low flow micropurge	SWL – Before:	~~2.6~~ 2.6
Date:	08/05/18	Time – Before:	07:50
Undertaken By:	CR	Total Vol Removed:	-
Pump Type:	BLADDER	PID (ppm):	0.9m

PURGING/SAMPLING MEASUREMENTS

Time (min)	Volume (L)	SWL (m)	Temp (°C)	pH	EC (µS/cm)	Eh (mV)	DO (ppm)	Turbidity (NTUs)
				+/- 0.05	+/- 3%	+/- 10 mV	+/- 10%	+/- 10%
0	-	3.2	-	-	-	-	-	-
	TECHNICAL DIFFICULTIES WITH PUMP RESULTED IN INSUFFICIENT WATER/PRESSURE TO RAISE TO SURFACE FOR SAMPLING.							
	ALTERNATIVE STRATEGY OF DIRECT BAILER USED.							
	SUFFICIENT WATER QUANTITY FOR SAMPLE RECOVERED.							

Tested By: CR	Remarks: MODERATELY TURBID - RED BROWN (RUST) COLOURING

Groundwater Stabilisation Parameter Sheet

Client: WINSTON LANGLEY		Job No.:	E1256.
Project: PHASE 1 & 2 ESA		Well No.:	MW3
Location: TURRAMURRA		Height ~~(m AHD)~~:	5.3m deep.

WELL FINISH					
X	Gatic Cover		Standpipe		PVC Pipe

WELL PURGE DETAILS			
Method:	LOW FLOW MICROPURGE	SWL – Before:	3.1m.
Date:	08/05/2018	Time – Before:	08:40
Undertaken By:	CR	Total Vol Removed:	8.5L
Pump Type:	BLADDER	PID (ppm):	0.0

PURGING/SAMPLING MEASUREMENTS

Time (min)	Volume (L)	SWL (m)	Temp (°C)	pH	EC (µS/cm)	Eh (mV)	DO (ppm)	Turbidity (NTUs)
-	-	-	-	+/- 0.05	+/- 3%	+/- 10 mV	+/- 10%	+/- 10%
0	-	3.1	20.2	4.81	412	64	2.68	
5	2	-	20.7	4.71	427	59	1.53	
10	3	4.3	21.2	4.63	421	52	0.95	
15	5	4.6	21.0	4.57	413	45	1.02	
20	7	4.8	21.3	4.57	403	49	1.10	
25.	8.5	-	20.7	4.59	409	48	1.05	

Tested By: CR	Remarks: SLIGHTLY TURBID.

C.S.T.S.
Compaction & Soil Testing Services Pty Ltd
1/78 Owen Street, GLENDENNING NSW 2761 • ABN 44 106 976 738
Phone: 02 9675 7522 Fax: 02 9675 7544
Email: office@csts.net.au Web: www.csts.net.au

Appendix E

Equipment Calibration Certificates

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Certification Report – TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	pH 7.00 / pH 4.00	7.00 pH	4.00 pH	315066/312725	☑
Conductivity	12.88mS/cm	0.00 mS/cm	12.88 mS/cm	316592	☑
TDS	36 ppk	0 ppk	36 ppk	313394	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.00 ppm in Sodium Sulphite	8.75 ppm Saturation in Air	5656(ss) 306207(DI)	☑

Check only

Redox (ORP) *	Electrode operability test	240mV +/- 10%	233 mV	314147(A) 315895(B)	☑

* This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading.

☑ Battery Status 100% (min 7.2V)
☑ Electrical Safety Tag attached (AS/NZS 3760)
☐ Temperature 21.9 °C
☐ Electrodes Cleaned and checked

Tag No: 000201

Valid to: 07/03/2018

Date: 07/05/2018

Signed: [signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	90FLMV Unit. Ops check/Battery status: 8.0
☑	☐	pH sensor with wetting cap, 5m
☑	☐	Conductivity/TDS/Temperature K=10 sensor, 5m
☑	☐	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
☑	☐	Redox (ORP) sensor with wetting cap, 5m
☑	☐	Power supply 240V to 12V DC 200mA
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Syringe with storage solution for pH and ORP sensors
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 07/05/2018

Signed: [signature]

TFS Reference		Return Date: / /	
Customer Reference		Return Time:	
Equipment ID	90FLMVSR	Condition on return:	
Equipment Serial No.	TS120		

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Report - MiniRAE 3000 PID

This Gas Meter has been performance checked and calibrated as follows:

Lamp	Compound	Concentration	Zero	Span	Traceability Lot #	Pass?
10.6 eV	Isobutylene	100 ppm	0 ppm	100 ppm	389761	☑

Alarm Limits

High	100 ppm
Low	50 ppm

Bump Test

Date	Target Gas	Reading	Pass?
07/05/2018	100 ppm	99.4 ppm	☑

☑ Battery Status 100%
☑ 10 minutes test complete
☑ Spare battery status (Min 5.5 volts)
☑ Electrical Safety Tag attached (AS/NZS 3760)

Tag No: 000432

Valid to: 13/06/2018

☐ Performance check (pump, lamp, sensor)
☑ Data cleared
☑ Filters checked

Date: 07/05/2018

Signed: [signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	MiniRAE 2000 PID / Operational Check / Battery Status 100%
☑	☐	Lamp 10.6 eV, Compound Set to: Isobutylene, C/factor: 1
☑	☐	Protective yellow rubber boot
☑	☐	Inlet probe (attached to PID)
☑	☐	Spare water trap filter(s) Qty 2
☑	☐	Charger 240V to 12V1250mA
☑	☐	Cradle and Travel Charger
☑	☐	Instruction Manual behind foam on the lid of case "
☑	☐	Quick Guide Sheet behind foam on the lid of case "
☑	☐	Spare Alkaline Battery Compartment with batteries
☑	☐	Inline Moisture trap Filter Guide Laminated
☑	☐	Calibration regulator & tubing (optional)
☒	☐	Data cable and Software CD (optional)
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 07/05/2018

Signed: [signature]

TFS Reference	CS008801	Return Date:	/ /
Customer Reference		Return Time:	
Equipment ID	PID3000- 17	Condition on return:	
Equipment Serial No.	592- 914209		

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Report - Heron Interface Meter

This Meter has been performance checked / calibrated* as follows:

Cleaned/Tested **Pass?** ✓

Probe ✓

Tape/Reel ✓

✓ Performance Test & Battery Voltage Check (8.7 v) 8.0v minimum

Date: 07/05/2018 Checked by: Jerry

Signed: J.

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
✓			Operations Check OK
✓			Spare 9V Battery
✓			Operating Guide
✓			Probe Cleaning Brush
			Decon
✓			Carry Bag / Box

Processors Signature/ Initials J.

Quote Reference	CS008801	Condition on return
Customer Ref		
Equipment ID	~~HOIL 60~~ DT60SK	
Equipment serial no.	26346	
Return Date	/ /	
Return Time		

ThermoFisher SCIENTIFIC

Equipment Report – Micropurge Kit (MP15)

This system has been performance checked as follows:

Sample Pro Pump		
☐ Components Cleaned / checked	☐ Ops check	
☐ MP15 Controller	☐ Included in kit	☐ Not included in kit
☐ Components Cleaned / checked	☐ Ops check	
☐ Battery check – On/Off	☐ Flow response	

Date: 07/05/2018 Checked by: Dave O'Neill

Signed:

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☑	☐	☐	MP15 Control & Power Pack
☑	☐	☐	CO2 cylinder (installed in MP15 backpack) 5683
☑	☐	☐	Gas regulator
☑	☐	☐	Tube cutter
☑	☐	☐	Quick Start Guide
☑	☐	☐	MP15 Users Guide + Pump operating instructions
☑	☐	☐	Sample Pro Stainless Steel Pump ID: 9516BG
☑	☐	☐	Bladder x 2
☑	☐	☐	Flow cell ID: FC500-21
☑	☐	☐	Stainless Steel Hanger Cable, Clamp & Bracket 30 m
☑	☐	☐	Spare CO2 Cylinders, quantity: 1
☑	☐	☐	Gas Cylinder CO2 - Size C ID: 1447
☑	☐	☐	Maintenance kit (O rings, fittings, SS check ball, collect & screen if applicable)

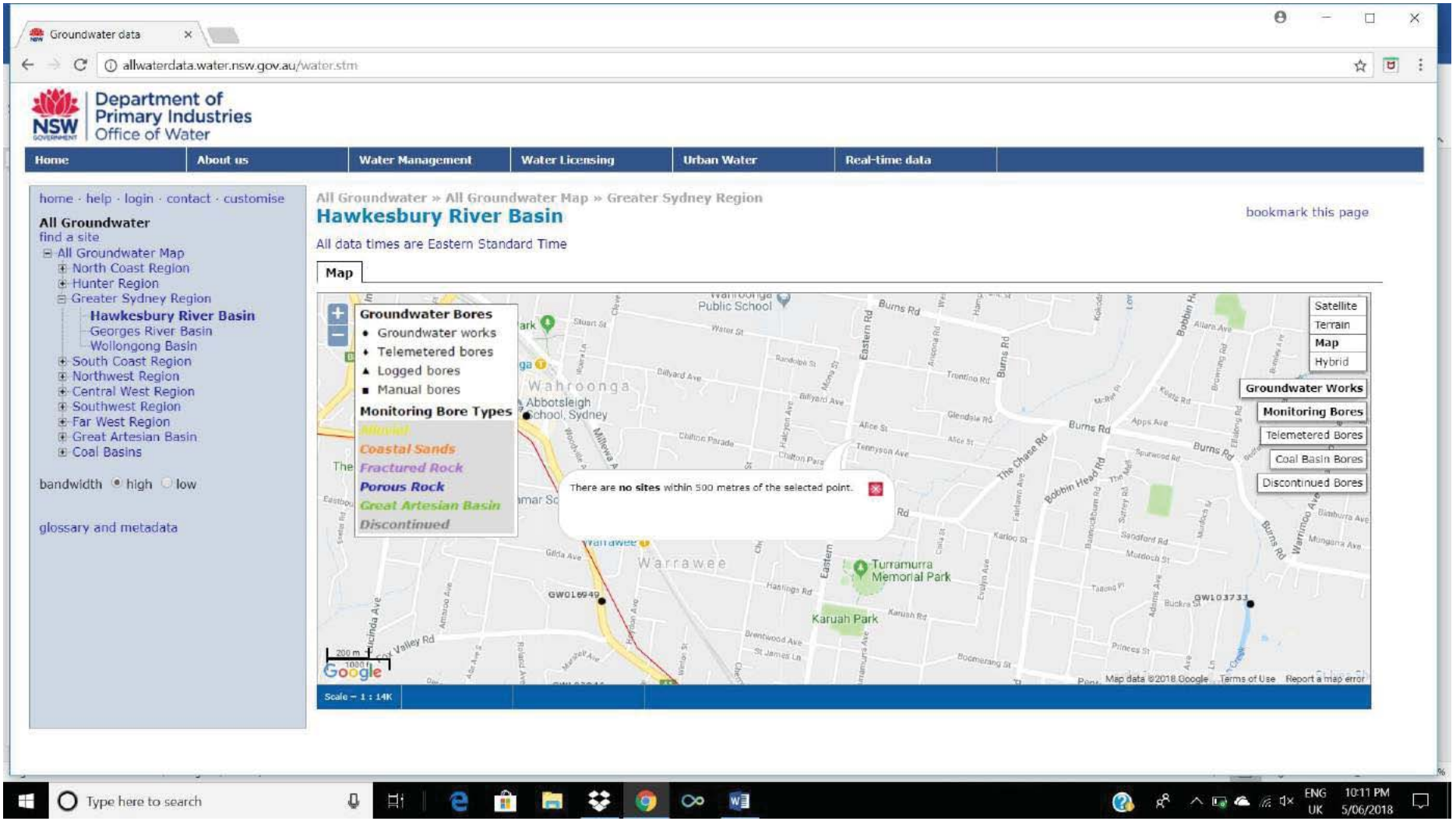
Processors Signature/ Initials

EE Quote Reference	CS008801	Condition on return
Customer Ref		
Equipment ID	MP15MA	
Equipment serial no.		
Return Date	/ /	
Return Time		

C.S.T.S.
Compaction & Soil Testing Services Pty Ltd
1/78 Owen Street, GLENDENNING NSW 2761 • ABN 44 106 976 738
Phone: 02 9675 7522 Fax: 02 9675 7544
Email: office@csts.net.au Web: www.csts.net.au

Appendix F

Supporting Documentation


Groundwater data
allwaterdata.water.nsw.gov.au/water.stm
Department of Primary Industries Office of Water
Home
About us
Water Management
Water Licensing
Urban Water
Real-time data
home · help · login · contact · customise
All Groundwater
find a site
All Groundwater Map
North Coast Region
Hunter Region
Greater Sydney Region
Hawkesbury River Basin
Georges River Basin
Wollongong Basin
South Coast Region
Northwest Region
Central West Region
Southwest Region
Far West Region
Great Artesian Basin
Coal Basins
bandwidth high low
glossary and metadata
All Groundwater » All Groundwater Map » Greater Sydney Region
Hawkesbury River Basin
bookmark this page
All data times are Eastern Standard Time
Map
Groundwater Bores
Groundwater works
Telemetered bores
Logged bores
Manual bores
Monitoring Bore Types
Alluvial
Coastal Sands
Fractured Rock
Porous Rock
Great Artesian Basin
Discontinued
There are no sites within 500 metres of the selected point.
Satellite
Terrain
Map
Hybrid
Groundwater Works
Monitoring Bores
Telemetered Bores
Coal Basin Bores
Discontinued Bores
Wahroonga
Warrawee
Turramurra Memorial Park
Karuah Park
GW016949
GW103733
Map data ©2018 Google
Terms of Use
Report a map error
Scale = 1 : 14K
Type here to search
ENG
UK
10:11 PM
5/06/2018

List of NSW Contaminated Sites Notified to EPA as of 16 April 2018

Background

A strategy to systematically assess, prioritise and respond to notifications under Section 60 of the *Contaminated Land Management Act 1997* (CLM Act) has been developed by the EPA. This strategy acknowledges the EPA's obligations to make information available to the public under *Government Information (Public Access) Act 2009*.

When a site is notified to the EPA, it may be accompanied by detailed site reports where the owner has been proactive in addressing the contamination and its source. However, often there is minimal information on the nature or extent of the contamination.

For some notifications, the information indicates the contamination is securely immobilised within the site, such as under a building or carpark, and is not currently causing any offsite consequences to the community or environment. Such sites would still need to be cleaned up, but this could be done in conjunction with any subsequent building or redevelopment of the land. These sites may not require intervention under the CLM Act, but could be dealt with through the planning and development consent process.

Where indications are that the nominated site is causing actual harm to the environment or an unacceptable offsite impact (i.e. it is a "significantly contaminated site"), the EPA would apply the regulatory provisions of the CLM Act to have the responsible polluter and/or landowner investigate and remediate the site.

As such, the sites notified to the EPA and presented in the following table are at various stages of the assessment and/or remediation process. Understanding the nature of the underlying contamination, its implications and implementing a remediation program where required, can take a considerable period of time. The tables provide an indication, in relation to each nominated site, as to the management status of that particular site. Further detailed information may be available from the EPA or the responsible landowner.

The following questions and answers may assist those interested in this issue:

Frequently asked questions

What is the difference between the "List of NSW Contaminated Sites Notified to the EPA" and the "Contaminated Land: Record of Notices"?

A site will be on the Contaminated Land: Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the *Contaminated Land Management Act 1997*.

The sites appearing on this "List of NSW contaminated sites notified to the EPA" indicate that the notifiers consider that the sites are contaminated and warrant reporting to the EPA. However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review and, if necessary, obtain more information before it can make a determination as to whether the site warrants regulation.

Why my site appears on the list?

Your site appears on the list because of one or more of the following reasons:

- The site owner and/or the person partly or fully responsible for causing the contamination notified to the EPA about the contamination under Section 60 of the *Contaminated Land Management Act 1997*. In other words, the site owner or the "polluter" believes the site is contaminated.
- The EPA has been notified via other means and is satisfied that the site is or was contaminated.

Does the list contain all contaminated sites in NSW?

No. The list only contains contaminated sites that the EPA is aware of, with regard to its regulatory role under the CLM Act. An absence of a site from the list does not necessarily imply the site is not contaminated.

The EPA relies upon responsible parties to notify contaminated sites.

How are these notified contaminated sites managed by the EPA?

There are different ways that the EPA manages these notified contaminated sites. First, an initial assessment is carried out by the EPA. At the completion of the initial assessment, the EPA may take one or more than one of the following management approaches:

- The contamination warrants the EPA's direct regulatory intervention either under the *Contaminated Land Management Act 1997* or the *Protection of the Environment Operations Act 1997* (POEO Act), or both. Information about current or past regulatory action on this site can be found on EPA website.
- The contamination with respect to the current use or approved use of the site, as defined under the *Contaminated Land Management Act 1997,* is not significant enough that it warrants EPA regulation.
- The contamination does not require EPA regulation and can be managed by a planning approval process.
- The contamination is related to an operational Underground Petroleum Storage System, such as a service station or fuel depot. The contamination may be managed under the POEO Act and the Protection of the Environment Operation (Underground Petroleum Storage Systems) Regulation 2014.
- The contamination is being managed under a specifically tailored program operated by another agency (for example t
- he Department of Industry and Investment's *Derelict Mines Program*).

I am the owner of a site that appears on the list. What should I do?

First of all, you should ensure the current use of the site is compatible with the site contamination. Secondly, if the site is the subject of EPA regulation, make sure you comply with the regulatory requirements, and you have considered your obligations to notify other parties who may be affected.

If you have any concerns, contact us and we may be able to offer you general advice, or direct you to accredited professionals who can assist with specific issues.

I am a prospective buyer of a site that appears on the list. What should I do?

You should seek advice from the vendor to put the contamination issue into perspective. You may need to seek independent expert advice.

The information provided in the list is meant to be indicative only, and a starting point for your own assessment. Site contamination as a legacy of past site uses is not uncommon,

particularly in an urbanised environment. If the contamination on a site is properly remediated or managed, it may not materially impact upon the intended future use of the site. However, each site needs to be considered in context.

List of NSW Contaminated Sites Notified to the EPA

Disclaimer

The EPA has taken all reasonable care to ensure that the information in the list of contaminated sites notified to the EPA (the list) is complete and correct. The EPA does not, however, warrant or represent that the list is free from errors or omissions or that it is exhaustive.

The EPA may, without notice, change any or all of the information in the list at any time.

You should obtain independent advice before you make any decision based on the information in the list.

