PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

60 – 80 Edmondson Avenue,
Austral NSW 2179

Austral 1 Pty Ltd – February 2017

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60-80 Edmondson Avenue
Austral, NSW 2179

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EXECUTIVE SUMMARY

Geo-Logix Pty Ltd (Geo-Logix) was commissioned by Vantage Property Pty Ltd on behalf of Austral 1 Pty Ltd to conduct a Phase 2 Environmental Site Assessment (ESA) of the property located at 60-80 Edmondson Avenue, Austral NSW. It is understood the property is currently subject to a development application for residential subdivision.

The site is located within a rural residential area on the corner of Sixth Avenue and Edmondson Avenue, Austral NSW. The site, accessed via Edmondson Avenue, consists of one rectangular lot encompassing an area of 17,160 m^2. At the time of inspection, the site was occupied by two separate residential dwellings and grassed paddocks.

Geo-Logix completed a Phase I ESA for the subject site in September 2016. The Phase I ESA identified a number of historical activities that occurred onsite which had the potential to result in contamination of the land, including:

- Market gardening;
- Current and former sheds and other structures constructed from asbestos cement sheeting and possible lead based paint;
- Stockpiling of and filling of isolated areas with fill of unknown origin across of portions of the site; and
- Small scale panel beating operations in a shed identified at the property.

The objective of the Phase 2 ESA was to conduct an investigation to assess the presence or otherwise of contamination to the land associated with the above identified historical activities. Further, the assessment was to consider the suitability of the site for the proposed residential subdivision.

Given the site history it was concluded there was a potential for contamination of the site. Contaminants of potential concern (COPC) include:

- Pesticides, heavy metals, petroleum, polycyclic aromatic hydrocarbons (PAHs), VOCs, and asbestos.

Market gardening has historically occurred on the site. To assess potential for shallow soil contamination from the application of pesticides a systematic based sampling plan was undertaken consisting of the following:

- Sampling at 24 locations on a 24 m spaced sampling grid. The sample frequency is sufficient to detect circular contamination hotspot with a diameter of 28.22m or greater at a 95 % statistical degree of certainty. The sampling grid meets minimum sampling standards for the site area (17,160 m^2) as per NSW EPA (1995); and
- At each location, shallow native soil samples (0-0.15 mbg) were collected for the purpose of analysis, samples were composited in the laboratory from two primary systematic soil samples for analysis of COPC's heavy metals and OCPs.

To assess for hazardous building materials in shallow soils in the vicinity of current and former sheds and areas where suspected ACM have been observed, the following scope of works was completed:

- Collection of one soil sample from within the fire pit on 80 Edmondson Avenue for laboratory analysis of asbestos and lead;
- Collection of four shallow soil samples from within the vicinity of the building footprint of the dwelling on 60 Edmondson Avenue for laboratory analysis of asbestos and lead; and

- Collection of one sample from the base of the planter box for laboratory analysis of asbestos.

A former filled farm dam was identified in the northern portion of the property. A number of small soil stockpiles and brick stockpiles were also observed within the northern portion of the property. The origin of the fill within the former dam and stockpiles is unknown. To assess fill material the following scope of work was undertaken:

- Two trenches were completed with an excavator through the fill soils encountered in the former dam area to the depth of native soils at an approximate maximum depth 1.0 mbg;
- Three fill soil samples were collected at varied depths within each trench in the former dam area;
- Collection of one soil sample from each stockpile;
- Laboratory analysis of soil samples for fill related COPC including TRH, BTEXN, PAHs, heavy metals, OCPs and asbestos.

Field observations also identified small burnt areas / fire pits in the central northern and central north western portions of the site. There is potential for burning of waste materials of an unknown origin. Soil samples were collected at shallow soil depths (0.0 – 0.15 mbg) within the fire pits for laboratory analysis for fill related COPC including TRH, BTEXN, PAHs, heavy metals, OCPs and asbestos.