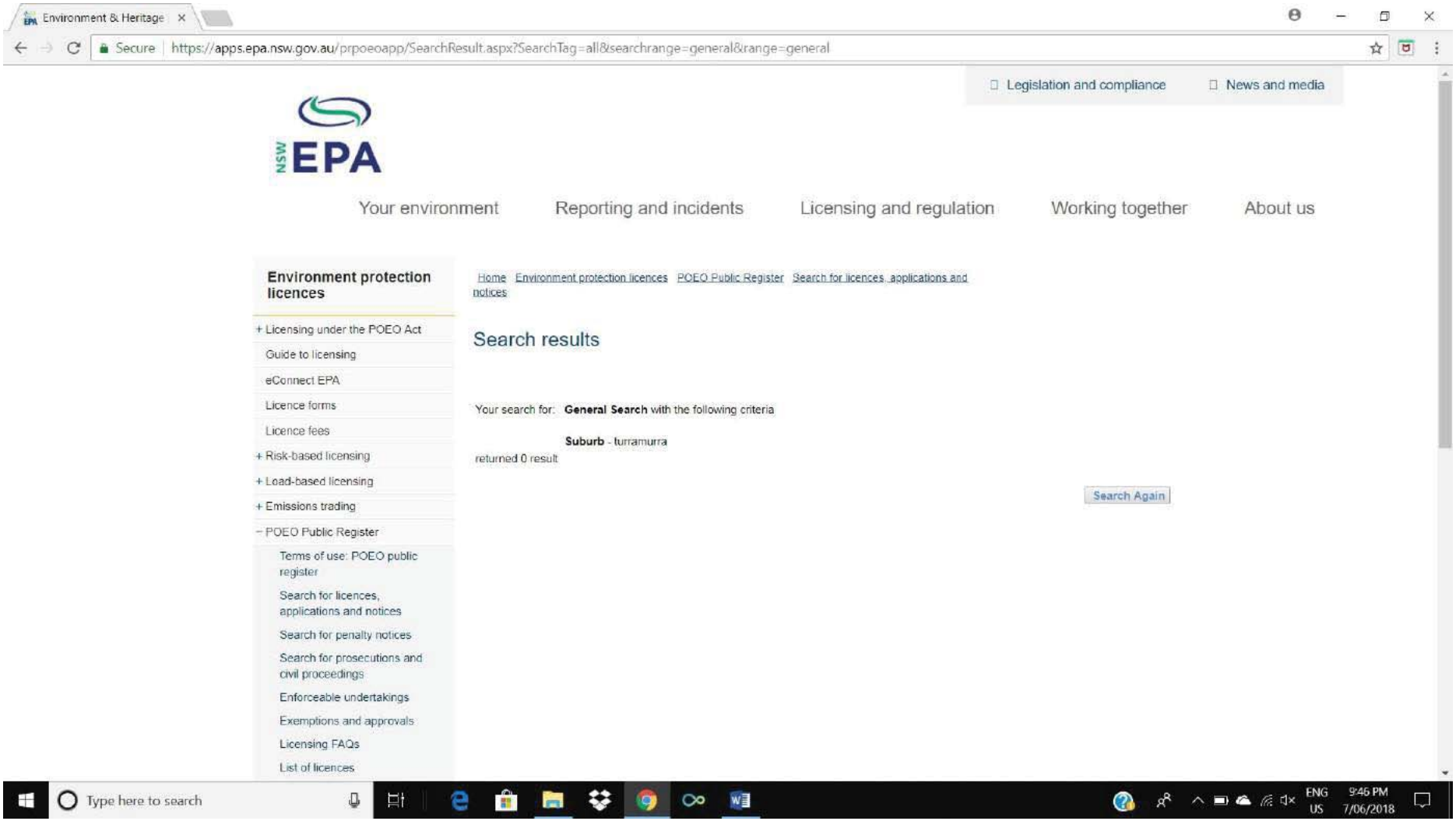
The list is made available on the understanding that the EPA, its servants and agents, to the extent permitted by law, accept no responsibility for any damage, cost, loss or expense incurred by you as a result of:

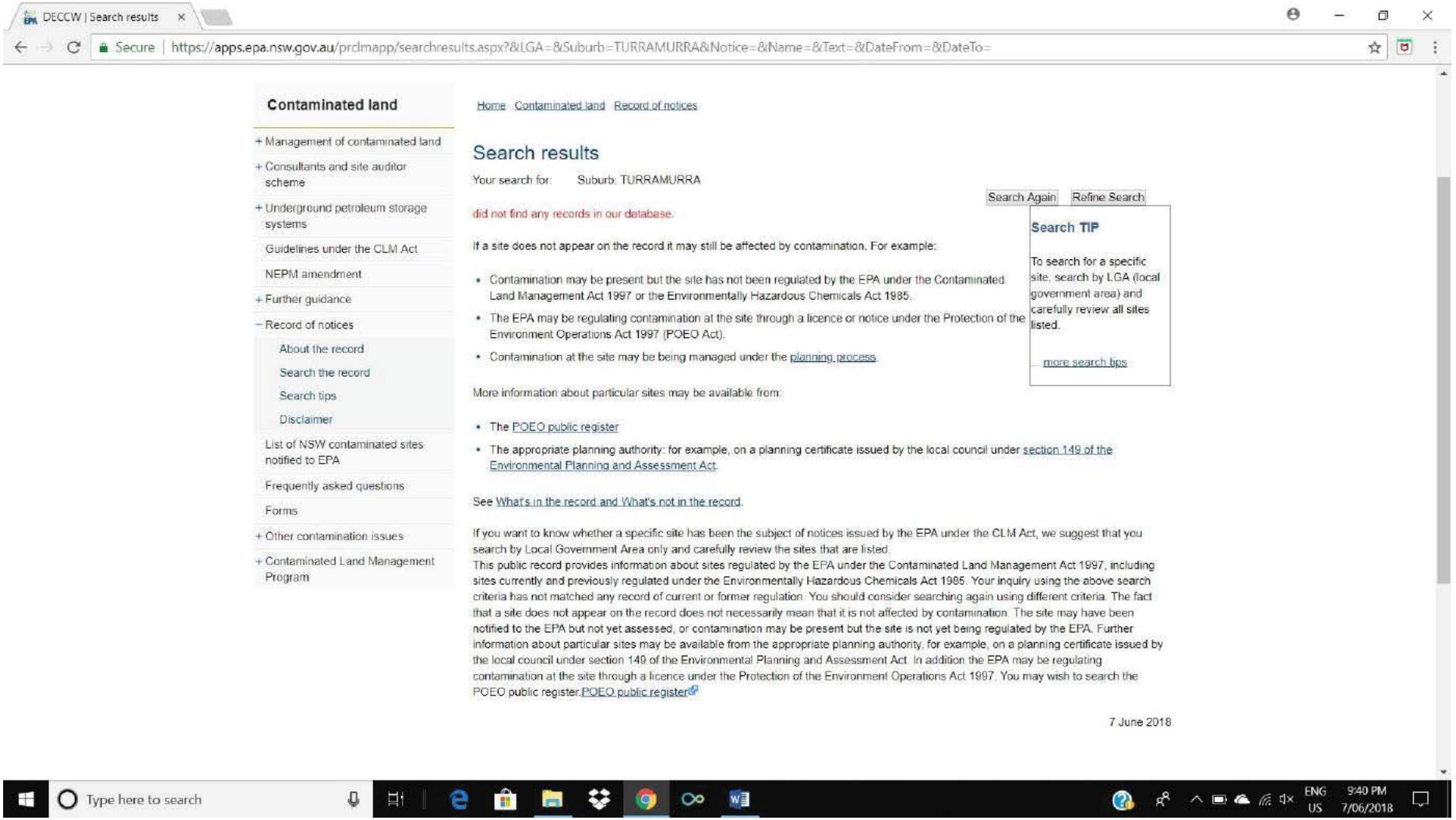
1. any information in the list; or
2. any error, omission or misrepresentation in the list; or
3. any malfunction or failure to function of the list;
4. without limiting (2) or (3) above, any delay, failure or error in recording, displaying or updating information.

Site Status	Explanation
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or *Protection of the Environment Operations Act 1997*. Alternatively, the EPA may require information via a notice issued under s77 of the *Contaminated Land Management Act 1997* or issue a Preliminary Investigation Order.
Regulation under CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the *Contaminated Land Management Act 1997* is not required.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997*. A regulatory approach is being finalised.

Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the *Protection of the Environment Operations Act 1997* (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the *Environmental Planning and Assessment Act 1979* (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the *Contaminated Land Management Act 1997* (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the *Protection of the Environment Operations Act 1997* (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the *Environmental Planning and Assessment Act 1979* (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the *Contaminated Land Management Act 1997* (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record.

Suburb	Site Name	Address	Contamination Activity Type	EPA Management Class	Latitude	Longitude
TOMAGO	Minmet	25 School DRIVE	Metal Industry	Contamination currently regulated under POEO Act	-32.8301553	151.7300603
TOMAGO	Balcombe Sweat Furnace	26 Laverick AVENUE	Metal Industry	Regulation under CLM Act not required	-32.82557395	151.7056416
TOMERONG	Log Cabin Service Station (United Petroleum)	D1300 Princes HIGHWAY	Service Station	Under assessment	-35.01820959	150.5779687
TOONGABBIE	7-Eleven (Former Mobil) Service Station Toongabbie	3 Metella ROAD	Service Station	Regulation under CLM Act not required	-33.78692357	150.9462837
TOORMINA	Caltex Service Station	2 Minorca PLACE	Service Station	Regulation under CLM Act not required	-30.35229568	153.0906606
TORONTO	Coles XP (Former Mobil) Toronto Service Station	133 - 137 Cary (Cnr Thorne St) STREET	Service Station	Regulation under CLM Act not required	-33.01187681	151.5930879
TORONTO	BP Toronto Service Station	132 Cary (Cnr Donnelly Ave) STREET	Service Station	Regulation under CLM Act not required	-33.01144673	151.5937863
TORONTO	Toronto Hotel	74 Victory PARADE	Unclassified	Regulation under CLM Act not required	-33.01214835	151.5958127
TORONTO	Caltex Service Station	147 Cary STREET	Service Station	Regulation under CLM Act not required	-33.01288007	151.5928388
TOUKLEY	Former Shell Toukley Autoport	211 Main ROAD	Service Station	Regulation under CLM Act not required	-33.26383791	151.5386268
TOUKLEY	Independent (Mobil) Toukley Service Station	287 Main ROAD	Service Station	Regulation under CLM Act not required	-33.26469166	151.5462414
TRANGIE	Caltex Service Station	(Mitchell Hwy) 76 Narromine STREET	Service Station	Regulation under CLM Act not required	-32.03234676	147.985164
TUGGERAH	BP Tuggerah	100 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-33.30578167	151.4198083
TUMBARUMBA	Former Caltex Depot	150 Albury STREET	Other Petroleum	Regulation under CLM Act not required	-35.77024081	147.9927182
TUMBI UMBI	Former Tumbi Landfill	140 Bellevue ROAD	Landfill	Regulation under CLM Act not required	-33.3993472	151.456471
TUMUT	CSR Blue Dam	Jepsen AVENUE	Other Industry	Regulation being finalised	-35.30098337	148.1958308
TUMUT	CSR Railway cutting	Jepsen AVENUE	Unclassified	Regulation being finalised	-35.30422002	148.1942579
TUMUT	Former Telstra Depot	22-26 Carey STREET	Other Industry	Regulation under CLM Act not required	-35.29873079	148.2191122
TUROSS HEAD	Tern Inn Restaurant (abandoned UPSS)	2 Trafalgar ROAD	Service Station	Regulation under CLM Act not required	-36.05871059	150.1308443
TURRAMURRA	7-Eleven (former Mobil) Service Station Turramurra	1408 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-33.73326389	151.1264194
TURRAMURRA	Woolworths (Former Mobil) Service Station	1233 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-33.73317594	151.1313195
TURRELLA	Tulloch Australia Pty Limited	61 Turrella STREET	Chemical Industry	Contamination currently regulated under CLM Act	-33.92857213	151.1475387
TWEED HEADS	Former Mobil Quix Service Station	60 Pacific HIGHWAY	Service Station	Regulation under CLM Act not required	-28.20143775	153.5445381


Environment & Heritage
Secure
https://apps.epa.nsw.gov.au/prpoeoapp/SearchResult.aspx?SearchTag=all&searchrange=general&range=general
Legislation and compliance
News and media
NSW EPA
Your environment
Reporting and incidents
Licensing and regulation
Working together
About us
Environment protection licences
+ Licensing under the POEO Act
Guide to licensing
eConnect EPA
Licence forms
Licence fees
+ Risk-based licensing
+ Load-based licensing
+ Emissions trading
− POEO Public Register
Terms of use: POEO public register
Search for licences, applications and notices
Search for penalty notices
Search for prosecutions and civil proceedings
Enforceable undertakings
Exemptions and approvals
Licensing FAQs
List of licences
Home Environment protection licences POEO Public Register Search for licences, applications and notices
Search results
Your search for: General Search with the following criteria
Suburb - turramurra
returned 0 result
Search Again
Type here to search
ENG US
9:46 PM 7/06/2018


DECCW | Search results
Secure | https://apps.epa.nsw.gov.au/prclmapp/searchresults.aspx?&LGA=&Suburb=TURRAMURRA&Notice=&Name=&Text=&DateFrom=&DateTo=
Contaminated land
+ Management of contaminated land
+ Consultants and site auditor scheme
+ Underground petroleum storage systems
Guidelines under the CLM Act
NEPM amendment
+ Further guidance
− Record of notices
About the record
Search the record
Search tips
Disclaimer
List of NSW contaminated sites notified to EPA
Frequently asked questions
Forms
+ Other contamination issues
+ Contaminated Land Management Program
Home Contaminated land Record of notices
Search results
Your search for: Suburb: TURRAMURRA
Search Again Refine Search
did not find any records in our database.
Search TIP
To search for a specific site, search by LGA (local government area) and carefully review all sites listed.
more search tips
If a site does not appear on the record it may still be affected by contamination. For example:
• Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
• The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
• Contamination at the site may be being managed under the planning process.
More information about particular sites may be available from:
• The POEO public register
• The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.
See What's in the record and What's not in the record.
If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register
7 June 2018
Type here to search
ENG US
9:40 PM 7/06/2018

Site Report. © Leighton O'Brien Pty Ltd

Report Date: 14-Oct-16
Report Period: Sep-16

Statistical Inventory Analysis
Leighton O'Brien Pty Ltd
PO Box 5018
Camberwell 3124
Ph 03 9804 2200

AA0525_GDR2074 GDR Automotive Service
105 Eastern Rd
Turramurra NSW 2074

Site Comments: Apart from the two data discrepancies, the results are good.

	Period	Result	Trend (lpd)	Trend %	T'put	MDLR	DDs	PDs
Unleaded Tank 1	Apr-16	No Data Processed						
	May-16	No Data Processed						
	Jun-16	No Data Processed						
Pass	Jul-16	No Data Processed						
	Aug-16	No Data Processed						
	Sep-16	PASS	-1.4	-0.13%	33653	5.6	1	3
PULP 98 Tank 2	Apr-16	Out of System						
	May-16	Out of System						
	Jun-16	Out of System						
Pass	Jul-16	Out of System						
	Aug-16	Out of System						
	Sep-16	PASS	-18.1	-1.42%	38405	8.8	0	0
Diesel Tank 3	Apr-16	Out of System						
	May-16	Out of System						
	Jun-16	Out of System						
Pass	Jul-16	Out of System						
	Aug-16	Out of System						
	Sep-16	PASS	-11.8	-1.45%	23584	3.9	1	2

Legend

	Inconclusive
	See Report for Details
	Fail

Trend (lpd)	Period Trend (Litres per Day)
Trend %	Period Trend (%)
MDLR	Minimum Detectable Leak Rate
PDs	Poor Dip Count
DDs	Data Discrepancy Count
*	Tank Calibration Adjustment

Site Report. © Leighton O'Brien Pty Ltd

Report Date: 11-Apr-17
Report Period: Mar-17

Statistical Inventory Analysis
Leighton O'Brien Pty Ltd
PO Box 5018
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Ph 03 9804 2200

AA0525_GDR2074 GDR Automotive Service
105 Eastern Rd
Turramurra NSW 2074

Site Comments: The result for PULP 98 tank 2 is a fail and should be investigated for losses. The other tanks are reporting good results. Both the data discrepancies should also be investigated.

To Tank Report

	Period	Result	Trend (lpd)	Trend %	T'put	MDLR	DDs	PDs
Unleaded Tank 1	Oct-16	PASS	2.5	0.23%	32742	6	0	1
	Nov-16	PASS	4.5	0.40%	33563	7.8	0	2
	Dec-16	PASS	-2	-0.20%	32514	5.3	1	1
Pass	Jan-17	PASS	17.1	1.95%	27170	5	1	2
	Feb-17	PASS	5.7	0.56%	28548	7.7	0	0
	Mar-17	PASS	-4.3	-0.41%	32207	5	1	0
PULP 98 Tank 2	Oct-16	PASS	-2.1	-0.17%	37893	9.5	1	1
	Nov-16	PASS	5.2	0.40%	39601	5.5	1	3
	Dec-16	PASS	5.8	0.47%	38003	3.8	2	2
Fail	Jan-17	PASS	10.3	1.03%	30988	5	0	1
	Feb-17	PASS	11.1	0.83%	36334	4.7	1	0
	Mar-17	FAIL	-21	-1.67%	40331	5.4	0	0
Diesel Tank 3	Oct-16	PASS	4.4	0.53%	24749	4.1	1	0
	Nov-16	PASS	7.4	0.81%	26337	3.9	1	2
	Dec-16	PASS	4.6	0.59%	24435	3.5	1	1
Pass	Jan-17	PASS	6.1	0.99%	18967	2.7	1	1
	Feb-17	PASS	12.3	1.35%	25546	3.4	0	1
	Mar-17	PASS	3.4	0.39%	26978	2.2	1	1

Legend

	Inconclusive
	See Report for Details
	Fail

Trend (lpd)	Period Trend (Litres per Day)
Trend %	Period Trend (%)
MDLR	Minimum Detectable Leak Rate
PDs	Poor Dip Count
DDs	Data Discrepancy Count
*	Tank Calibration Adjustment

Site Report. © Leighton O'Brien Pty Ltd

Report Date: 09-Oct-17
Report Period: Sep-17

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AA0525_GDR2074 GDR Automotive Service
105 Eastern Rd
Turramurra NSW 2074

Site Comments: A good set of results.

	Period	Result	Trend (lpd)	Trend %	T'put	MDLR	DDs	PDs
Unleaded Tank 1	Apr-17	PASS	0.8	0.11%	22682	6.8	0	1
	May-17	PASS	-4	-0.43%	28667	5.5	0	0
	Jun-17	PASS	-6.5	-0.82%	23745	5.9	0	1
Pass	Jul-17	PASS	-11.8	-1.48%	24587	5.3	0	2
	Aug-17	PASS	-1.4	-0.15%	29386	4.3	0	2
	Sep-17	PASS	-4.8	-0.52%	27396	5.1	0	1
PULP 98 Tank 2	Apr-17	PASS	0.9	0.10%	28742	7.2	0	0
	May-17	PASS	-3	-0.25%	37952	4.4	0	1
	Jun-17	PASS	-11.9	-1.11%	29964	4.2	0	0
Pass	Jul-17	PASS	-14.1	-1.39%	32440	6.3	0	0
	Aug-17	PASS	-6	-0.51%	36076	5.2	0	0
	Sep-17	PASS	-5.8	-0.50%	34739	5.7	0	0
Diesel Tank 3	Apr-17	PASS	3.2	0.46%	19875	2.8	0	1
	May-17	PASS	3.4	0.39%	27820	2.8	3	0
	Jun-17	PASS	3.2	0.47%	20462	3.7	0	0
Pass	Jul-17	PASS	-3.3	-0.46%	22097	3.4	0	1
	Aug-17	PASS	-3.6	-0.45%	25014	3.1	0	0
	Sep-17	PASS	4.8	0.55%	24894	3.2	0	2

Legend

	Inconclusive
	See Report for Details
	Fail

Trend (lpd)	Period Trend (Litres per Day)
Trend %	Period Trend (%)
MDLR	Minimum Detectable Leak Rate
PDs	Poor Dip Count
DDs	Data Discrepancy Count
*	Tank Calibration Adjustment

Site Report. © Leighton O'Brien Pty Ltd

Report Date: 11-Apr-18
Report Period: Mar-18

Statistical Inventory Analysis
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AA0525_GDR2074 GDR Automotive Service
105 Eastern Rd
Turramurra NSW 2074

Site Comments: Apart from the three data discrepancies, the results are good.

	Period	Result	Trend (lpd)	Trend %	T'put	MDLR	DDs	PDs
Unleaded Tank 1	Oct-17	PASS	3.9	0.40%	30054	4.3	0	0
	Nov-17	PASS	11.1	1.00%	33472	5.5	0	2
	Dec-17	FLAG	-0.6	-0.07%	29166	4.1	0	2
Pass	Jan-18	PASS	-2.3	-0.26%	26717	5.3	1	0
	Feb-18	PASS	-1.4	-0.14%	26032	6.9	0	0
	Mar-18	PASS	3.7	0.42%	27719	3.7	1	3
PULP 98 Tank 2	Oct-17	PASS	9.5	0.77%	38129	4.9	0	0
	Nov-17	PASS	3	0.24%	35852	4.2	0	1
	Dec-17	PASS	-5.8	-0.57%	32980	5.6	0	2
Pass	Jan-18	PASS	1.8	0.20%	27431	4.4	0	1
	Feb-18	PASS	-8.2	-0.71%	32004	6.5	0	0
	Mar-18	PASS	-8.1	-0.75%	33352	4.2	1	1
Diesel Tank 3	Oct-17	PASS	4.8	0.55%	27001	2.8	0	0
	Nov-17	PASS	0.2	0.02%	29837	3.4	1	1
	Dec-17	PASS	1.3	0.18%	22997	2.6	0	2
Pass	Jan-18	PASS	5	0.81%	19240	2.3	0	2
	Feb-18	PASS	1.7	0.19%	24218	3.2	1	2
	Mar-18	PASS	8.9	1.08%	25436	1.6	1	1

Legend
- Inconclusive
- See Report for Details
- Fail

Trend (lpd)	Period Trend (Litres per Day)
Trend %	Period Trend (%)
MDLR	Minimum Detectable Leak Rate
PDs	Poor Dip Count
DDs	Data Discrepancy Count
*	Tank Calibration Adjustment

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AA0525_GDR2074 GDR Automotive Serv
105 Eastern Rd
Turramurra NSW 2074

Date 11-Apr-17

Unleaded tank 1

Tank Reports Leighton O'Brien Pty Ltd

Result PASS

Period Ending:	31-Mar-17
Period Trend (lpd):	-4.3
Period Trend %:	-0.41%
MDLR (lpd)	5

Comments
#1. The discrepancy on the 7 Mar is to correct for a gain that is obvious but unexplained.
The data discrepancy is worth looking at.

Raw Data

Day	Sales	Deliveries	Dips	Day Var	Cumm.		Comment
Open Dip		28-Feb	17500				
Carry Over	-	-				#	
01-Mar-17	1331		16100	-69	-69		
02-Mar-17	1029		15200	129	60		
03-Mar-17	1022	6708	20500	-386	-326		
04-Mar-17	1052		19500	52	-274		
05-Mar-17	661		19000	161	-113		
06-Mar-17	1537		17400	-63	-176		
07-Mar-17	877		17000	477	301	#1	
08-Mar-17	1288		15800	88	389		
09-Mar-17	1233		14500	-67	322		
10-Mar-17	1899		12800	199	521		
11-Mar-17	1250		11200	-350	171		
12-Mar-17	888		10500	188	359		
13-Mar-17	1063		9400	-37	322		
14-Mar-17	1087		8400	87	409		
15-Mar-17	1000		7400	0	409		
16-Mar-17	1297	13049	19000	-152	257		
17-Mar-17	945		18000	-55	202		
18-Mar-17	1018		16800	-182	20		
19-Mar-17	548		16400	148	168		
20-Mar-17	1076		15400	76	244		
21-Mar-17	1099		14200	-101	143		
22-Mar-17	757	8100	21700	157	300		
23-Mar-17	1419		20300	19	319		
24-Mar-17	906		19100	-294	25		
25-Mar-17	1004		18200	104	129		
26-Mar-17	453		17800	53	182		
27-Mar-17	1162		16800	162	344		
28-Mar-17	851		15900	-49	295		
29-Mar-17	894		15100	94	389		
30-Mar-17	653		14400	-47	342		
31-Mar-17	908		13500	8	350		
Throughput	**32207**						
		Average Day Variance		**131**			
		Final Raw Loss/Gain			**350**		

SIR Corrected Data

Sales	Deliveries	Dips	Data Disc.	Day Var	Cumm.
	28-Feb	17500			
-	-				
1331		16100		-69	-69
1029		15200		129	60
1022	6708	20500		-386	-326
1052		19500		52	-274
661		19000		161	-113
1537		17400		-63	-176
877		17000	-502	-25	-201
1288		15800		88	-113
1233		14500		-67	-180
1899		12800		199	19
1250		11200		-350	-331
888		10500		188	-143
1063		9400		-37	-180
1087		8400		87	-93
1000		7400			-93
1297	13049	19000		-152	-245
945		18000		-55	-300
1018		16800		-182	-482
548		16400		148	-334
1076		15400		76	-258
1099		14200		-101	-359
757	8100	21700		157	-202
1419		20300		19	-183
906		19100		-294	-477
1004		18200		104	-373
453		17800		53	-320
1162		16800		162	-158
851		15900		-49	-207
894		15100		94	-113
653		14400		-47	-160
908		13500		8	-152
32207					
			Average Day Variance	**116**	
			Final Raw Loss/Gain		**-152**

Report ID: AA0525_GDR2074_2_ 6 April 2017

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AA0525_GDR2074 GDR Automotive Serv
105 Eastern Rd
Turramurra NSW 2074

Date 11-Apr-17
PULP 98 tank 2

Tank Reports Leighton O'Brien Pty Ltd

Result FAIL

Period Ending:	31-Mar-17
Period Trend (lpd):	-21
Period Trend %:	-1.67%
MDLR (lpd)	5.4

Comments
The period trend is in excess of the recommended investigation threshold.

Raw Data

Day	Sales	Deliveries	Dips	Day Var	Cumm.
Open Dip		27-Feb	12600		
Carry Over	-	-			
28-Feb-17	1226		11100	-274	-274
01-Mar-17	1423		9800	123	-151
02-Mar-17	1759		8100	59	-92
03-Mar-17	1429	13367	20000	-38	-130
04-Mar-17	1283		18900	183	53
05-Mar-17	654		18000	-246	-193
06-Mar-17	1308		16800	108	-85
07-Mar-17	1382		15400	-18	-103
08-Mar-17	1299		14000	-101	-204
09-Mar-17	1544		12500	44	-160
10-Mar-17	1400		11000	-100	-260
11-Mar-17	980		9850	-170	-430
12-Mar-17	546		9250	-54	-484
13-Mar-17	1236		8200	186	-298
14-Mar-17	914		7000	-286	-584
15-Mar-17	1581		5450	31	-553
16-Mar-17	826	13152	17700	-76	-629
17-Mar-17	1386		16500	186	-443
18-Mar-17	1172		15300	-28	-471
19-Mar-17	702		14700	102	-369
20-Mar-17	1644		12800	-256	-625
21-Mar-17	1293		11600	93	-532
22-Mar-17	1304	12905	23200	-1	-533
23-Mar-17	1480		21400	-320	-853
24-Mar-17	1706		19900	206	-647
25-Mar-17	1068		18600	-232	-879
26-Mar-17	942		17800	142	-737
27-Mar-17	1316		16600	116	-621
28-Mar-17	1380		15200	-20	-641
29-Mar-17	1402		13900	102	-539
30-Mar-17	1158		12800	58	-481
31-Mar-17	1588		11100	-112	-593
Throughput	**40331**				
		Average Day Variance		**127**	
		Final Raw Loss/Gain			**-593**

SIR Corrected Data

Sales	Deliveries	Dips	Data Disc.	Day Var	Cumm.
Comment #	27-Feb	12600			
-	-				
1226		11100		-274	-274
1423		9800		123	-151
1759		8100		59	-92
1429	13367	20000		-38	-130
1283		18900		183	53
654		18000		-246	-193
1308		16800		108	-85
1382		15400		-18	-103
1299		14000		-101	-204
1544		12500		44	-160
1400		11000		-100	-260
980		9850		-170	-430
546		9250		-54	-484
1236		8200		186	-298
914		7000		-286	-584
1581		5450		31	-553
826	13152	17700		-76	-629
1386		16500		186	-443
1172		15300		-28	-471
702		14700		102	-369
1644		12800		-256	-625
1293		11600		93	-532
1304	12905	23200		-1	-533
1480		21400		-320	-853
1706		19900		206	-647
1068		18600		-232	-879
942		17800		142	-737
1316		16600		116	-621
1380		15200		-20	-641
1402		13900		102	-539
1158		12800		58	-481
1588		11100		-112	-593
40331					
			Average Day Variance	**127**	
			Final Raw Loss/Gain		**-593**

Report ID: AA0525_GDR2074_28_ 6 April 2017

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AA0525_GDR2074 GDR Automotive Serv
105 Eastern Rd
Turramurra NSW 2074

Date 11-Apr-17

Diesel tank 3

Tank Reports Leighton O'Brien Pty Ltd

Result PASS

Period Ending:	31-Mar-17
Period Trend (lpd):	3.4
Period Trend %:	0.39%
MDLR (lpd)	2.2

Comments
#1. The discrepancy on the 9 Mar is to correct for a loss that is obvious but unexplained.
#2. The observation on the 7 Mar has been removed to allow cleaner data for the analysis.
The data discrepancy is worth looking at.

Raw Data

Day	Sales	Deliveries	Dips	Day Var	Cumm.	Comment #
Open Dip		28-Feb	5650			
Carry Over	-	-				
01-Mar-17	939		4750	39	39	
02-Mar-17	787		3950	-13	26	
03-Mar-17	1130	10819	13700	61	87	
04-Mar-17	903		12700	-97	-10	
05-Mar-17	377		12500	177	167	
06-Mar-17	734		11600	-166	1	
07-Mar-17	608		10650	-342	-341	#2
08-Mar-17	876		10150	376	35	
09-Mar-17	867		9000	-283	-248	#1
10-Mar-17	822		8200	22	-226	
11-Mar-17	990		7200	-10	-236	
12-Mar-17	524		6700	24	-212	
13-Mar-17	1035		5600	-65	-277	
14-Mar-17	937		4700	37	-240	
15-Mar-17	1392		3350	42	-198	
16-Mar-17	929	5698	8000	-119	-317	
17-Mar-17	857		7200	57	-260	
18-Mar-17	820		6300	-80	-340	
19-Mar-17	579		5780	59	-281	
20-Mar-17	1199		4600	19	-262	
21-Mar-17	695		3950	45	-217	
22-Mar-17	708	8258	11500	0	-217	
23-Mar-17	690		10750	-60	-277	
24-Mar-17	741		10100	91	-186	
25-Mar-17	1352		8700	-48	-234	
26-Mar-17	438		8300	38	-196	
27-Mar-17	672		7600	-28	-224	
28-Mar-17	807		6950	157	-67	
29-Mar-17	1360		5450	-140	-207	
30-Mar-17	1093		4400	43	-164	
31-Mar-17	1117		3250	-33	-197	
Throughput	**26978**					
		Average Day Variance		**89**		
		Final Raw Loss/Gain			**-197**	

SIR Corrected Data

Sales	Deliveries	Dips	Data Disc.	Day Var	Cumm.
	28-Feb	5650			
-	-				
939		4750		39	39
787		3950		-13	26
1130	10819	13700		61	87
903		12700		-97	-10
377		12500		177	167
734		11600		-166	1
dip removed					
1484		10150		34	35
867		9000	329	46	81
822		8200		22	103
990		7200		-10	93
524		6700		24	117
1035		5600		-65	52
937		4700		37	89
1392		3350		42	131
929	5698	8000		-119	12
857		7200		57	69
820		6300		-80	-11
579		5780		59	48
1199		4600		19	67
695		3950		45	112
708	8258	11500			112
690		10750		-60	52
741		10100		91	143
1352		8700		-48	95
438		8300		38	133
672		7600		-28	105
807		6950		157	262
1360		5450		-140	122
1093		4400		43	165
1117		3250		-33	132
26978					
			Average Day Variance	**62**	
			Final Raw Loss/Gain		**132**

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AA0525_GDR2074 GDR Automotive Serv
105 Eastern Rd
Turramurra NSW 2074

Date 12-Jan-18

Unleaded tank 1

Tank Reports Leighton O'Brien Pty Ltd

Comments
#1. The observations on the 11 Dec & 27 Dec have been removed to allow cleaner data for the analysis.
The result has been flagged due to a notable increase in the losses from last month. Greater care is required to eliminate poor dips.

Result	**FLAG**
Period Ending:	31-Dec-17
Period Trend (lpd):	-0.6
Period Trend %:	-0.07%
MDLR (lpd)	4.1

Raw Data

Day	Sales	Deliveries	Dips	Day Var	Cumm.
Open Dip		30-Nov	14900		
Carry Over	-	-			
01-Dec-17	1404		13700	204	204
02-Dec-17	953		12700	-47	157
03-Dec-17	622	6820	19000	102	259
04-Dec-17	1279		17600	-121	138
05-Dec-17	1390		16200	-10	128
06-Dec-17	1184		15000	-16	112
07-Dec-17	1121		13800	-79	33
08-Dec-17	1057		12700	-43	-10
09-Dec-17	1088		11800	188	178
10-Dec-17	917		11000	117	295
11-Dec-17	1027		9600	-373	-78
12-Dec-17	1153		8600	153	75
13-Dec-17	1059		7500	-41	34
14-Dec-17	1155		6400	55	89
15-Dec-17	1168		5200	-32	57
16-Dec-17	1264		4000	64	121
17-Dec-17	605	16343	19800	62	183
18-Dec-17	1291		18500	-9	174
19-Dec-17	979		17600	79	253
20-Dec-17	1319		16400	119	372
21-Dec-17	1309		15000	-91	281
22-Dec-17	1204	10029	23800	-25	256
23-Dec-17	1216		22400	-184	72
24-Dec-17	621		21900	121	193
25-Dec-17	0		21900	0	193
26-Dec-17	0		21900	0	193
27-Dec-17	522		21100	-278	-85
28-Dec-17	750		20500	150	65
29-Dec-17	642		19800	-58	7
30-Dec-17	458		19400	58	65
31-Dec-17	409		19000	9	74
Throughput	**29166**				
		Average Day Variance		**93**	
		Final Raw Loss/Gain			**74**

Comment #	
	-
#1	dip removed
#1	dip removed

SIR Corrected Data

Sales	Deliveries	Dips	Data Disc.	Day Var	Cumm.
	30-Nov	14900			
-	-				
1404		13700		204	204
953		12700		-47	157
622	6820	19000		102	259
1279		17600		-121	138
1390		16200		-10	128
1184		15000		-16	112
1121		13800		-79	33
1057		12700		-43	-10
1088		11800		188	178
917		11000		117	295
dip removed					
2180		8600		-220	75
1059		7500		-41	34
1155		6400		55	89
1168		5200		-32	57
1264		4000		64	121
605	16343	19800		62	183
1291		18500		-9	174
979		17600		79	253
1319		16400		119	372
1309		15000		-91	281
1204	10029	23800		-25	256
1216		22400		-184	72
621		21900		121	193
0		21900			193
0		21900			193
dip removed					
1272		20500		-128	65
642		19800		-58	7
458		19400		58	65
409		19000		9	74
29166					
			Average Day Variance	**79**	
			Final Raw Loss/Gain		**74**

Report ID: AA0525_GDR2074_2_ 4 January 2018

LEIGHTON O'BRIEN
Statistical Inventory Analysis
Leighton O'Brien Pty Ltd.
PO Box 5018
Camberwell VIC 3124
Ph 03 9804 2200 sirainfo@leightonobrien.com

AA0525_GDR2074 GDR Automotive Serv
105 Eastern Rd
Turramurra NSW 2074

Date 12-Jan-18
PULP 98 tank 2

Tank Reports Leighton O'Brien Pty Ltd

Result PASS

Period Ending:	31-Dec-17
Period Trend (lpd):	-5.8
Period Trend %:	-0.57%
MDLR (lpd)	5.6

Comments
#1. The observations on the 5 Dec & 14 Dec have been removed to allow cleaner data for the analysis.
Greater care is required to eliminate poor dips.

Raw Data

Day	Sales	Deliveries	Dips	Day Var	Cumm.		Comment
Open Dip		29-Nov	13800				
Carry Over	-	-				#	
30-Nov-17	1734		11900	-166	-166		
01-Dec-17	1257		10800	157	-9		
02-Dec-17	1726		9100	26	17		
03-Dec-17	798	13549	22000	149	166		
04-Dec-17	1050		20700	-250	-84		
05-Dec-17	1113		19200	-387	-471	#1	dip removed
06-Dec-17	1060		18300	160	-311		
07-Dec-17	937		17400	37	-274		
08-Dec-17	1265		16400	265	-9		
09-Dec-17	703		15800	103	94		
10-Dec-17	781		14800	-219	-125		
11-Dec-17	1230		13600	30	-95		
12-Dec-17	1252		12300	-48	-143		
13-Dec-17	1456		10900	56	-87		
14-Dec-17	973		9500	-427	-514	#1	dip removed
15-Dec-17	1265		8600	365	-149		
16-Dec-17	613		8000	13	-136		
17-Dec-17	830	12127	19400	103	-33		
18-Dec-17	1135		18300	35	2		
19-Dec-17	1172		17200	72	74		
20-Dec-17	1388		15900	88	162		
21-Dec-17	1330		14400	-170	-8		
22-Dec-17	1451	10021	22600	-370	-378		
23-Dec-17	1204		21500	104	-274		
24-Dec-17	1286		20200	-14	-288		
25-Dec-17	0		20200	0	-288		
26-Dec-17	0		20200	0	-288		
27-Dec-17	1166		19000	-34	-322		
28-Dec-17	848		18400	248	-74		
29-Dec-17	735		17600	-65	-139		
30-Dec-17	430		17000	-170	-309		
31-Dec-17	792		16400	192	-117		
Throughput	**32980**						
		Average Day Variance		**141**			
		Final Raw Loss/Gain			**-117**		

SIR Corrected Data

Sales	Deliveries	Dips	Data Disc.	Day Var	Cumm.
29-Nov		13800			
-	-				
1734		11900		-166	-166
1257		10800		157	-9
1726		9100		26	17
798	13549	22000		149	166
1050		20700		-250	-84
dip removed					
2173		18300		-227	-311
937		17400		37	-274
1265		16400		265	-9
703		15800		103	94
781		14800		-219	-125
1230		13600		30	-95
1252		12300		-48	-143
1456		10900		56	-87
dip removed					
2238		8600		-62	-149
613		8000		13	-136
830	12127	19400		103	-33
1135		18300		35	2
1172		17200		72	74
1388		15900		88	162
1330		14400		-170	-8
1451	10021	22600		-370	-378
1204		21500		104	-274
1286		20200		-14	-288
0		20200			-288
0		20200			-288
1166		19000		-34	-322
848		18400		248	-74
735		17600		-65	-139
430		17000		-170	-309
792		16400		192	-117
32980					
			Average Day Variance	**116**	
			Final Raw Loss/Gain		**-117**

Report ID: AA0525_GDR2074_28_ 4 January 2018

LEIGHTON O'BRIEN
Statistical Inventory Analysis
Leighton O'Brien Pty Ltd.
PO Box 5018
Camberwell VIC 3124
Ph 03 9804 2200 sirainfo@leightonobrien.com

AA0525_GDR2074 GDR Automotive Serv
105 Eastern Rd
Turramurra NSW 2074

Date 12-Jan-18

Diesel tank 3

Tank Reports Leighton O'Brien Pty Ltd

Result PASS

Period Ending:	31-Dec-17
Period Trend (lpd):	1.3
Period Trend %:	0.18%
MDLR (lpd)	2.6

Comments
#1. The observations on the 3 Dec & 6 Dec have been removed to allow cleaner data for the analysis.
Greater care is required to eliminate poor dips.