Council records indicate that a panel beating and spray painting business operated in the large shed at 80 Edmondson Avenue from 1996 to at least 2008. A spray booth was also observed in the shed during at the site inspection. The scope of works completed to assess areas of panel beating / spray painting included:

- Collection of two soil samples from shallow soils in the vicinity of the edge of the shed's concrete slab;
- Concrete coring and collection of one soil sample from beneath the slab; and
- Laboratory analysis of soil samples for vehicle maintenance related COPC including TRH, BTEX, VOCs, PAHs and heavy metals.

The assessment decision adopted for the investigation states:

- Contamination has not been identified in soil at concentrations above residential land use standards and the site is considered suitable for the proposed residential subdivision.

To accept the assessment decision the following decision rules need to be met:

The results of the systematic soil sampling assessment must comply with the following decision rules:

- The 95% UCL concentration of any COPC does not exceed the assessment criteria;
- No sample exceeds 250% of the assessment criteria; and
- The standard deviation of results must be less than 50% of the assessment criteria.

The results of targeted soil sampling assessment must comply with the following decision rules:

- COPC do not exist in soil at concentrations in excess of the assessment criteria.

The results of systematic and targeted soil samples must comply with the following decision rule regarding asbestos:

- ACM was not visually observed on the site surface or in the subsurface at soil sampling locations.

The results of the assessment identified the following non-conformances with the decision rules:

- Asbestos in the form of loose fibre bundles and as bonded fragments in shallow soil in the vicinity of the dwelling in the southern portion of the site and a fragment of bonded ACM in shallow soil in the south eastern portion of the site.

Further assessment or remediation / management of the above issue is required for the site to be considered suitable for the proposed residential land use.

Heavy metals and benzene were identified in ash within four fire pits in the central western and northern portions of the site. The impact is not considered sufficient to negate the viability of the proposed subdivision; however removal of the fire pit material is recommended based on aesthetic issues.

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1. INTRODUCTION

Geo-Logix Pty Ltd (Geo-Logix) was commissioned by Vantage Property Pty Ltd on behalf of Austral 1 Pty Ltd to conduct a Phase 2 Environmental Site Assessment (ESA) of the property located at 60-80 Edmondson Avenue, Austral NSW (Figure 1). It is understood the property is currently subject to a development application for residential subdivision.

Geo-Logix completed a Phase I ESA for the subject site in September 2016. The Phase I ESA identified a number of historical activities that occurred onsite which had the potential to result in contamination of the land, including:

- Market gardening;
- Current and former sheds and other structures constructed from asbestos cement sheeting and possible lead based paint;
- Stockpiling of and filling of isolated areas with fill of unknown origin across of portions of the site; and
- Small scale panel beating operations in a shed identified at the property.

The objective of the Phase 2 ESA was to conduct an investigation to assess the presence or otherwise of contamination to the land associated with the above identified historical activities. Further, the assessment was to consider the suitability of the site for the proposed residential subdivision.

2. SITE INFORMATION

2.1 Site Identification

The investigation area comprises the following property:

Street Address	Lot and Deposited Plan (DP)	Approximate Area (m^2)
60 - 80 Edmondson Avenue, Austral NSW 2179	Lot A DP 416093	17,160

2.2 Site Zoning and Land Use

Under Liverpool Council Local Environment Plan (LEP) (2008), the site is zoned Low density residential (R2). Planning and Development Certificates are provided in Attachment A.

2.3 Site Description

The following observations were made during site inspection in September 2016 and field works conducted by Geo-Logix in October 2016. A photographic log is presented in Attachment B.

The site is located within a rural residential area on the corner of Sixth Avenue and Edmondson Avenue, Austral NSW. The site, accessed via Edmondson Avenue, consists of one rectangular lot encompassing an area of 17,160 m^2 (Figure 2). At the time of inspection, the site was occupied by two separate residential dwellings and grassed paddocks.