Raw Data

Day	Sales	Deliveries	Dips	Day Var	Cumm.		Comment
Open Dip		30-Nov	5300				
Carry Over	-	-				#	-
01-Dec-17	1032		4350	82	82		1032
02-Dec-17	600		3800	50	132		600
03-Dec-17	769	11004	14500	465	597	#1	dip removed
04-Dec-17	475		13400	-625	-28		1244
05-Dec-17	745		12600	-55	-83		745
06-Dec-17	707		11800	-93	-176	#1	dip removed
07-Dec-17	1470		10500	170	-6		2177
08-Dec-17	1361		9200	61	55		1361
09-Dec-17	837		8300	-63	-8		837
10-Dec-17	343		8000	43	35		343
11-Dec-17	559		7400	-41	-6		559
12-Dec-17	1066		6400	66	60		1066
13-Dec-17	788		5600	-12	48		788
14-Dec-17	1266		4350	16	64		1266
15-Dec-17	939		3400	-11	53		939
16-Dec-17	747		2700	47	100		747
17-Dec-17	654	8121	10200	33	133		654
18-Dec-17	582		9650	32	165		582
19-Dec-17	995		8600	-55	110		995
20-Dec-17	1048		7550	-2	108		1048
21-Dec-17	1160		6400	10	118		1160
22-Dec-17	1035	6932	12350	53	171		1035
23-Dec-17	1179		11000	-171	0		1179
24-Dec-17	652		10400	52	52		652
25-Dec-17	0		10400	0	52		0
26-Dec-17	0		10400	0	52		0
27-Dec-17	623		9700	-77	-25		623
28-Dec-17	610		9150	60	35		610
29-Dec-17	435		8750	35	70		435
30-Dec-17	116		8600	-34	36		116
31-Dec-17	204		8450	54	90		204
Throughput	**22997**						**22997**
			Average Day Variance	**83**			
			Final Raw Loss/Gain		**90**		

SIR Corrected Data

Sales	Deliveries	Dips	Data Disc.	Day Var	Cumm.
	30-Nov	5300			
-	-				
1032		4350		82	82
600		3800		50	132
dip removed					
1244	11004	13400		-160	-28
745		12600		-55	-83
dip removed					
2177		10500		77	-6
1361		9200		61	55
837		8300		-63	-8
343		8000		43	35
559		7400		-41	-6
1066		6400		66	60
788		5600		-12	48
1266		4350		16	64
939		3400		-11	53
747		2700		47	100
654	8121	10200		33	133
582		9650		32	165
995		8600		-55	110
1048		7550		-2	108
1160		6400		10	118
1035	6932	12350		53	171
1179		11000		-171	
652		10400		52	52
0		10400			52
0		10400			52
623		9700		-77	-25
610		9150		60	35
435		8750		35	70
116		8600		-34	36
204		8450		54	90
			Average Day Variance	**50**	
			Final Raw Loss/Gain		**90**

C.S.T.S.
Compaction & Soil Testing Services Pty Ltd
1/78 Owen Street, GLENDENNING NSW 2761 • ABN 44 106 976 738
Phone: 02 9675 7522 Fax: 02 9675 7544
Email: office@csts.net.au Web: www.csts.net.au

Appendix G

Laboratory Documentation

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Compaction and Soil Testing Pty Ltd
Attention	Craig Ridley

Sample Login Details

Your reference	E1256
Envirolab Reference	191179
Date Sample Received	09/05/2018
Date Instructions Received	09/05/2018
Date Results Expected to be Reported	17/05/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	35 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	5.2
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

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@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the 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
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Synthetic Pyrethroids in soil	Carbamates in Soil	Total Phenolics (as Phenol)	Asbestos ID - soils NEPM - ASB-001
BH1-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH1-1.5	✓	✓	✓	✓			✓	✓			✓	
BH1-2.5	✓	✓	✓	✓			✓	✓			✓	
BH2-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH2-1.5	✓	✓	✓	✓			✓	✓			✓	
BH3-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH3-1.5	✓	✓	✓	✓			✓	✓			✓	
BH4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH4-1.5	✓	✓	✓	✓			✓	✓			✓	
BH4-2.5	✓	✓	✓	✓			✓	✓			✓	
BH5-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH5-1.5	✓	✓	✓	✓			✓	✓			✓	
BH5-2.5	✓	✓	✓	✓			✓	✓			✓	
BH6-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH6-1.5	✓	✓	✓	✓			✓	✓			✓	
BH7-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH8-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH9-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH10-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH10-1.5	✓	✓	✓	✓			✓	✓			✓	
BH11-2.5	✓	✓	✓	✓			✓	✓			✓	
BH11-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH11-1.5	✓	✓	✓	✓			✓	✓			✓	
BH11-2.3	✓	✓	✓	✓			✓	✓			✓	
BH12-1.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH12-1.8	✓	✓	✓	✓			✓	✓			✓	
BH13-1.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH13-2.0	✓	✓	✓	✓			✓	✓			✓	
BH14-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH14-1.5	✓	✓	✓	✓			✓	✓			✓	
BH14-2.5	✓	✓	✓	✓			✓	✓			✓	
B1		✓	✓	✓				✓				

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VOCs in soil	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Synthetic Pyrethroids in soil	Carbamates in Soil	Total Phenolics (as Phenol)	Asbestos ID - soils NEPM - ASB-001
B2		✓	✓	✓				✓				
TB		✓										
TS		✓										

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph 08 9317 2505 / lab@mpl.com.au

Melbourne Lab - Envirolab Services
1A Dalmore Drive Scoresby VIC 3179
Ph 03 9763 2500 / melbourne@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: Compaction & Soil Testing Services Pty Ltd

Contact Person: Craig Ridley

Project Mgr:

Sampler:

Address: 1/78 Owen street, Glendenning NSW 2761

Phone: (02) 9675 7522 Mob: 0488 002 273

Email: accounts@csts.net.au, craig@csts.net.au

Client Project Name / Number / Site etc (ie report title): E1256

PO No.:

Envirolab Quote No. :

Date results required: Standard

Or choose: standard / same day / 1 day / 2 day / 3 day

Note: Inform lab in advance if urgent turnaround is required - surcharges apply

Report format: esdat / equis /

Lab Comments:

Sample information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 8	Combo 4	Combo 3	PCB	VOC	MTBE	Synthetic Pyrethroids	Carbamates	Asbestos NEPM	BTEX					Provide as much information about the sample as you can
1	BH1 0.5m		08.05.18	Soil	X				X	X	X.	X	X						
2	BH1 1.5m		08.05.18	Soil		X		X	X	X									
3	BH1 2.5m		08.05.18	Soil		X		X	X	X									
4	BH2 0.5m		08.05.18	Soil	X				X	X	X	X	X						
5	BH2 1.5m		08.05.18	Soil		X		X	X	X									
6	BH3 0.5m		08.05.18	Soil	X				X	X	X	X	X						
7	BH3 1.5m		08.05.18	Soil		X		X	X	X									
8	BH4 0.5m		08.05.18	Soil	X				X	X	X	X	X						
9	BH4 1.5m		08.05.18	Soil		X		X	X	X									
10	BH4 2.5m		08.05.18	Soil		X		X	X	X									
11	BH5 0.5m		08.05.18	Soil	X				X	X	X	X	X						
12	BH5 1.5m		08.05.18	Soil		X		X	X	X									
13	BH5 2.5m		08.05.18	Soil		X		X	X	X									

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

Job No: 191179

Date Received: 9/5/2018

Time Received: 14:00

Received By: R

Temp: Cool/Ambient 5.2

Cooling: Ice/Icepack

Security: Intact/Broken/None

Relinquished by (Company): CSTS

Print Name: TETE AYOTEDJ

Date & Time: 9 MAY 2018

Signature:

Received by (Company): EL

Print Name: P.Ray

Date & Time: 9/5/2018 1400

Signature: R

Lab use only:

Samples Received: Cool or Ambient (circle one)

Temperature Received at: 5.2 (if applicable)

Transported by: Hand delivered / courier

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
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Melbourne Lab - Envirolab Services
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Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
Ph 0406 350 705 / adelaide@envirolab.com.au

Client: Compaction & Soil Testing Services Pty Ltd

Contact Person: Craig Ridley

Project Mgr:

Sampler:

Address: 1/78 Owen street, Glendenning NSW 2761

Phone: (02) 9675 7522 Mob: 0488 002 273

Email: accounts@csts.net.au, craig@csts.net.au

Client Project Name / Number / Site etc (ie report title): E1256

PO No.:

Envirolab Quote No. :

Date results required: Standard

Or choose: standard / same day / 1 day / 2 day / 3 day

Note: Inform lab in advance if urgent turnaround is required - surcharges apply

Report format: esdat / equis /

Lab Comments:

Sample Information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or Information	Depth	Date sampled	Type of sample	Combo 8	Combo 4	Combo 3	PCB	VOC	MTBE	Synthetic Pyrethroids	Carbamates	Asbestos NEPM	BTEX						Provide as much information about the sample as you can
14	BH6 0.5m		08.05.18	Soil	X				X	X	X	X	X							
15	BH6 1.5m		08.05.18	Soil		X		X	X	X										
16	BH7 0.2m		08.05.18	Soil	X				X	X	X	X	X							
17	BH8 0.2m		08.05.18	Soil	X				X	X	X	X	X							
18	BH9 0.2m		08.05.18	Soil	X				X	X	X	X	X							
19	BH10 0.5m		08.05.18	Soil	X				X	X	X	X	X							
20	BH10 1.5m		08.05.18	Soil		X		X	X	X										
21	BH10 2.5m		08.05.18	Soil		X		X	X	X										
22	BH11 0.5m		08.05.18	Soil	X				X	X	X	X	X							
23	BH11 1.5m		08.05.18	Soil		X		X	X	X										
24	BH11 2.3m		08.05.18	Soil		X		X	X	X										
25	BH12 1.0m		08.05.18	Soil	X				X	X	X	X	X							
26	BH12 1.8m		08.05.18	Soil		X		X	X	X										

Relinquished by (Company): CSTS

Print Name: TETE AMOTEO V

Date & Time: 9 MAY 2018

Signature:

Received by (Company): ENS 191179

Print Name: P.Ray

Date & Time: 9/5/2018 14:00

Signature: PR

Lab use only:

Samples Received: Cool or Ambient (circle one)

Temperature Received at: (If applicable)

Transported by: Hand delivered / courier

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph 08 9317 2505 / lab@mpl.com.au

Melbourne Lab - Envirolab Services
1A Dalmore Drive Scoresby VIC 3179
Ph 03 9763 2500 / melbourne@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: Compaction & Soil Testing Services Pty Ltd

Contact Person: Craig Ridley

Project Mgr:

Sampler:

Address: 1/78 Owen street, Glendenning NSW 2761

Phone: (02) 9675 7522 Mob: 0488 002 273

Email: accounts@csts.net.au, craig@csts.net.au

Client Project Name / Number / Site etc (le report title): E1256

PO No.:

Envirolab Quote No. :

Date results required: Standard

Or choose: standard / same day / 1 day / 2 day / 3 day

Note: Inform lab in advance if urgent turnaround is required - surcharges apply

Report format: esdat / equis /

Lab Comments:

Sample information					Tests Required														Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 8	Combo 4	Combo 3	PCB	VOC	MTBE	Synthetic Pyrethroids	Carbamates	Asbestos NEPM	BTEX						Provide as much information about the sample as you can
27	BH13 1.0m		08.05.18	Soil	X				X	X	X	X	X							
28	BH13 2.0m		08.05.18	Soil		X		X	X	X										
29	BH14 0.5m		08.05.18	Soil	X				X	X	X	X	X							
30	BH14 1.5m		08.05.18	Soil		X		X	X	X										
31	BH14 2.5m		08.05.18	Soil		X		X	X	X										
32	B1		08.05.18	Soil			X													
33	B2		08.05.18	Soil			X													
34	TB		08.05.18	Soil										X						
35	TS		08.05.18	Soil										X						

Relinquished by (Company): CSTS

Print Name: TETE AWSTEDV

Date & Time: 9 MAY 2018

Signature:

Received by (Company): ED 191179

Print Name: DRay

Date & Time: 9/5/2018 1400

Signature:

Lab use only:

Samples Received: Cool or Ambient (circle one)

Temperature Received at: (if applicable)

Transported by: Hand delivered / courier

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CERTIFICATE OF ANALYSIS 191179

Client Details

Client	Compaction and Soil Testing Pty Ltd
Attention	Craig Ridley
Address	Unit 1, 78 Owen St, Glendenning, NSW, 2761

Sample Details

Your Reference	**E1256**
Number of Samples	35 Soil
Date samples received	09/05/2018
Date completed instructions received	09/05/2018

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	17/05/2018
Date of Issue	22/05/2018
Reissue Details	This report replaces R00 created on 17/05/2018 due to: sample ID error

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Asbestos Approved By
Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Ken Nguyen, Senior Chemist
Lucy Zhu, Asbsestos Analyst
Nancy Zhang, Assistant Lab Manager
Nick Sarlamis, Inorganics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

VOCs in soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
bromochloromethane	mg/kg	<1	<1	<1	<1	<1
chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
carbon tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
trichloroethene	mg/kg	<1	<1	<1	<1	<1
bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1	<1	<1	<1	<1
dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-dibromoethane	mg/kg	<1	<1	<1	<1	<1
tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
chlorobenzene	mg/kg	<1	<1	<1	<1	<1
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichloropropane	mg/kg	<1	<1	<1	<1	<1
isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-propyl benzene	mg/kg	<1	<1	<1	<1	<1
2-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
tert-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
1,3-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,4-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-isopropyl toluene	mg/kg	<1	<1	<1	<1	<1
1,2-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluorometha	%	114	112	105	107	112
Surrogate aaa-Trifluorotoluene	%	91	93	105	91	108
Surrogate Toluene-d_8	%	100	99	99	98	100
Surrogate 4-Bromofluorobenzene	%	99	94	93	85	93

VOCs in soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
bromochloromethane	mg/kg	<1	<1	<1	<1	<1
chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
carbon tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
trichloroethene	mg/kg	<1	<1	<1	<1	<1
bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1	<1	<1	<1	<1
dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-dibromoethane	mg/kg	<1	<1	<1	<1	<1
tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
chlorobenzene	mg/kg	<1	<1	<1	<1	<1
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichloropropane	mg/kg	<1	<1	<1	<1	<1
isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-propyl benzene	mg/kg	<1	<1	<1	<1	<1
2-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
tert-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
1,3-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,4-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-isopropyl toluene	mg/kg	<1	<1	<1	<1	<1
1,2-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluorometha	%	114	110	109	112	118
Surrogate aaa-Trifluorotoluene	%	101	105	102	102	107
Surrogate Toluene-d_8	%	99	93	92	95	107
Surrogate 4-Bromofluorobenzene	%	91	96	88	90	95

VOCs in soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
bromochloromethane	mg/kg	<1	<1	<1	<1	<1
chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
carbon tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
trichloroethene	mg/kg	<1	<1	<1	<1	<1
bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1	<1	<1	<1	<1
dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-dibromoethane	mg/kg	<1	<1	<1	<1	<1
tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
chlorobenzene	mg/kg	<1	<1	<1	<1	<1
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichloropropane	mg/kg	<1	<1	<1	<1	<1
isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-propyl benzene	mg/kg	<1	<1	<1	<1	<1
2-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
tert-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
1,3-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,4-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-isopropyl toluene	mg/kg	<1	<1	<1	<1	<1
1,2-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluorometha	%	119	117	118	115	114
Surrogate aaa-Trifluorotoluene	%	103	106	104	95	80
Surrogate Toluene-d_8	%	102	94	97	92	92
Surrogate 4-Bromofluorobenzene	%	90	90	90	91	91

VOCs in soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
bromochloromethane	mg/kg	<1	<1	<1	<1	<1
chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
carbon tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
trichloroethene	mg/kg	<1	<1	<1	<1	<1
bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1	<1	<1	<1	<1
dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-dibromoethane	mg/kg	<1	<1	<1	<1	<1
tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
chlorobenzene	mg/kg	<1	<1	<1	<1	<1
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichloropropane	mg/kg	<1	<1	<1	<1	<1
isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-propyl benzene	mg/kg	<1	<1	<1	<1	<1
2-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
tert-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
1,3-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,4-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-isopropyl toluene	mg/kg	<1	<1	<1	<1	<1
1,2-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluorometha	%	116	113	116	119	115
Surrogate aaa-Trifluorotoluene	%	88	92	86	104	96
Surrogate Toluene-d_8	%	97	93	101	102	99
Surrogate 4-Bromofluorobenzene	%	95	89	91	95	88

VOCs in soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
bromochloromethane	mg/kg	<1	<1	<1	<1	<1
chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
carbon tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	1	2	<0.2	<0.2
dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
trichloroethene	mg/kg	<1	<1	<1	<1	<1
bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1	<1	<1	<1	<1
dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-dibromoethane	mg/kg	<1	<1	<1	<1	<1
tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
chlorobenzene	mg/kg	<1	<1	<1	<1	<1
Ethylbenzene	mg/kg	<1	<1	1	<1	<1

VOCs in soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	6	<2	<2
styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	1	<1	<1
1,2,3-trichloropropane	mg/kg	<1	<1	<1	<1	<1
isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-propyl benzene	mg/kg	<1	<1	<1	<1	<1
2-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
tert-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	mg/kg	<1	<1	2	<1	<1
1,3-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,4-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-isopropyl toluene	mg/kg	<1	<1	<1	<1	<1
1,2-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluorometha	%	120	122	119	116	123
Surrogate aaa-Trifluorotoluene	%	101	106	93	102	107
Surrogate Toluene-d_8	%	101	102	103	97	102
Surrogate 4-Bromofluorobenzene	%	86	94	97	94	89

VOCs in soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	<1	<1	<1	<1	<1
Chloromethane	mg/kg	<1	<1	<1	<1	<1
Vinyl Chloride	mg/kg	<1	<1	<1	<1	<1
Bromomethane	mg/kg	<1	<1	<1	<1	<1
Chloroethane	mg/kg	<1	<1	<1	<1	<1
Trichlorofluoromethane	mg/kg	<1	<1	<1	<1	<1
1,1-Dichloroethene	mg/kg	<1	<1	<1	<1	<1
trans-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
1,1-dichloroethane	mg/kg	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	mg/kg	<1	<1	<1	<1	<1
bromochloromethane	mg/kg	<1	<1	<1	<1	<1
chloroform	mg/kg	<1	<1	<1	<1	<1
2,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1,1-trichloroethane	mg/kg	<1	<1	<1	<1	<1
1,1-dichloropropene	mg/kg	<1	<1	<1	<1	<1
Cyclohexane	mg/kg	<1	<1	<1	<1	<1
carbon tetrachloride	mg/kg	<1	<1	<1	<1	<1
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
dibromomethane	mg/kg	<1	<1	<1	<1	<1
1,2-dichloropropane	mg/kg	<1	<1	<1	<1	<1
trichloroethene	mg/kg	<1	<1	<1	<1	<1
bromodichloromethane	mg/kg	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	mg/kg	<1	<1	<1	<1	<1
1,1,2-trichloroethane	mg/kg	<1	<1	<1	<1	<1
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	mg/kg	<1	<1	<1	<1	<1
dibromochloromethane	mg/kg	<1	<1	<1	<1	<1
1,2-dibromoethane	mg/kg	<1	<1	<1	<1	<1
tetrachloroethene	mg/kg	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
chlorobenzene	mg/kg	<1	<1	<1	<1	<1
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1

VOCs in soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
bromoform	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
styrene	mg/kg	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	mg/kg	<1	<1	<1	<1	<1
o-Xylene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichloropropane	mg/kg	<1	<1	<1	<1	<1
isopropylbenzene	mg/kg	<1	<1	<1	<1	<1
bromobenzene	mg/kg	<1	<1	<1	<1	<1
n-propyl benzene	mg/kg	<1	<1	<1	<1	<1
2-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
4-chlorotoluene	mg/kg	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
tert-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	mg/kg	<1	<1	<1	<1	<1
1,3-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
sec-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,4-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
4-isopropyl toluene	mg/kg	<1	<1	<1	<1	<1
1,2-dichlorobenzene	mg/kg	<1	<1	<1	<1	<1
n-butyl benzene	mg/kg	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	mg/kg	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
hexachlorobutadiene	mg/kg	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	mg/kg	<1	<1	<1	<1	<1
Surrogate Dibromofluorometha	%	117	116	123	123	122
Surrogate aaa-Trifluorotoluene	%	103	100	103	102	105
Surrogate Toluene-d_8	%	92	98	102	100	98
Surrogate 4-Bromofluorobenzene	%	86	89	92	87	90

VOCs in soil		
Our Reference		191179-31
Your Reference	UNITS	BH14
Depth		2.5
Date Sampled		08/05/2018
Type of sample		Soil
Date extracted	-	10/05/2018
Date analysed	-	11/05/2018
Dichlorodifluoromethane	mg/kg	<1
Chloromethane	mg/kg	<1
Vinyl Chloride	mg/kg	<1
Bromomethane	mg/kg	<1
Chloroethane	mg/kg	<1
Trichlorofluoromethane	mg/kg	<1
1,1-Dichloroethene	mg/kg	<1
trans-1,2-dichloroethene	mg/kg	<1
1,1-dichloroethane	mg/kg	<1
cis-1,2-dichloroethene	mg/kg	<1
bromochloromethane	mg/kg	<1
chloroform	mg/kg	<1
2,2-dichloropropane	mg/kg	<1
1,2-dichloroethane	mg/kg	<1
1,1,1-trichloroethane	mg/kg	<1
1,1-dichloropropene	mg/kg	<1
Cyclohexane	mg/kg	<1
carbon tetrachloride	mg/kg	<1
Benzene	mg/kg	<0.2
dibromomethane	mg/kg	<1
1,2-dichloropropane	mg/kg	<1
trichloroethene	mg/kg	<1
bromodichloromethane	mg/kg	<1
trans-1,3-dichloropropene	mg/kg	<1
cis-1,3-dichloropropene	mg/kg	<1
1,1,2-trichloroethane	mg/kg	<1
Toluene	mg/kg	<0.5
1,3-dichloropropane	mg/kg	<1
dibromochloromethane	mg/kg	<1
1,2-dibromoethane	mg/kg	<1
tetrachloroethene	mg/kg	<1
1,1,1,2-tetrachloroethane	mg/kg	<1
chlorobenzene	mg/kg	<1
Ethylbenzene	mg/kg	<1

VOCs in soil		
Our Reference		191179-31
Your Reference	UNITS	BH14
Depth		2.5
Date Sampled		08/05/2018
Type of sample		Soil
bromoform	mg/kg	<1
m+p-xylene	mg/kg	<2
styrene	mg/kg	<1
1,1,2,2-tetrachloroethane	mg/kg	<1
o-Xylene	mg/kg	<1
1,2,3-trichloropropane	mg/kg	<1
isopropylbenzene	mg/kg	<1
bromobenzene	mg/kg	<1
n-propyl benzene	mg/kg	<1
2-chlorotoluene	mg/kg	<1
4-chlorotoluene	mg/kg	<1
1,3,5-trimethyl benzene	mg/kg	<1
tert-butyl benzene	mg/kg	<1
1,2,4-trimethyl benzene	mg/kg	<1
1,3-dichlorobenzene	mg/kg	<1
sec-butyl benzene	mg/kg	<1
1,4-dichlorobenzene	mg/kg	<1
4-isopropyl toluene	mg/kg	<1
1,2-dichlorobenzene	mg/kg	<1
n-butyl benzene	mg/kg	<1
1,2-dibromo-3-chloropropane	mg/kg	<1
1,2,4-trichlorobenzene	mg/kg	<1
hexachlorobutadiene	mg/kg	<1
1,2,3-trichlorobenzene	mg/kg	<1
Surrogate Dibromofluorometha	%	123
Surrogate aaa-Trifluorotoluene	%	109
Surrogate Toluene-d_8	%	102
Surrogate 4-Bromofluorobenzene	%	93

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
MTBE	µg/L	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	91	93	105	91	108

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
MTBE	µg/L	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	105	102	102	107

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
MTBE	µg/L	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	106	104	95	80

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
MTBE	µg/L	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	88	92	86	104	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	1	2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	1	<1	<1
m+p-xylene	mg/kg	<2	<2	6	<2	<2
o-Xylene	mg/kg	<1	<1	1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
MTBE	µg/L	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	8	<1	<1
Surrogate aaa-Trifluorotoluene	%	101	106	93	102	107

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
MTBE	µg/L	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	103	100	103	102	105

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		191179-31	191179-32	191179-33	191179-34	191179-35
Your Reference	UNITS	BH14	B1	B2	TB	TS
Depth		2.5	-	-	-	-
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	[NA]	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	[NA]	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	[NA]	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	98%
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	98%
Ethylbenzene	mg/kg	<1	<1	<1	<1	96%
m+p-xylene	mg/kg	<2	<2	<2	<2	96%
o-Xylene	mg/kg	<1	<1	<1	<1	96%
naphthalene	mg/kg	<1	<1	<1	[NA]	[NA]
MTBE	µg/L	<1	<1	<1	[NA]	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%	109	93	92	100	75

svTRH (C10-C40) in Soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	79	82	80	80	82

svTRH (C10-C40) in Soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	81	81	81	82	81

svTRH (C10-C40) in Soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	80	81	81	80	80

svTRH (C10-C40) in Soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	120	200	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	120	220	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	69	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	69	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	220	340	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	130	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	220	540	<50	<50
Surrogate o-Terphenyl	%	78	92	95	80	80

svTRH (C10-C40) in Soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	79	78	78	77	79

svTRH (C10-C40) in Soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	77	78	79	84	78

svTRH (C10-C40) in Soil				
Our Reference		191179-31	191179-32	191179-33
Your Reference	UNITS	BH14	B1	B2
Depth		2.5	-	-
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	78	80	78

PAHs in Soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<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
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	102	118	107	101	99

PAHs in Soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<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
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	102	100	100	102

PAHs in Soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<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
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	105	98	103	106

PAHs in Soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.4	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.1	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	1.9	<0.05	0.1	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	107	102	102	104	98

PAHs in Soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	0.2	0.2	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<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
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.2	0.2	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	101	98	102	105

PAHs in Soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<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
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	0.1	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	99	100	100	101	103

PAHs in Soil				
Our Reference		191179-31	191179-32	191179-33
Your Reference	UNITS	BH14	B1	B2
Depth		2.5	-	-
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
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	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	128	98	123

Organochlorine Pesticides in soil						
Our Reference		191179-1	191179-4	191179-6	191179-8	191179-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.5	0.5	0.5	0.5	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	14/05/2018	11/05/2018	11/05/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	88	101	102

Organochlorine Pesticides in soil						
Our Reference		191179-14	191179-16	191179-17	191179-18	191179-19
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.5	0.2	0.2	0.2	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	14/05/2018	11/05/2018	11/05/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	102	100	91	100	103

Organochlorine Pesticides in soil					
Our Reference		191179-22	191179-25	191179-27	191179-29
Your Reference	UNITS	BH11	BH12	BH13	BH14
Depth		0.5	1.0	1.0	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	101	101	99

Organophosphorus Pesticides						
Our Reference		191179-1	191179-4	191179-6	191179-8	191179-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.5	0.5	0.5	0.5	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	14/05/2018	11/05/2018	11/05/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	103	88	101	102

Organophosphorus Pesticides						
Our Reference		191179-14	191179-16	191179-17	191179-18	191179-19
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.5	0.2	0.2	0.2	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	14/05/2018	11/05/2018	11/05/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	102	100	91	100	103

Organophosphorus Pesticides					
Our Reference		191179-22	191179-25	191179-27	191179-29
Your Reference	UNITS	BH11	BH12	BH13	BH14
Depth		0.5	1.0	1.0	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	99	101	101	99

PCBs in Soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	14/05/2018	11/05/2018	14/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	103	100	91	103	91

PCBs in Soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	14/05/2018	14/05/2018	11/05/2018	14/05/2018	14/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	88	94	101	91	92

PCBs in Soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	14/05/2018	14/05/2018	11/05/2018	14/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	102	92	91	102	91

PCBs in Soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	14/05/2018	11/05/2018	11/05/2018	14/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	100	91	100	103	90

PCBs in Soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	14/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	90	99	101	100	101

PCBs in Soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	14/05/2018	11/05/2018	14/05/2018	11/05/2018	14/05/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	91	101	91	99	90

PCBs in Soil		
Our Reference		191179-31
Your Reference	UNITS	BH14
Depth		2.5
Date Sampled		08/05/2018
Type of sample		Soil
Date extracted	-	10/05/2018
Date analysed	-	14/05/2018
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	92

Acid Extractable metals in soil						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	5	7	4	5	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	38	8	20	27
Copper	mg/kg	6	8	3	5	4
Lead	mg/kg	20	17	15	16	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	10	<1	4	5
Zinc	mg/kg	21	21	1	52	17

Acid Extractable metals in soil						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	5	5	<4	6	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	26	11	27	33
Copper	mg/kg	5	5	55	7	4
Lead	mg/kg	33	17	41	18	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	8	3	8	8
Zinc	mg/kg	25	14	47	17	18

Acid Extractable metals in soil						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	4	5	4	8	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	17	29	9	35	5
Copper	mg/kg	2	4	1	8	14
Lead	mg/kg	14	17	13	14	19
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	10	<1	18	1
Zinc	mg/kg	13	21	2	18	2

Acid Extractable metals in soil						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	14	5	6	11	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	32	32	38	27	5
Copper	mg/kg	42	7	16	2	<1
Lead	mg/kg	10	22	23	15	14
Mercury	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	39	6	24	4	<1
Zinc	mg/kg	54	19	37	7	<1

Acid Extractable metals in soil						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	<4	4	6	<4	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	9	15	8	7	13
Copper	mg/kg	6	<1	<1	7	<1
Lead	mg/kg	17	15	6	10	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	2	<1	<1	<1
Zinc	mg/kg	1	4	<1	1	2

Acid Extractable metals in soil						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	<4	6	5	<4	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	15	27	6	18	10
Copper	mg/kg	2	3	<1	3	<1
Lead	mg/kg	12	13	15	15	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	6	<1	6	<1
Zinc	mg/kg	<1	15	<1	12	1

Acid Extractable metals in soil						
Our Reference		191179-31	191179-32	191179-33	191179-36	191179-37
Your Reference	UNITS	BH14	B1	B2	BH8 - [TRIPLICATE]	BH9 - [TRIPLICATE]
Depth		2.5	-	-	0.2	0.2
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Arsenic	mg/kg	<4	5	11	7	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	20	24	53	51
Copper	mg/kg	<1	6	3	10	28
Lead	mg/kg	23	16	15	37	50
Mercury	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Nickel	mg/kg	<1	5	3	6	39
Zinc	mg/kg	<1	14	7	39	36

Synthetic Pyrethroids in soil						
Our Reference		191179-1	191179-4	191179-6	191179-8	191179-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.5	0.5	0.5	0.5	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Bifenthrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cyfluthrin	mg/kg	<2	<2	<2	<2	<2
Cypermethrin	mg/kg	<2	<2	<2	<2	<2
Deltamethrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Esfenvalerate	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lamda Cyhalothrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cis Permethrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Trans Permethrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	94	98	94	96	94

Synthetic Pyrethroids in soil						
Our Reference		191179-14	191179-16	191179-17	191179-18	191179-19
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.5	0.2	0.2	0.2	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Bifenthrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cyfluthrin	mg/kg	<2	<2	<2	<2	<2
Cypermethrin	mg/kg	<2	<2	<2	<2	<2
Deltamethrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Esfenvalerate	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Lamda Cyhalothrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Cis Permethrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Trans Permethrin	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	100	100	102	100	96

Synthetic Pyrethroids in soil					
Our Reference		191179-22	191179-25	191179-27	191179-29
Your Reference	UNITS	BH11	BH12	BH13	BH14
Depth		0.5	1.0	1.0	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Bifenthrin	mg/kg	<0.5	<0.5	<0.5	<0.5
Cyfluthrin	mg/kg	<2	<2	<2	<2
Cypermethrin	mg/kg	<2	<2	<2	<2
Deltamethrin	mg/kg	<0.5	<0.5	<0.5	<0.5
Esfenvalerate	mg/kg	<0.5	<0.5	<0.5	<0.5
Lamda Cyhalothrin	mg/kg	<0.5	<0.5	<0.5	<0.5
Cis Permethrin	mg/kg	<0.5	<0.5	<0.5	<0.5
Trans Permethrin	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	96	92	90	92

Carbamates in Soil						
Our Reference		191179-1	191179-4	191179-6	191179-8	191179-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.5	0.5	0.5	0.5	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Carbaryl	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbofuran	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Molinate	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	94	98	94	96	94

Carbamates in Soil						
Our Reference		191179-14	191179-16	191179-17	191179-18	191179-19
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.5	0.2	0.2	0.2	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date Extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Carbaryl	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Carbofuran	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Molinate	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	100	100	102	100	96

Carbamates in Soil					
Our Reference		191179-22	191179-25	191179-27	191179-29
Your Reference	UNITS	BH11	BH12	BH13	BH14
Depth		0.5	1.0	1.0	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil
Date Extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Carbaryl	mg/kg	<0.5	<0.5	<0.5	<0.5
Carbofuran	mg/kg	<0.5	<0.5	<0.5	<0.5
Molinate	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	96	92	90	92

Misc Soil - Inorg						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg		
Our Reference		191179-31
Your Reference	UNITS	BH14
Depth		2.5
Date Sampled		08/05/2018
Type of sample		Soil
Date prepared	-	10/05/2018
Date analysed	-	15/05/2018
Total Phenolics (as Phenol)	mg/kg	<5

Moisture						
Our Reference		191179-1	191179-2	191179-3	191179-4	191179-5
Your Reference	UNITS	BH1	BH1	BH1	BH2	BH2
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Moisture	%	22	27	11	20	20

Moisture						
Our Reference		191179-6	191179-7	191179-8	191179-9	191179-10
Your Reference	UNITS	BH3	BH3	BH4	BH4	BH4
Depth		0.5	1.5	0.5	1.5	2.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Moisture	%	19	20	13	18	20

Moisture						
Our Reference		191179-11	191179-12	191179-13	191179-14	191179-15
Your Reference	UNITS	BH5	BH5	BH5	BH6	BH6
Depth		0.5	1.5	2.5	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Moisture	%	15	22	14	24	23

Moisture						
Our Reference		191179-16	191179-17	191179-18	191179-19	191179-20
Your Reference	UNITS	BH7	BH8	BH9	BH10	BH10
Depth		0.2	0.2	0.2	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Moisture	%	12	18	16	24	14

Moisture						
Our Reference		191179-21	191179-22	191179-23	191179-24	191179-25
Your Reference	UNITS	BH10	BH11	BH11	BH11	BH12
Depth		2.5	0.5	1.5	2.3	1.0
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Moisture	%	11	19	16	10	19

Moisture						
Our Reference		191179-26	191179-27	191179-28	191179-29	191179-30
Your Reference	UNITS	BH12	BH13	BH13	BH14	BH14
Depth		1.8	1.0	2.0	0.5	1.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018
Moisture	%	7.8	21	10	21	17

Moisture				
Our Reference		191179-31	191179-32	191179-33
Your Reference	UNITS	BH14	B1	B2
Depth		2.5	-	-
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil
Date prepared	-	10/05/2018	10/05/2018	10/05/2018
Date analysed	-	11/05/2018	11/05/2018	11/05/2018
Moisture	%	11	20	17

Asbestos ID - soils NEPM - ASB-001						
Our Reference		191179-1	191179-4	191179-6	191179-8	191179-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.5	0.5	0.5	0.5	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	16/05/2018	16/05/2018	16/05/2018	16/05/2018	16/05/2018
Sample mass tested	g	616.84	394.88	488.42	382.11	692.01
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Beige clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		191179-14	191179-16	191179-17	191179-18	191179-19
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.5	0.2	0.2	0.2	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	16/05/2018	16/05/2018	16/05/2018	16/05/2018	16/05/2018
Sample mass tested	g	581	935.15	606.03	738.43	613.11
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001					
Our Reference		191179-22	191179-25	191179-27	191179-29
Your Reference	UNITS	BH11	BH12	BH13	BH14
Depth		0.5	1.0	1.0	0.5
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	16/05/2018	16/05/2018	16/05/2018	16/05/2018
Sample mass tested	g	539.89	581.06	516.62	681.93
Sample Description	-	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks	Brown clayey soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–
FA and AF Estimation*	g	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Ext-054	Analysed by MPL Envirolab
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-012VIC	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Samples analysed at Envirolab Melbourne, NATA site accreditation no. 21192.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			11/05/2018	1	11/05/2018	11/05/2018		11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	97	109
cis-1,2-dichloroethene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
bromochloromethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
chloroform	mg/kg	1	Org-014	<1	1	<1	<1	0	97	105
2,2-dichloropropane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	95	109
1,1,1-trichloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	100	115
1,1-dichloropropene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
carbon tetrachloride	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-014	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
dibromomethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
trichloroethene	mg/kg	1	Org-014	<1	1	<1	<1	0	88	98
bromodichloromethane	mg/kg	1	Org-014	<1	1	<1	<1	0	93	109
trans-1,3-dichloropropene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-014	<0.5	1	<0.5	<0.5	0	[NT]	[NT]
1,3-dichloropropane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
dibromochloromethane	mg/kg	1	Org-014	<1	1	<1	<1	0	95	119
1,2-dibromoethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
tetrachloroethene	mg/kg	1	Org-014	<1	1	<1	<1	0	87	99
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
chlorobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
bromoform	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-014	<2	1	<2	<2	0	[NT]	[NT]
styrene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
1,2,3-trichloropropane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
isopropylbenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
bromobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
tert-butyl benzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
sec-butyl benzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluorometha	%		Org-014	120	1	114	117	3	108	112
Surrogate aaa-Trifluorotoluene	%		Org-014	106	1	91	104	13	97	104
Surrogate Toluene-d_8	%		Org-014	103	1	100	103	3	93	105
Surrogate 4-Bromofluorobenzene	%		Org-014	86	1	99	87	13	96	92

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			[NT]	11	11/05/2018	11/05/2018		11/05/2018	11/05/2018
Dichlorodifluoromethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	101	89
cis-1,2-dichloroethene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
bromochloromethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
chloroform	mg/kg	1	Org-014	[NT]	11	<1	<1	0	105	90
2,2-dichloropropane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	103	88
1,1,1-trichloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	97	90
1,1-dichloropropene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
carbon tetrachloride	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-014	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
dibromomethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
trichloroethene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	95	77
bromodichloromethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	83	85
trans-1,3-dichloropropene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-014	[NT]	11	<0.5	<0.5	0	[NT]	[NT]
1,3-dichloropropane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
dibromochloromethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	102	98
1,2-dibromoethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
tetrachloroethene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	102	80
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
chlorobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
bromoform	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-014	[NT]	11	<2	<2	0	[NT]	[NT]
styrene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
1,2,3-trichloropropane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
isopropylbenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
bromobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
n-propyl benzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
2-chlorotoluene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
4-chlorotoluene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
tert-butyl benzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
sec-butyl benzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
n-butyl benzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluorometha	%		Org-014	[NT]	11	119	121	2	70	120
Surrogate aaa-Trifluorotoluene	%		Org-014	[NT]	11	103	113	9	100	80
Surrogate Toluene-d_8	%		Org-014	[NT]	11	102	102	0	100	100
Surrogate 4-Bromofluorobenzene	%		Org-014	[NT]	11	90	90	0	93	96