80 Edmondson Avenue

The northern dwelling on 80 Edmondson Avenue consists of a double storey brick house, landscaped gardens and a below ground swimming pool. A large commercial-style shed is located between the swimming pool and the western site boundary. A collection of smaller sheds and a shipping container is located to the north of the large shed. The large shed contains a mobile spray painting booth, a partially dismantled car, gardening equipment and miscellaneous household items. The concrete flooring appeared to be in good condition. The smaller sheds and shipping container to the north contain numerous miscellaneous household items, tools and equipment. Two cars and a boat were observed stored next to the large shed.

Numerous items including paint tins, gas cylinders, fire extinguishers, scrap metal, household items, tyres and empty oil drums are stored to the north of the residential dwelling. Minor oil staining was noted on the ground surface near one of the drums.

The paddock to the north of the dwelling is grassed with numerous mature eucalypt trees. Several small soil stockpiles are located in the north east corner of paddock along with two stockpiles of brick. The septic tank discharges in the southern portion of the paddock with saturated soils surrounding this area. Several stockpiles of timber, compressed fibre sheeting, vegetation and plastic were noted along the western site boundary.

An open grassed area with some mature trees is also located to the south of the dwelling. A fire pit was observed in this area with several burnt fragments of potential asbestos containing material (ACM) observed within the fire pit. A large truck was located to the in the south west corner of the property.

60 Edmondson Avenue

The southern dwelling at 60 Edmondson Avenue consists of a single storey metal clad and cement fibre sheet house surrounded by gardens and open grassed areas. The dwelling appeared to be in good condition with the exception of peeling paint observed across the exterior. A large diameter asbestos pipe was found to be used as a planter box in the courtyard of the dwelling. The attached garage contained a disused car and household items. Gardening equipment, fuel jerry cans and a spray bottle were also observed in an attached carport to the rear of the garage. Concrete pavements throughout the property appeared to be in good condition with only minor cracking observed.

A small orchard is located to the rear of the dwelling and contains a fire pit that appeared to be used for burning timber and garden waste. Stockpiled timber and scrap metal were observed along the fence line to the north of the dwelling. The remainder of the property consists of an open grassed area with market garden furrows still visible on the ground surface. A large stockpile of timber and green waste is located in the central portion of the grassed area.

2.4 Surrounding Land Use

At the time of the investigation, the surrounding land use comprised the following:

- **North** – Sixth Avenue with rural residential properties beyond;
- **South** – Rural residential properties with Fifth Avenue beyond;
- **West** – Rural residential properties with Fourth Avenue beyond; and
- **East** – Edmondson Avenue with Scalabrini Village beyond.

2.5 Topography

The site slopes gently down towards the north east from an approximate elevation of 74 m Australian Height Datum (AHD) in the south west corner to 69 m AHD in the north east corner of the site.

2.6 Surface Water Receptor

The nearest surface water is an unnamed tributary of Kemps Creek, located approximately 110 m north east of the site.

2.7 Geology

Review of the NSW 1:100,000 Penrith Geological Map (Geological Survey of NSW, 1991) indicates the site is situated on Wianamatta group shale characterised by shale, carbonaceous claystone, laminite, fine to medium-grained lithic sandstone, rare coal and tuff.

2.8 Hydrogeology

It is expected that groundwater would follow the natural regional topography and generally flow north–east. Reference to the NSW Water Groundwater Works Report (NSW Government, 2016) indicates there are no registered groundwater bores within a 500 m radius of the site. The groundwater bore map is presented in Attachment C.

2.9 Underground Utilities

A Dial Before You Dig search was conducted to determine the presence of underground utilities which may act as conduits for contamination migration, both on site and off site (Attachment D). The plans indicate Sydney Water, Telstra utilities run underneath Sixth Avenue to the north and Edmondson Avenue to the east. Telstra utilities enter the site from the north-eastern boundary and terminate at 80 Edmondson Avenue.

3. PREVIOUS ENVIRONMENTAL INVESTIGATIONS

3.1 Geo-Logix (2016) Phase 1 Environmental Site Assessment

Geo-Logix completed a Phase 1 Environmental Site Assessment (ESA) of the site in September 2016. The objective of the Phase I ESA was to conduct a site inspection and collate site historical information in order to establish whether activities have occurred on site which may have resulted in contamination of land. The findings of the report were based on a site inspection conducted on the 6 September 2016 and a review of site historical information.