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	11/05/2018	11/05/2018		[NT]	[NT]
Dichlorodifluoromethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
bromochloromethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
chloroform	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
2,2-dichloropropane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1,1-trichloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1-dichloropropene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
carbon tetrachloride	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-014	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
dibromomethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
trichloroethene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
bromodichloromethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
trans-1,3-dichloropropene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-014	[NT]	21	<0.5	<0.5	0	[NT]	[NT]
1,3-dichloropropane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
dibromochloromethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2-dibromoethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
tetrachloroethene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
chlorobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
bromoform	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-014	[NT]	21	<2	<2	0	[NT]	[NT]
styrene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
1,2,3-trichloropropane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
isopropylbenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
bromobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
n-propyl benzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
2-chlorotoluene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
4-chlorotoluene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
tert-butyl benzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
sec-butyl benzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
n-butyl benzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluorometha	%		Org-014	[NT]	21	120	116	3	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-014	[NT]	21	101	99	2	[NT]	[NT]
Surrogate Toluene-d_8	%		Org-014	[NT]	21	101	98	3	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-014	[NT]	21	86	86	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	11/05/2018	11/05/2018		[NT]	[NT]
Dichlorodifluoromethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Chloromethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Vinyl Chloride	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Bromomethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Chloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Trichlorofluoromethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1-Dichloroethene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
trans-1,2-dichloroethene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
cis-1,2-dichloroethene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
bromochloromethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
chloroform	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
2,2-dichloropropane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1,1-trichloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1-dichloropropene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Cyclohexane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
carbon tetrachloride	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-014	[NT]	31	<0.2	<0.2	0	[NT]	[NT]
dibromomethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
trichloroethene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
bromodichloromethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
trans-1,3-dichloropropene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-014	[NT]	31	<0.5	<0.5	0	[NT]	[NT]
1,3-dichloropropane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
dibromochloromethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2-dibromoethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
tetrachloroethene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1,1,2-tetrachloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
chlorobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
bromoform	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-014	[NT]	31	<2	<2	0	[NT]	[NT]
styrene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
1,2,3-trichloropropane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
isopropylbenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
bromobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
n-propyl benzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
2-chlorotoluene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
4-chlorotoluene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
tert-butyl benzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
sec-butyl benzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
n-butyl benzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
hexachlorobutadiene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluorometha	%		Org-014	[NT]	31	123	118	4	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-014	[NT]	31	109	98	11	[NT]	[NT]
Surrogate Toluene-d_8	%		Org-014	[NT]	31	102	96	6	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-014	[NT]	31	93	88	6	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			11/05/2018	1	11/05/2018	11/05/2018		11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	85	91
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	85	91
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	85	91
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	83	96
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	85	87
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	87	90
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	87	90
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
MTBE	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	121	1	91	104	13	111	118

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			[NT]	11	11/05/2018	11/05/2018		11/05/2018	11/05/2018
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	11	<25	<25	0	94	72
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	11	<25	<25	0	94	72
Benzene	mg/kg	0.2	Org-016	[NT]	11	<0.2	<0.2	0	99	74
Toluene	mg/kg	0.5	Org-016	[NT]	11	<0.5	<0.5	0	98	75
Ethylbenzene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	88	68
m+p-xylene	mg/kg	2	Org-016	[NT]	11	<2	<2	0	92	71
o-Xylene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	93	70
naphthalene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
MTBE	µg/L	1	Org-013	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	11	103	113	9	114	91

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	11/05/2018	11/05/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	21	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	21	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	21	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	21	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
MTBE	µg/L	1	Org-013	[NT]	21	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	21	101	99	2	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	11/05/2018	11/05/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	31	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	31	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	31	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	31	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	31	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	31	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	31	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	31	<1	<1	0	[NT]	[NT]
MTBE	µg/L	1	Org-013	[NT]	31	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	31	109	98	11	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			11/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	107	105
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	87	83
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	77	73
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	107	105
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	87	83
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	77	73
Surrogate o-Terphenyl	%		Org-003	81	1	79	81	2	88	82

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			[NT]	11	10/05/2018	10/05/2018		11/05/2018	11/05/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	11	<50	<50	0	98	103
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	81	83
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	77	72
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	11	<50	<50	0	98	103
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	81	83
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	77	72
Surrogate o-Terphenyl	%		Org-003	[NT]	11	80	80	0	87	78

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	11/05/2018	11/05/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	21	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	21	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	21	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	21	79	77	3	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	11/05/2018	11/05/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	31	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	31	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	31	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	31	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	31	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	31	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	31	78	78	0	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	104	93
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	108	99
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	115	104
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	110	98
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	107	97
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	95	93
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	103	97
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	122	1	102	108	6	107	104

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Naphthalene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	97	87
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	100	93
Phenanthrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	107	99
Anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	104	94
Pyrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	102	92
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	92	89
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	11	<0.05	<0.05	0	98	89
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	11	99	118	18	101	98

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	21	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	21	99	104	5	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	31	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	31	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	31	128	125	2	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-22
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			14/05/2018	1	11/05/2018	11/05/2018		11/05/2018	11/05/2018
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	98	89
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	87	89
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	93	94
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	94	89
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	91	86
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	96	93
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	100	100
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	88	89
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	93	97
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	83	94
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	106	1	103	103	0	122	112

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	11	11/05/2018	11/05/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	11	102	103	1	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-22
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			14/05/2018	1	11/05/2018	11/05/2018		11/05/2018	11/05/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	101	99
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	97	76
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	89	98
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	102	90
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	101	98
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	108	107
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	101	95
Surrogate TCMX	%		Org-008	106	1	103	103	0	98	92

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	11	11/05/2018	11/05/2018		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	11	102	103	1	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date extracted	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			14/05/2018	1	11/05/2018	11/05/2018		11/05/2018	11/05/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	100	100
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	106	1	103	103	0	98	102

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date extracted	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			[NT]	11	11/05/2018	11/05/2018		14/05/2018	11/05/2018
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	83	104
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	11	102	103	1	101	91

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	14/05/2018	14/05/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	21	90	90	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	14/05/2018	14/05/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	31	92	90	2	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date prepared	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			10/05/2018	1	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Arsenic	mg/kg	4	Metals-020	<4	1	5	4	22	106	73
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	95	87
Chromium	mg/kg	1	Metals-020	<1	1	19	18	5	104	93
Copper	mg/kg	1	Metals-020	<1	1	6	6	0	110	113
Lead	mg/kg	1	Metals-020	<1	1	20	19	5	99	92
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	108	108
Nickel	mg/kg	1	Metals-020	<1	1	6	6	0	103	93
Zinc	mg/kg	1	Metals-020	<1	1	21	21	0	102	91

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date prepared	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Date analysed	-			[NT]	11	10/05/2018	10/05/2018		10/05/2018	10/05/2018
Arsenic	mg/kg	4	Metals-020	[NT]	11	4	<4	0	108	89
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	99	98
Chromium	mg/kg	1	Metals-020	[NT]	11	17	14	19	107	109
Copper	mg/kg	1	Metals-020	[NT]	11	2	2	0	114	115
Lead	mg/kg	1	Metals-020	[NT]	11	14	13	7	104	102
Mercury	mg/kg	0.1	Metals-021	[NT]	11	<0.1	<0.1	0	104	110
Nickel	mg/kg	1	Metals-020	[NT]	11	3	3	0	106	105
Zinc	mg/kg	1	Metals-020	[NT]	11	13	13	0	104	103

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	21	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	21	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	21	9	9	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	21	6	5	18	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	21	17	17	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	21	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	21	1	1	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	31	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	31	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	31	5	4	22	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	31	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	31	23	23	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	31	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	31	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	31	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	17	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	17	10/05/2018	10/05/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	17	5	5	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	17	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	17	32	37	14	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	17	7	7	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	17	22	27	20	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	17	0.1	1.3	171	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	17	6	6	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	17	19	22	15	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	18	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	18	10/05/2018	10/05/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	18	6	7	15	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	18	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	18	38	55	37	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	18	16	28	55	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	18	23	25	8	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	18	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	18	24	45	61	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	18	37	56	41	[NT]	[NT]

QUALITY CONTROL: Synthetic Pyrethroids in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-22
Date extracted	-		Org-012VIC	14/05/2018	19	14/05/2018	14/05/2018		14/05/2018	14/05/2018
Date analysed	-		Org-012VIC	15/05/2018	19	15/05/2018	15/05/2018		15/05/2018	15/05/2018
Bifenthrin	mg/kg	0.5	Org-012VIC	<0.5	19	<0.5	<0.5	0	82	82
Cyfluthrin	mg/kg	2	Org-012VIC	<2	19	<2	<2	0	[NT]	[NT]
Cypermethrin	mg/kg	2	Org-012VIC	<2	19	<2	<2	0	[NT]	[NT]
Deltamethrin	mg/kg	0.5	Org-012VIC	<0.5	19	<0.5	<0.5	0	[NT]	[NT]
Esfenvalerate	mg/kg	0.5	Org-012VIC	<0.5	19	<0.5	<0.5	0	[NT]	[NT]
Lamda Cyhalothrin	mg/kg	0.5	Org-012VIC	<0.5	19	<0.5	<0.5	0	80	84
Cis Permethrin	mg/kg	0.5	Org-012VIC	<0.5	19	<0.5	<0.5	0	[NT]	[NT]
Trans Permethrin	mg/kg	0.5	Org-012VIC	<0.5	19	<0.5	<0.5	0	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	110	19	96	92	4	94	90

QUALITY CONTROL: Carbamates in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-22
Date Extracted	-			14/05/2018	19	14/05/2018	14/05/2018		14/05/2018	14/05/2018
Date analysed	-			15/05/2018	19	15/05/2018	15/05/2018		15/05/2018	15/05/2018
Carbaryl	mg/kg	0.5	Ext-054	<0.5	19	<0.5	<0.5	0	[NT]	[NT]
Carbofuran	mg/kg	0.5	Ext-054	<0.5	19	<0.5	<0.5	0	87	93
Molinate	mg/kg	0.5	Ext-054	<0.5	19	<0.5	<0.5	0	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-012	110	19	96	92	4	94	90

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	191179-2
Date prepared	-			15/05/2018	1	10/05/2018	10/05/2018		15/05/2018	15/05/2018
Date analysed	-			15/05/2018	1	15/05/2018	15/05/2018		15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	100	97

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	191179-22
Date prepared	-			[NT]	11	10/05/2018	10/05/2018		15/05/2018	15/05/2018
Date analysed	-			[NT]	11	15/05/2018	15/05/2018		15/05/2018	15/05/2018
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	11	<5	<5	0	104	102

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	21	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	21	15/05/2018	15/05/2018		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	21	<5	<5	0	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	31	10/05/2018	10/05/2018		[NT]	[NT]
Date analysed	-			[NT]	31	15/05/2018	15/05/2018		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	31	<5	<5	0	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

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.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 191179-17 for Hg. Therefore a triplicate result has been issued as laboratory sample number 191179-36.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 191179-18 for Cu, Ni. Therefore a triplicate result has been issued as laboratory sample number 191179-37.

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.
This is reported outside our scope of NATA accreditation.

Synthetic Pyrethroids and carbamates in soil analysed by MPL. report number 210513

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Compaction and Soil Testing Pty Ltd
Attention	Craig Ridley

Sample Login Details

Your reference	E1256
Envirolab Reference	191419
Date Sample Received	11/05/2018
Date Instructions Received	11/05/2018
Date Results Expected to be Reported	18/05/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	6 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.4
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

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@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the 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
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHsin Water	PCBs in Water	HM in water - dissolved	Total Phenolicsin Water
MW1	✓	✓	✓	✓	✓	✓	✓
MW2	✓	✓	✓	✓	✓	✓	✓
MW3	✓	✓	✓	✓	✓	✓	✓
B1		✓	✓	✓		✓	
TB		✓					
TS		✓					

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

CHAIN OF CUSTODY - Client

ENVIROLAB GROUP - National phone number 1300 42 43 44

Sydney Lab - Envirolab Services
12 Ashley St, Chatswood, NSW 2067
Ph 02 9910 6200 / sydney@envirolab.com.au

Perth Lab - MPL Laboratories
16-18 Hayden Crt Myaree, WA 6154
Ph 08 9317 2505 / lab@mpl.com.au

Melbourne Lab - Envirolab Services
1A Dalmore Drive Scoresby VIC 3179
Ph 03 9763 2500 / melbourne@envirolab.com.au

Brisbane Office - Envirolab Services
20a, 10-20 Depot St, Banyo, QLD 4014
Ph 07 3266 9532 / brisbane@envirolab.com.au

Adelaide Office - Envirolab Services
7a The Parade, Norwood, SA 5067
Ph 0406 350 706 / adelaide@envirolab.com.au

Client: Compaction & Soil Testing Services Pty Ltd

Contact Person: Craig Ridley

Project Mgr:

Sampler:

Address: 1/78 Owen street, Glendenning NSW 2761

Phone: (02) 9675 7522 Mob: 0488 002 273

Email: accounts@csts.net.au, craig@csts.net.au

Client Project Name / Number / Site etc (ie report title): E1256

PO No.:

Envirolab Quote No. :

Date results required: Standard

Or choose: standard / same day / 1 day / 2 day / 3 day

Note: Inform lab in advance if urgent turnaround is required - surcharges apply

Report format: esdat / equis /

Lab Comments:

Sample Information					Tests Required													Comments
Envirolab Sample ID	Client Sample ID or information	Depth	Date sampled	Type of sample	Combo 4	Combo 3	PCB	VOC	MTBE	BTEX								Provide as much information about the sample as you can
1	MW1		08.05.18	Water	X		X	X	X									
2	MW2		08.05.18	Water	X		X	X	X									
3	MW3		08.05.18	Water	X		X	X	X									
4	B1		08.05.18	Water		X												
5	TB		08.05.18	Water						X								
6	TS		08.05.18	Water						X								

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

Job No: 191419 CoC

Date Received: 9/5/2018 11:57

Time Received:

Received By: AL

Temp: Cool/Ambient 16.00 12:30

Cooling: Ice/Icepack

Security: Intact/Broken/None

Relinquished by (Company):

Print Name:

Date & Time:

Signature:

Received by (Company): EO

Print Name: PKay

Date & Time: 11/5/2018 12:30

Signature: AL

Lab use only:

Samples Received: Cool or Ambient (circle one)

Temperature Received at: 8.6 (If applicable)

Transported by: Hand delivered / courier

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 191419

Client Details

Client	Compaction and Soil Testing Pty Ltd
Attention	Craig Ridley
Address	Unit 1, 78 Owen St, Glendenning, NSW, 2761

Sample Details

Your Reference	**E1256**
Number of Samples	6 Water
Date samples received	11/05/2018
Date completed instructions received	11/05/2018

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	18/05/2018
Date of Issue	18/05/2018

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Alexander Mitchell Maclean, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Nancy Zhang, Assistant Lab Manager
Nick Sarlamis, Inorganics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

VOCs in water				
Our Reference		191419-1	191419-2	191419-3
Your Reference	UNITS	MW1	MW2	MW3
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water
Date extracted	-	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	14/05/2018	14/05/2018	14/05/2018
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
Bromoform	µg/L	<1	<1	<1

VOCs in water				
Our Reference		191419-1	191419-2	191419-3
Your Reference	UNITS	MW1	MW2	MW3
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	93	101
Surrogate toluene-d8	%	102	102	103
Surrogate 4-BFB	%	97	99	95

vTRH(C6-C10)/BTEXN in Water						
Our Reference		191419-1	191419-2	191419-3	191419-4	191419-5
Your Reference	UNITS	MW1	MW2	MW3	B1	TB
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018	14/05/2018
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	[NA]
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	[NA]
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	[NA]
MTBE	µg/L	<1	<1	<1	[NA]	[NA]
Surrogate Dibromofluoromethane	%	98	93	101	94	102
Surrogate toluene-d8	%	102	102	103	98	94
Surrogate 4-BFB	%	97	99	95	103	97

vTRH(C6-C10)/BTEXN in Water		
Our Reference		191419-6
Your Reference	UNITS	TS
Date Sampled		08/05/2018
Type of sample		Water
Date extracted	-	14/05/2018
Date analysed	-	14/05/2018
Benzene	µg/L	75%
Toluene	µg/L	80%
Ethylbenzene	µg/L	85%
m+p-xylene	µg/L	88%
o-xylene	µg/L	90%
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	100
Surrogate 4-BFB	%	106

svTRH (C10-C40) in Water					
Our Reference		191419-1	191419-2	191419-3	191419-4
Your Reference	UNITS	MW1	MW2	MW3	B1
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water	Water
Date extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	15/05/2018	14/05/2018	14/05/2018	14/05/2018
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100
Surrogate o-Terphenyl	%	70	87	71	72

PAHs in Water					
Our Reference		191419-1	191419-2	191419-3	191419-4
Your Reference	UNITS	MW1	MW2	MW3	B1
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water	Water
Date extracted	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Naphthalene	µg/L	<1	<1	<1	<1
Acenaphthylene	µg/L	<1	<1	<1	<1
Acenaphthene	µg/L	2	<1	<1	2
Fluorene	µg/L	<1	<1	<1	<1
Phenanthrene	µg/L	<1	<1	<1	<1
Anthracene	µg/L	<1	<1	<1	<1
Fluoranthene	µg/L	<1	<1	<1	<1
Pyrene	µg/L	<1	<1	<1	<1
Benzo(a)anthracene	µg/L	<1	<1	<1	<1
Chrysene	µg/L	<1	<1	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2	<2	<2
Benzo(a)pyrene	µg/L	<1	<1	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5	<5	<5
Total +ve PAH's	µg/L	1.5	NIL (+)VE	NIL (+)VE	2.0
Surrogate p-Terphenyl-d14	%	75	108	93	111

PCBs in Water				
Our Reference		191419-1	191419-2	191419-3
Your Reference	UNITS	MW1	MW2	MW3
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water
Date extracted	-	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	17/05/2018	17/05/2018	17/05/2018
Aroclor 1016	µg/L	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2
Surrogate TCLMX	%	83	124	109

HM in water - dissolved					
Our Reference		191419-1	191419-2	191419-3	191419-4
Your Reference	UNITS	MW1	MW2	MW3	B1
Date Sampled		08/05/2018	08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water	Water
Date prepared	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	14/05/2018	14/05/2018	14/05/2018	14/05/2018
Arsenic-Dissolved	µg/L	1	<1	1	1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	1	11	4	1
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	22	15	57	21
Zinc-Dissolved	µg/L	45	77	22	43

Total Phenolics in Water				
Our Reference		191419-1	191419-2	191419-3
Your Reference	UNITS	MW1	MW2	MW3
Date Sampled		08/05/2018	08/05/2018	08/05/2018
Type of sample		Water	Water	Water
Date extracted	-	14/05/2018	14/05/2018	14/05/2018
Date analysed	-	14/05/2018	14/05/2018	14/05/2018
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05

Method ID	Methodology Summary
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			14/05/2018	[NT]	[NT]	[NT]	[NT]	14/05/2018	[NT]
Date analysed	-			14/05/2018	[NT]	[NT]	[NT]	[NT]	14/05/2018	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	74	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	77	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	75	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	72	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	75	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	79	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	92	[NT]	[NT]	[NT]	[NT]	94	[NT]
Surrogate toluene-d8	%		Org-013	98	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate 4-BFB	%		Org-013	99	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			14/05/2018	[NT]	[NT]	[NT]	[NT]	14/05/2018	[NT]
Date analysed	-			14/05/2018	[NT]	[NT]	[NT]	[NT]	14/05/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	113	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	120	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	110	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
MTBE	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	92	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate toluene-d8	%		Org-016	98	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate 4-BFB	%		Org-016	99	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	191419-2
Date extracted	-			14/05/2018	1	14/05/2018	14/05/2018		14/05/2018	14/05/2018
Date analysed	-			14/05/2018	1	15/05/2018	14/05/2018		14/05/2018	14/05/2018
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	1	<50	<50	0	101	106
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	1	<100	<100	0	101	102
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	1	<100	<100	0	70	78
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	1	<50	<50	0	101	106
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	1	<100	<100	0	101	102
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	1	<100	<100	0	70	78
Surrogate o-Terphenyl	%		Org-003	69	1	70	73	4	95	87

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	191419-2
Date extracted	-			14/05/2018	1	14/05/2018	14/05/2018		14/05/2018	14/05/2018
Date analysed	-			14/05/2018	1	14/05/2018	14/05/2018		14/05/2018	14/05/2018
Naphthalene	µg/L	1	Org-012	<1	1	<1	<1	0	96	77
Acenaphthylene	µg/L	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Acenaphthene	µg/L	1	Org-012	<1	1	2	2	0	[NT]	[NT]
Fluorene	µg/L	1	Org-012	<1	1	<1	<1	0	91	85
Phenanthrene	µg/L	1	Org-012	<1	1	<1	<1	0	91	87
Anthracene	µg/L	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Fluoranthene	µg/L	1	Org-012	<1	1	<1	<1	0	90	85
Pyrene	µg/L	1	Org-012	<1	1	<1	<1	0	89	85
Benzo(a)anthracene	µg/L	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Chrysene	µg/L	1	Org-012	<1	1	<1	<1	0	114	85
Benzo(b,j+k)fluoranthene	µg/L	2	Org-012	<2	1	<2	<2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-012	<1	1	<1	<1	0	120	88
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	1	<1	<1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	105	1	75	92	20	101	109

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			14/05/2018	1	14/05/2018	14/05/2018		14/05/2018	[NT]
Date analysed	-			17/05/2018	1	17/05/2018	17/05/2018		17/05/2018	[NT]
Aroclor 1016	µg/L	2	Org-006	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-006	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-006	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-006	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-006	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-006	<2	1	<2	<2	0	99	[NT]
Aroclor 1260	µg/L	2	Org-006	<2	1	<2	<2	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	108	1	83	101	20	104	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			14/05/2018	[NT]	[NT]	[NT]	[NT]	14/05/2018	[NT]
Date analysed	-			14/05/2018	[NT]	[NT]	[NT]	[NT]	14/05/2018	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	101	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			14/05/2018	1	14/05/2018	14/05/2018		14/05/2018	[NT]
Date analysed	-			14/05/2018	1	14/05/2018	14/05/2018		14/05/2018	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	102	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

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.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

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.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Dissolved Metals: no preserved sample was received, therefore
the unpreserved sample was filtered through 0.45um filter at the lab.
Note: there is a possibility some elements may be underestimated.

SAMPLE RECEIPT ADVICE

SE178970

CLIENT DETAILS

Contact	Craig Ridley
Client	COMPACTION AND SOIL TESTING SERVICES PTY LTD
Address	Unit 1 / 78 Owen St GLENDENNING NSW 2761
Telephone	02 9675 7522
Facsimile	02 9675 7544
Email	craig@csts.net.au
Project	**E1256**
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	Thu 10/5/2018
Report Due	Thu 17/5/2018
SGS Reference	**SE178970**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Thursday 10/5/2018. Results are expected to be ready by COB Thursday 17/5/2018. Please quote SGS reference SE178970 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil
Date documentation received	10/5/2018	Type of documentation received	COC
Number of eskies/boxes received		Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.0°C
Sufficient sample for analysis	Yes	Turnaround time requested	Standard

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

COMMENTS

SAMPLE RECEIPT ADVICE

SE178970

CLIENT DETAILS

Client COMPACTION AND SOIL TESTING SERVICES PTY LTD Project E1256

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	S1	1	26	7	10	12	8
002	S2	1	26	7	10	12	8

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

SE178970

CLIENT DETAILS

Client COMPACTION AND SOIL TESTING SERVICES PTY LTD Project E1256

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content
001	S1	1
002	S2	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 .

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: IRFAN.SAYEED@SGS.COM

Company Name:	Compaction & Soil Testing Services Pty Ltd	Project Name/No:	E1256
Address:	1/78 Owen Street	Purchase Order No:	
	Glendenning NSW 2761	Results Required By:	STANDARD
		Telephone:	(02) 9675 7522
Contact Name:	Craig Ridley	Facsimile:	(02) 9675 7544
		Email Results:	accounts@csts.net.au / craig@csts.net.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10
S1	08.05.18	1		/		1	/
S2	08.05.18	2		/		1	/

SGS EHS Alexandria Laboratory

SE178970 COC
Received: 10-May-2018

Relinquished By: PETE ANNOTEDU	Date/Time: 09/05/2018	Received By: Nessa	Date/Time 10/05/18 4.35
Relinquished By:	Date/Time: 3:10pm	Received By:	Date/Time
Samples Intact: Yes/ No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: CSTS150713060
	Comments:		

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Craig Ridley
Client	COMPACTION AND SOIL TESTING SERVICES PTY LTD
Address	Unit 1 / 78 Owen St GLENDENNING NSW 2761
Telephone	02 9675 7522
Facsimile	02 9675 7544
Email	craig@csts.net.au
Project	**E1256**
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	**SE178970 R0**
Date Received	10/5/2018
Date Reported	17/5/2018

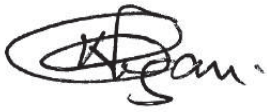
COMMENTS

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

SIGNATORIES

Akheeqar Beniameen
Chemist

Huong Crawford
Production Manager



Kamrul Ahsan
Senior Chemist

VOC's in Soil [AN433] Tested: 15/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
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	**0.2**

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 15/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
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: 14/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
TRH C10-C14	mg/kg	20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110
TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 14/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
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	<0.1
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	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 16/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
Arsenic, As	mg/kg	3	**7**	**8**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	**18**	**15**
Copper, Cu	mg/kg	0.5	**6.5**	**2.8**
Lead, Pb	mg/kg	1	**15**	**13**
Nickel, Ni	mg/kg	0.5	**2.3**	**1.6**
Zinc, Zn	mg/kg	0.5	**15**	**12**

Mercury in Soil [AN312] Tested: 16/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 15/5/2018

PARAMETER	UOM	LOR	S1 SOIL - 8/5/2018 SE178970.001	S2 SOIL - 8/5/2018 SE178970.002
% Moisture	%w/w	0.5	**22**	**20**

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
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	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.
AN433	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.

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%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

STATEMENT OF QA/QC PERFORMANCE

SE178970 R0

CLIENT DETAILS

Contact	Craig Ridley
Client	COMPACTION AND SOIL TESTING SERVICES PTY LTD
Address	Unit 1 / 78 Owen St GLENDENNING NSW 2761
Telephone	02 9675 7522
Facsimile	02 9675 7544
Email	craig@csts.net.au
Project	**E1256**
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	**SE178970 R0**
Date Received	10 May 2018
Date Reported	17 May 2018

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 Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Mercury in Soil	1 item
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	5 items

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	2 Soil
Date documentation received	10/5/2018	Type of documentation received	COC
Number of eskies/boxes received		Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.0°C
Sufficient sample for analysis	Yes	Turnaround time requested	Standard

HOLDING TIME SUMMARY

SE178970 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
S1	SE178970.001	LB147892	08 May 2018	10 May 2018	05 Jun 2018	16 May 2018	05 Jun 2018	17 May 2018
S2	SE178970.002	LB147892	08 May 2018	10 May 2018	05 Jun 2018	16 May 2018	05 Jun 2018	17 May 2018

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178970.001	LB147805	08 May 2018	10 May 2018	22 May 2018	15 May 2018	20 May 2018	16 May 2018
S2	SE178970.002	LB147805	08 May 2018	10 May 2018	22 May 2018	15 May 2018	20 May 2018	16 May 2018

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
S1	SE178970.001	LB147716	08 May 2018	10 May 2018	22 May 2018	14 May 2018	23 Jun 2018	17 May 2018
S2	SE178970.002	LB147716	08 May 2018	10 May 2018	22 May 2018	14 May 2018	23 Jun 2018	17 May 2018

Total Recoverable Elements 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
S1	SE178970.001	LB147908	08 May 2018	10 May 2018	04 Nov 2018	16 May 2018	04 Nov 2018	17 May 2018
S2	SE178970.002	LB147908	08 May 2018	10 May 2018	04 Nov 2018	16 May 2018	04 Nov 2018	17 May 2018

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
S1	SE178970.001	LB147716	08 May 2018	10 May 2018	22 May 2018	14 May 2018	23 Jun 2018	17 May 2018
S2	SE178970.002	LB147716	08 May 2018	10 May 2018	22 May 2018	14 May 2018	23 Jun 2018	17 May 2018

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178970.001	LB147801	08 May 2018	10 May 2018	22 May 2018	15 May 2018	24 Jun 2018	16 May 2018
S2	SE178970.002	LB147801	08 May 2018	10 May 2018	22 May 2018	15 May 2018	24 Jun 2018	16 May 2018

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178970.001	LB147801	08 May 2018	10 May 2018	22 May 2018	15 May 2018	24 Jun 2018	16 May 2018
S2	SE178970.002	LB147801	08 May 2018	10 May 2018	22 May 2018	15 May 2018	24 Jun 2018	16 May 2018

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)	S1	SE178970.001	%	70 - 130%	86
	S2	SE178970.002	%	70 - 130%	90
d14-p-terphenyl (Surrogate)	S1	SE178970.001	%	70 - 130%	90
	S2	SE178970.002	%	70 - 130%	90
d5-nitrobenzene (Surrogate)	S1	SE178970.001	%	70 - 130%	86
	S2	SE178970.002	%	70 - 130%	86

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE178970.001	%	60 - 130%	84
	S2	SE178970.002	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	S1	SE178970.001	%	60 - 130%	111
	S2	SE178970.002	%	60 - 130%	104
d8-toluene (Surrogate)	S1	SE178970.001	%	60 - 130%	89
	S2	SE178970.002	%	60 - 130%	88
Dibromofluoromethane (Surrogate)	S1	SE178970.001	%	60 - 130%	105
	S2	SE178970.002	%	60 - 130%	99

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE178970.001	%	60 - 130%	84
	S2	SE178970.002	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	S1	SE178970.001	%	60 - 130%	111
	S2	SE178970.002	%	60 - 130%	104
d8-toluene (Surrogate)	S1	SE178970.001	%	60 - 130%	89
	S2	SE178970.002	%	60 - 130%	88
Dibromofluoromethane (Surrogate)	S1	SE178970.001	%	60 - 130%	105
	S2	SE178970.002	%	60 - 130%	99

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
LB147892.001	Mercury	mg/kg	0.05	<0.05

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB147716.001		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)	%	-	84
		2-fluorobiphenyl (Surrogate)	%	-	86
		d14-p-terphenyl (Surrogate)	%	-	88

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

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

Sample Number	Parameter	Units	LOR	Result
LB147908.001	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
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	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
LB147716.001	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

Sample Number		Parameter	Units	LOR	Result
LB147801.001	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)	%	-	108
		d4-1,2-dichloroethane (Surrogate)	%	-	113
		d8-toluene (Surrogate)	%	-	86
		Bromofluorobenzene (Surrogate)	%	-	83
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number	Parameter	Units	LOR

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.

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

Sample Number		Parameter	Units	LOR	Result
LB147801.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	108
		d4-1,2-dichloroethane (Surrogate)	%	-	113
		d8-toluene (Surrogate)	%	-	86

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 %
SE178969.005	LB147892.014	Mercury	mg/kg	0.05	0.06	0.06	114	7
SE178969.010	LB147892.020	Mercury	mg/kg	0.05	<0.05	<0.05	166	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178969.010	LB147805.011	% Moisture	%w/w	0.5	18	18	35	1
SE179023.007	LB147805.022	% Moisture	%w/w	0.5	15	13	37	13
SE179024.003	LB147805.033	% Moisture	%w/w	0.5	18	25	35	32
SE179063.001	LB147805.042	% Moisture	%w/w	0.5	7.7	8.1	43	5

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178962.014	LB147716.025		Naphthalene	mg/kg	0.1	<0.1	0	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0	200	0
			Acenaphthene	mg/kg	0.1	<0.1	0	200	0
			Fluorene	mg/kg	0.1	<0.1	0	200	0
			Phenanthrene	mg/kg	0.1	<0.1	0.02	200	0
			Anthracene	mg/kg	0.1	<0.1	0.02	200	0
			Fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Pyrene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	0.01	200	0
			Chrysene	mg/kg	0.1	<0.1	0.01	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.02	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	0.01	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	0.01	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	0	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	0.242	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	0.121	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.43	30	7
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.45	30	5
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.46	30	0

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178969.001	LB147908.014	Arsenic, As	mg/kg	3	23	24	34	1
		Cadmium, Cd	mg/kg	0.3	14	13	32	6
		Chromium, Cr	mg/kg	0.3	12	14	34	15
		Copper, Cu	mg/kg	0.5	64	70	31	9
		Nickel, Ni	mg/kg	0.5	53	58	31	10
		Lead, Pb	mg/kg	1	5	4	52	26
		Zinc, Zn	mg/kg	0.5	300	330	31	12
SE178969.010	LB147908.024	Arsenic, As	mg/kg	3	22	27	34	20
		Cadmium, Cd	mg/kg	0.3	12	20	32	46 ②
		Chromium, Cr	mg/kg	0.3	13	13	34	2
		Copper, Cu	mg/kg	0.5	64	75	31	16
		Nickel, Ni	mg/kg	0.5	57	63	31	10
		Lead, Pb	mg/kg	1	5	7	47	44
		Zinc, Zn	mg/kg	0.5	320	350	31	11

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178962.014	LB147716.025	TRH C10-C14	mg/kg	20	<20	0	200	0
		TRH C15-C28	mg/kg	45	<45	0	200	0
		TRH C29-C36	mg/kg	45	<45	0	200	0
		TRH C37-C40	mg/kg	100	<100	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.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178962.014	LB147716.025		TRH C10-C36 Total	mg/kg	110	<110	0	200	0
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	0	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	0	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178962.014	LB147801.014	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	-	5.3	5.1	50	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.6	5.3	50	5
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.2	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.2	50	2
		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
SE179063.001	LB147801.023	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	0.6	0.7	45	12
			Ethylbenzene	mg/kg	0.1	2.6	3.0	34	14
			m/p-xylene	mg/kg	0.2	16	18	31	12
			o-xylene	mg/kg	0.1	7.8	9.0	31	15
		Polycyclic	Naphthalene	mg/kg	0.1	3.1	3.8	33	19
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.2	5.5	50	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.2	5.6	50	7
			d8-toluene (Surrogate)	mg/kg	-	4.6	5.4	50	16
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5.7	50	17
		Totals	Total Xylenes	mg/kg	0.3	24	27	31	13
			Total BTEX	mg/kg	0.6	27	31	31	13

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE178962.014	LB147801.014		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	-	5.3	5.1	30	4
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.6	5.3	30	5
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.2	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.1	4.2	30	2
		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
SE179063.001	LB147801.023		TRH C6-C10	mg/kg	25	110	120	52	13
			TRH C6-C9	mg/kg	20	28	31	97	10
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.1	5.4	30	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.5	5.8	30	7
			d8-toluene (Surrogate)	mg/kg	-	5.3	5.6	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.1	5.9	30	15
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	79	90	59	13

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 %
LB147892.002	Mercury	mg/kg	0.05	0.23	0.2	70 - 130	115

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147716.002		Naphthalene	mg/kg	0.1	3.7	4	60 - 140	93
		Acenaphthylene	mg/kg	0.1	3.6	4	60 - 140	89
		Acenaphthene	mg/kg	0.1	3.5	4	60 - 140	88
		Phenanthrene	mg/kg	0.1	3.5	4	60 - 140	89
		Anthracene	mg/kg	0.1	3.7	4	60 - 140	93
		Fluoranthene	mg/kg	0.1	3.7	4	60 - 140	93
		Pyrene	mg/kg	0.1	3.4	4	60 - 140	85
		Benzo(a)pyrene	mg/kg	0.1	3.6	4	60 - 140	91
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	82
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90

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

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

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147908.002	Arsenic, As	mg/kg	3	330	336.32	79 - 120	99
	Cadmium, Cd	mg/kg	0.3	450	416.6	69 - 131	109
	Chromium, Cr	mg/kg	0.3	34	35.2	80 - 120	98
	Copper, Cu	mg/kg	0.5	330	370.46	80 - 120	89
	Nickel, Ni	mg/kg	0.5	180	210.88	79 - 120	86
	Lead, Pb	mg/kg	1	91	107.87	79 - 120	84
	Zinc, Zn	mg/kg	0.5	280	301.27	80 - 121	94

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147716.002		TRH C10-C14	mg/kg	20	33	40	60 - 140	83
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	105
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16	mg/kg	25	33	40	60 - 140	83
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	108
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147801.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	82
	Aromatic	Toluene	mg/kg	0.1	2.5	2.9	60 - 140	87
		Ethylbenzene	mg/kg	0.1	2.6	2.9	60 - 140	90
		m/p-xylene	mg/kg	0.2	5.7	5.8	60 - 140	98
		o-xylene	mg/kg	0.1	2.6	2.9	60 - 140	89
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	95
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	89

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB147801.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	86
		TRH C6-C9	mg/kg	20	<20	23.2	60 - 140	76
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.8	5	60 - 140	95
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.6	5	60 - 140	92
		d8-toluene (Surrogate)	mg/kg	-	4.6	5	60 - 140	91
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	76

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%
SE178940.009	LB147892.004	Mercury	mg/kg	0.05	0.16	<0.05	0.2	59 ④

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178962.007	LB147716.024		Naphthalene	mg/kg	0.1	3.6	<0.1	4	89
			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	3.4	<0.1	4	85
			Acenaphthene	mg/kg	0.1	3.5	<0.1	4	87
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.5	<0.1	4	88
			Anthracene	mg/kg	0.1	3.5	<0.1	4	88
			Fluoranthene	mg/kg	0.1	3.5	<0.1	4	87
			Pyrene	mg/kg	0.1	3.2	<0.1	4	80
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.3	<0.1	4	83
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.3	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	3.5	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	3.4	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	27	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	84
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	88
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	88

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE179158.001	LB147908.004	Arsenic, As	mg/kg	3	45	3	50	83
		Cadmium, Cd	mg/kg	0.3	44	0.3	50	88
		Chromium, Cr	mg/kg	0.3	51	18	50	66 ④
		Copper, Cu	mg/kg	0.5	68	51	50	34 ④
		Nickel, Ni	mg/kg	0.5	98	110	50	-24 ⑨
		Lead, Pb	mg/kg	1	430	660	50	-459 ⑨
		Zinc, Zn	mg/kg	0.5	160	250	50	-176 ⑨

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178962.007	LB147716.024		TRH C10-C14	mg/kg	20	31	<20	40	78
			TRH C15-C28	mg/kg	45	<45	<45	40	88
			TRH C29-C36	mg/kg	45	<45	<45	40	93
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16	mg/kg	25	31	<25	40	78
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	31	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	100
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178940.009	LB147801.004	Monocyclic Aromatic	Benzene	mg/kg	0.1	2.5	<0.1	2.9	85
			Toluene	mg/kg	0.1	2.6	<0.1	2.9	90
			Ethylbenzene	mg/kg	0.1	2.4	<0.1	2.9	81
			m/p-xylene	mg/kg	0.2	5.3	<0.2	5.8	92
			o-xylene	mg/kg	0.1	2.5	<0.1	2.9	87

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.

VOC's in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178940.009	LB147801.004	Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5.2	-	98
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	5.5	-	103
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.4	-	89
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.3	-	88
		Totals	Total Xylenes	mg/kg	0.3	7.9	<0.3	-	-
			Total BTEX	mg/kg	0.6	15	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE178940.009	LB147801.004		TRH C6-C10	mg/kg	25	<25	<25	24.65	101
			TRH C6-C9	mg/kg	20	21	<20	23.2	89
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5.2	-	98
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.1	5.5	-	103
			d8-toluene (Surrogate)	mg/kg	-	4.4	4.4	-	89
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.4	4.3	-	88
		VPH F	Benzene (F0)	mg/kg	0.1	2.5	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	133

MATRIX SPIKE DUPLICATES

SE178970 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 the performance of this service.
**	Indicative data, theoretical holding time exceeded.
-	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.

SAMPLE RECEIPT ADVICE

SE178971

CLIENT DETAILS

Contact	Craig Ridley
Client	COMPACTION AND SOIL TESTING SERVICES PTY LTD
Address	Unit 1 / 78 Owen St GLENDENNING NSW 2761
Telephone	02 9675 7522
Facsimile	02 9675 7544
Email	craig@csts.net.au
Project	**E1256**
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
Samples Received	Thu 10/5/2018
Report Due	Thu 17/5/2018
SGS Reference	**SE178971**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Thursday 10/5/2018. Results are expected to be ready by COB Thursday 17/5/2018. Please quote SGS reference SE178971 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Client	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	10/5/2018	Type of documentation received	COC
Number of eskies/boxes received		Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.0°C
Sufficient sample for analysis	Yes	Turnaround time requested	Standard

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

COMMENTS

SAMPLE RECEIPT ADVICE

SE178971

CLIENT DETAILS

Client COMPACTION AND SOIL TESTING SERVICES PTY LTD Project E1256

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	S1	1	22	7	10	12	8

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 .

SGS

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 86940400
Facsimile No: (02) 85940499
Email: IRFAN.SAYEED@SGS.COM

Company Name:	Compaction & Soil Testing Services Pty Ltd	Project Name/No:	E1255
Address:	1/78 Owen Street	Purchase Order No:	
	Glendenning NSW 2761	Results Required By:	STANDARD
		Telephone:	(02) 9675 7522
Contact Name:	Craig Ridley	Facsimile:	(02) 9675 7544
		Email Results:	accounts@csts.net.au / craig@csts.net.au

Client Sample ID	Date Sampled	Lab Sample ID	WATER	SOIL	PRESERVATIVE	NO OF CONTAINERS	CL10
S1	08.05.18	1	/			5	/

SGS EHS Alexandria Laboratory

SE178971 COC
Received: 10 – May – 2018

Relinquished By: TEGE AMUSTEJU	Date/Time: 9/05/2018	Received By: Ness	Date/Time 10/05/18 4:35
Relinquished By:	Date/Time: 3:10pm	Received By:	Date/Time
Samples Intact: (Yes) No	Temperature: Ambient / Chilled	Sample Cooler Sealed: Yes/ No	Laboratory Quotation No: CSTS150713060
	Comments:		

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Craig Ridley
Client	COMPACTION AND SOIL TESTING SERVICES PTY LTD
Address	Unit 1 / 78 Owen St GLENDENNING NSW 2761
Telephone	02 9675 7522
Facsimile	02 9675 7544
Email	craig@csts.net.au
Project	**E1256**
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	**SE178971 R0**
Date Received	10/5/2018
Date Reported	17/5/2018

COMMENTS

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

SIGNATORIES

Akheeqar Beniameen
Chemist

Dong Liang
Metals/Inorganics Team Leader

Teresa Nguyen
Organic Chemist

VOCs in Water [AN433] Tested: 14/5/2018

PARAMETER	UOM	LOR	S1 WATER - 8/5/2018 SE178971.001
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Naphthalene	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 14/5/2018

PARAMETER	UOM	LOR	S1 WATER - 8/5/2018 SE178971.001
TRH C6-C9	µg/L	40	<40
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10	µg/L	50	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 14/5/2018

PARAMETER	UOM	LOR	S1 WATER - 8/5/2018 SE178971.001
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH >C10-C16	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 14/5/2018

PARAMETER	UOM	LOR	S1 WATER - 8/5/2018 SE178971.001
Naphthalene	µg/L	0.1	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1
Acenaphthene	µg/L	0.1	**1.1**
Fluorene	µg/L	0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1
Anthracene	µg/L	0.1	**0.2**
Fluoranthene	µg/L	0.1	**0.3**
Pyrene	µg/L	0.1	**0.1**
Benzo(a)anthracene	µg/L	0.1	<0.1
Chrysene	µg/L	0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1
Total PAH (18)	µg/L	1	**2**

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 15/5/2018

PARAMETER	UOM	LOR	S1 WATER - 8/5/2018 SE178971.001
Arsenic, As	µg/L	1	**5**
Cadmium, Cd	µg/L	0.1	<0.1
Chromium, Cr	µg/L	1	**2**
Copper, Cu	µg/L	1	**5**
Lead, Pb	µg/L	1	**1**
Nickel, Ni	µg/L	1	**24**
Zinc, Zn	µg/L	5	**48**

Mercury (dissolved) in Water [AN311(Perth)/AN312] Tested: 16/5/2018

PARAMETER	UOM	LOR	S1 WATER - 8/5/2018 SE178971.001
Mercury	mg/L	0.0001	<0.0001

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN311(Perth)/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.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
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). Where F2 is corrected for Naphthalene, the VOC data for Naphthalene is used.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoveerable Hydrocarbons - Silica (TRH-Silica) 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).
AN433	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.

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%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

STATEMENT OF QA/QC PERFORMANCE

SE1789710 R

CLIENT DETAILS

Contact	Craig Ridley
Client	COMPACTION AND SOIL TESTING SERVICES PTY LTD
Address	Unit 1 / 78 Owen St GLENDENNING NSW 2761
Telephone	02 9675 7522
Facsimile	02 9675 7544
Email	craig@csts.net.au
Project	**E1256**
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	**SE1789710 R**
Date Received	10 May 2018
Date Reported	17 May 2018

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

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	Client	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	1 Water
Date documentation received	10/5/2018	Type of documentation received	COC
Number of eskies/boxes received		Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	13.0: C
Sufficient sample for analysis	Yes	Turnaround time re° uested	Standard

HOLDING TIME SUMMARY

SE1789710 R

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 **ed** 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 (dissolved) in Water

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

Sample Name	Sample No.	QC ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178971.001	LB147883	08 May 2018	10 May 2018	05 Jun 2018	16 May 2018	05 Jun 2018	16 May 2018

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Name	Sample No.	QC ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178971.001	LB147758	08 May 2018	10 May 2018	15 May 2018	14 May 2018	23 Jun 2018	17 May 2018

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Name	Sample No.	QC ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178971.001	LB147829	08 May 2018	10 May 2018	04 Nov 2018	15 May 2018	04 Nov 2018	15 May 2018

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Name	Sample No.	QC ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178971.001	LB147758	08 May 2018	10 May 2018	15 May 2018	14 May 2018	23 Jun 2018	17 May 2018

VOCs in Water

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

Sample Name	Sample No.	QC ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178971.001	LB147737	08 May 2018	10 May 2018	15 May 2018	14 May 2018	23 Jun 2018	17 May 2018

Volatile Petroleum Hydrocarbons in Water

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

Sample Name	Sample No.	QC ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE178971.001	LB147737	08 May 2018	10 May 2018	15 May 2018	14 May 2018	23 Jun 2018	17 May 2018

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 **Green0**when within suggested criteria or **ed0**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 Water — Method: ME-(AU)-[ENV]AN420

Parameter	Sample0Name	Sample0Number	Units	Criteria	ecovery0%
2-fluorobiphenyl (Surrogate)	S1	SE178971.001	%	40 - 130%	66
d14-p-terphenyl (Surrogate)	S1	SE178971.001	%	40 - 130%	78
d5-nitrobenzene (Surrogate)	S1	SE178971.001	%	40 - 130%	60

VOCs in Water — Method: ME-(AU)-[ENV]AN433

Parameter	Sample0Name	Sample0Number	Units	Criteria	ecovery0%
Bromofluorobenzene (Surrogate)	S1	SE178971.001	%	40 - 130%	77
d4-1,2-dichloroethane (Surrogate)	S1	SE178971.001	%	40 - 130%	117
d8-toluene (Surrogate)	S1	SE178971.001	%	40 - 130%	106
Dibromofluoromethane (Surrogate)	S1	SE178971.001	%	40 - 130%	113

Volatile Petroleum Hydrocarbons in Water — Method: ME-(AU)-[ENV]AN433

Parameter	Sample0Name	Sample0Number	Units	Criteria	ecovery0%
Bromofluorobenzene (Surrogate)	S1	SE178971.001	%	40 - 130%	77
d4-1,2-dichloroethane (Surrogate)	S1	SE178971.001	%	60 - 130%	117
d8-toluene (Surrogate)	S1	SE178971.001	%	40 - 130%	106
Dibromofluoromethane (Surrogate)	S1	SE178971.001	%	40 - 130%	113

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

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

Mercury (dissolved) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB147883.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LOR	Result
LB147758.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(ah)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	68
		2-fluorobiphenyl (Surrogate)	%	-	74
		d14-p-terphenyl (Surrogate)	%	-	88

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number	Parameter	Units	LOR	Result
LB147829.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number	Parameter	Units	LOR	Result
LB147758.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

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

Sample Number		Parameter	Units	LOR	Result
LB147737.001	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	127
		d4-1,2-dichloroethane (Surrogate)	%	-	121
		d8-toluene (Surrogate)	%	-	105
		Bromofluorobenzene (Surrogate)	%	-	83

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LOR	Result
LB147737.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	127
		d4-1,2-dichloroethane (Surrogate)	%	-	121
		d8-toluene (Surrogate)	%	-	105
		Bromofluorobenzene (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 Green0when within suggested criteria or ed0with 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(Perth)/AN312

Original	Duplicate	Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE179017.001	LB147883.014	Mercury	µg/L	0.0001	0.0178	0.0174	200	2
SE179036.002	LB147883.023	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE178971.001	LB147758.023		Naphthalene	µg/L	0.1	<0.1	0.03	200	0
			2-methylnaphthalene	µg/L	0.1	<0.1	0	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	0.02	200	0
			Acenaphthylene	µg/L	0.1	<0.1	0.03	200	0
			Acenaphthene	µg/L	0.1	1.1	1.5	38	29
			Fluorene	µg/L	0.1	<0.1	0.06	200	0
			Phenanthrene	µg/L	0.1	<0.1	0.03	200	0
			Anthracene	µg/L	0.1	0.2	0.2	86	22
			Fluoranthene	µg/L	0.1	0.3	0.34	62	16
			Pyrene	µg/L	0.1	0.1	0.14	107	15
			Benzo(a)anthracene	µg/L	0.1	<0.1	0.03	200	0
			Chrysene	µg/L	0.1	<0.1	0.02	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	0.02	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	0.02	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	0.04	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	0	200	0
			Dibenzo(ah)anthracene	µg/L	0.1	<0.1	0	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.32	30	6
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.36	30	9
			d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.43	30	10

Trace Metals (Dissolved) in Water by ICPMS

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

Original	Duplicate	Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE179095.006	LB147829.014	Arsenic, As	µg/L	1	<1	<1	200	0
		Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
		Chromium, Cr	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	<1	<1	200	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	<1	<1	200	0
		Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Water

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

Original	Duplicate		Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE178971.001	LB147758.023		TRH C10-C14	µg/L	50	<50	0	200	0
			TRH C15-C28	µg/L	200	<200	0	200	0
			TRH C29-C36	µg/L	200	<200	0	200	0
			TRH C37-C40	µg/L	200	<200	0	200	0
			TRH C10-C36	µg/L	450	<450	0	200	0
			TRH C10-C40	µg/L	650	<650	0	200	0
		TRH F Bands	TRH >C10-C16	µg/L	60	<60	0	200	0
			TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	0	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	0	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	0	200	0

VOCs in Water

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

Original	Duplicate		Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE178867.001	LB147737.023	Monocyclic	Benzene	µg/L	0.5	<0.5	0.07	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.04	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.01	200	0
			m/p-xylene	µg/L	1	<1	0.01	200	0
			o-xylene	µg/L	0.5	<0.5	0.02	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.04	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.1	5.64	30	8
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.8	6.01	30	3
			d8-toluene (Surrogate)	µg/L	-	4.9	5.46	30	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 **Green0**when within suggested criteria or **ed0**with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOCs in Water (continued)

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

Original	Duplicate		Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE178867.001	LB147737.023	Surrogates	Bromofluorobenzene (Surrogate)	µg/L	-	4.2	4.39	30	5
SE178867.009	LB147737.024	Monocyclic	Benzene	µg/L	0.5	<0.5	0.04	200	0
		Aromatic	Toluene	µg/L	0.5	<0.5	0.01	200	0
			Ethylbenzene	µg/L	0.5	<0.5	0.01	200	0
			m/p-xylene	µg/L	1	<1	0.01	200	0
			o-xylene	µg/L	0.5	<0.5	0	200	0
		Polycyclic	Naphthalene	µg/L	0.5	<0.5	0.06	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.3	5.78	30	8
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.8	5.77	30	1
			d8-toluene (Surrogate)	µg/L	-	5.3	4.49	30	16
			Bromofluorobenzene (Surrogate)	µg/L	-	4.3	4.02	30	7

Volatile Petroleum Hydrocarbons in Water

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

Original	Duplicate		Parameter	Units	LO	Original	Duplicate	Criteria0%	PD0%
SE178867.001	LB147737.023		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0.44	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.1	5.64	30	8
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.8	6.01	30	3
			d8-toluene (Surrogate)	µg/L	-	4.9	5.46	30	11
			Bromofluorobenzene (Surrogate)	µg/L	-	4.2	4.39	30	5
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.07	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-0.15	200	0
SE178867.009	LB147737.024		TRH C6-C10	µg/L	50	<50	0	200	0
			TRH C6-C9	µg/L	40	<40	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	6.3	5.78	30	8
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.8	5.77	30	1
			d8-toluene (Surrogate)	µg/L	-	5.3	4.49	30	16
			Bromofluorobenzene (Surrogate)	µg/L	-	4.3	4.02	30	7
		VPH F Bands	Benzene (F0)	µg/L	0.5	<0.5	0.04	200	0
			TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	-0.07	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 ed with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LO	esult	Expected	Criteria %	ecovery %
LB147758.002		Naphthalene	µg/L	0.1	29	40	60 - 140	73
		Acenaphthylene	µg/L	0.1	31	40	60 - 140	78
		Acenaphthene	µg/L	0.1	31	40	60 - 140	78
		Phenanthrene	µg/L	0.1	36	40	60 - 140	91
		Anthracene	µg/L	0.1	35	40	60 - 140	87
		Fluoranthene	µg/L	0.1	37	40	60 - 140	93
		Pyrene	µg/L	0.1	36	40	60 - 140	91
		Benzo(a)pyrene	µg/L	0.1	37	40	60 - 140	92
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.3	0.5	40 - 130	66
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.3	0.5	40 - 130	66
		d14-p-terphenyl (Surrogate)	µg/L	-	0.4	0.5	40 - 130	70

Trace Metals (Dissolved) in Water by ICPMS

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

Sample Number		Parameter	Units	LO	esult	Expected	Criteria %	ecovery %
LB147829.002		Arsenic, As	µg/L	1	20	20	80 - 120	101
		Cadmium, Cd	µg/L	0.1	22	20	80 - 120	108
		Chromium, Cr	µg/L	1	22	20	80 - 120	111
		Copper, Cu	µg/L	1	22	20	80 - 120	110
		Lead, Pb	µg/L	1	22	20	80 - 120	111
		Nickel, Ni	µg/L	1	21	20	80 - 120	107
		Zinc, Zn	µg/L	5	21	20	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Water

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

Sample Number		Parameter	Units	LO	esult	Expected	Criteria %	ecovery %
LB147758.002		TRH C10-C14	µg/L	50	920	1200	60 - 140	77
		TRH C15-C28	µg/L	200	1000	1200	60 - 140	87
		TRH C29-C36	µg/L	200	1100	1200	60 - 140	92
	TRH F Bands	TRH >C10-C16	µg/L	60	950	1200	60 - 140	79
		TRH >C16-C34 (F3)	µg/L	500	1100	1200	60 - 140	90
		TRH >C34-C40 (F4)	µg/L	500	600	600	60 - 140	100

VOCs in Water

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

Sample Number		Parameter	Units	LO	esult	Expected	Criteria %	ecovery %
LB147737.002	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	111
	Aromatic	Toluene	µg/L	0.5	51	45.45	60 - 140	113
		Ethylbenzene	µg/L	0.5	52	45.45	60 - 140	114
		m/p-xylene	µg/L	1	100	90.9	60 - 140	114
		o-xylene	µg/L	0.5	52	45.45	60 - 140	114
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	3.6	5	60 - 140	71
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5	60 - 140	106
		d8-toluene (Surrogate)	µg/L	-	5.0	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	µg/L	-	5.6	5	60 - 140	112

Volatile Petroleum Hydrocarbons in Water

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

Sample Number		Parameter	Units	LO	esult	Expected	Criteria %	ecovery %
LB147737.002		TRH C6-C10	µg/L	50	950	946.63	60 - 140	100
		TRH C6-C9	µg/L	40	670	818.71	60 - 140	82
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	3.6	5	60 - 140	71
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.3	5	60 - 140	106
		d8-toluene (Surrogate)	µg/L	-	5.0	5	60 - 140	101
		Bromofluorobenzene (Surrogate)	µg/L	-	5.6	5	60 - 140	112
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	640	639.67	60 - 140	100

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 Green0when within suggested criteria or ed0with 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(Perth)/AN312

QC0Sample	Sample0Number	Parameter	Units	LO	esult	Original	Spike	ecovery%
SE179095.006	LB147883.004	Mercury	mg/L	0.0001	0.0087	<0.0001	0.008	109

Trace Metals (Dissolved) in Water by ICPMS

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

QC0Sample	Sample0Number	Parameter	Units	LO	esult	Original	Spike	ecovery%
SE178971.001	LB147829.004	Arsenic, As	µg/L	1	28	5	20	112
		Cadmium, Cd	µg/L	0.1	22	<0.1	20	109
		Chromium, Cr	µg/L	1	23	2	20	107
		Copper, Cu	µg/L	1	25	5	20	103
		Lead, Pb	µg/L	1	23	1	20	107
		Nickel, Ni	µg/L	1	43	24	20	97
		Zinc, Zn	µg/L	5	68	48	20	101

VOCs in Water

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

QC0Sample	Sample0Number		Parameter	Units	LO	esult	Original	Spike	ecovery%
SE178867.002	LB147737.025	Monocyclic	Benzene	µg/L	0.5	54	<0.5	45.45	119
		Aromatic	Toluene	µg/L	0.5	57	<0.5	45.45	125
			Ethylbenzene	µg/L	0.5	53	<0.5	45.45	118
			m/p-xylene	µg/L	1	110	<1	90.9	122
			o-xylene	µg/L	0.5	55	<0.5	45.45	121
		Polycyclic	Naphthalene	µg/L	0.5	51	<0.5	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	6.1	-	102
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.1	5.6	-	102
			d8-toluene (Surrogate)	µg/L	-	4.9	4.6	-	98
			Bromofluorobenzene (Surrogate)	µg/L	-	5.6	3.9	-	112

Volatile Petroleum Hydrocarbons in Water

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

QC0Sample	Sample0Number		Parameter	Units	LO	esult	Original	Spike	ecovery%
SE178867.002	LB147737.025		TRH C6-C10	µg/L	50	870	<50	946.63	92
			TRH C6-C9	µg/L	40	740	<40	818.71	90
		Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	5.1	6.1	-	102
			d4-1,2-dichloroethane (Surrogate)	µg/L	-	5.1	5.6	-	102
			d8-toluene (Surrogate)	µg/L	-	4.9	4.6	-	98
			Bromofluorobenzene (Surrogate)	µg/L	-	5.6	3.9	-	112
		VPH F	Benzene (F0)	µg/L	0.5	54	<0.5	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	540	<50	639.67	85

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 **Green0**when within suggested criteria or **ed0**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 re° uired 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 re° uest 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 the performance of this service .
**	Indicative data, theoretical holding time exceeded.
-	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 (re° uired dilution).
†	Refer to Analytical Report comments for further information.