Site inspection and the review of historical data included the following findings:

- Historical aerial imagery indicated market gardens previously occupied the entire site from at least 1943 till 1965;

- Fragments of burnt cement fibre sheeting were observed during site inspection in a fire pit to the south of the dwelling at 80 Edmondson Avenue. Although fragments did not appear to be asbestos containing, the presence of ACM could not be ruled out. ACM sheeting was observed to have been used in the construction of the dwelling at 60 Edmondson Avenue and appeared to be in relatively good condition although a large diameter asbestos cement pipe was being used as a planter box in the courtyard. Peeling paint was also observed across the exterior of the dwelling at 60 Edmondson Avenue;
- A former farm dam in the northern portion of the property was observed during site inspection to have been filled. A number of small soil stockpiles and brick stockpiles were observed within the northern portion of the property; and
- Council records indicated that a panel beating and spray painting business operated in the large shed at 80 Edmondson Avenue from 1996 to at least 2008. A spray booth was also observed in the shed during the site inspection.

Results of the Phase I ESA indicated that the site and surrounds have a history of rural / residential use with minor commercial activities. Potential sources of contamination noted onsite include:

- Market gardening;
- Hazardous building materials;
- Fill of unknown origin; and
- Operation of a panel beating / spray painting business.

Given the site history Geo-Logix concluded there is a potential for land contamination at the site and further investigation was required to assess the presence or otherwise of such contamination.

4. POTENTIAL SITE CONTAMINATION

Based on the results of the Phase I ESA the following potential contamination issues were identified for the site.

Market Garden Activities

Historical aerial imagery indicated historical market garden activities occurred across the entire site from at least 1943 till 1965. Contaminants of Potential Concern (COPC) associated with market gardening activities include:

- Organochlorine pesticides (OCPs);
- Organophosphate pesticides (OPPs); and
- Heavy metals.

Additionally the storage and use of fuels used for equipment and machinery associated with market gardening and storage may have occurred in and nearby to onsite sheds. Petroleum related COPC include:

- Total Recoverable Hydrocarbons (TRH); and
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

Hazardous Building Materials

Fragments of burnt cement fibre sheeting were observed in a fire pit to the south of the dwelling at 80 Edmondson Avenue. ACM sheeting was also observed to have been used in the construction of the dwelling at 60 Edmondson Avenue and peeling paint was also observed across the exterior of the dwelling at 60 Edmondson Avenue. There is potential for land contamination arising from hazardous building materials including asbestos and lead-based paint.

Fill of Unknown Origin

A former farm dam in the northern portion of the property has been filled and a number of small soil stockpiles and brick stockpiles were observed within the northern portion of the property. Fill may have also been imported during construction of the large shed and dwelling at 80 Edmondson Avenue. COPC associated with fill of unknown origin comprise:

- TRH and BTEX;
- Polycyclic Aromatic Hydrocarbons (PAHs);
- OCPs;
- Polychlorinated Biphenyls (PCBs);
- Heavy metals; and
- Asbestos.

Panel Beating and Spray Painting Operations

Council records and site inspection indicated that a panel beating and spray painting business historically operated in the large shed at 80 Edmondson Avenue. COPC commonly associated with panel beating and spray painting activities include:

- TRH and BTEX;
- PAHs;
- Heavy metals; and
- Volatile Organic Compounds (VOCs).

5. DATA QUALITY OBJECTIVES

The objective of the investigation was to assess the site for contamination that may have originated from historical site activities to determine the suitability of the site for the proposed residential development.

To achieve the objective, Geo-Logix has adopted the seven step Data Quality Objective (DQO) process as described in AS 4482.1-2005, US EPA (2000), DEC (2006) and NEPM (2013).

Step 1: State the problem.

The subject site may be contaminated as a result of previous and current land use and activities. Issues of potential environmental concern for the site include:

- Contamination of the shallow soils from historical market garden activities;
- Contamination of shallow soils from hazardous building materials in current and former structures;
- Contamination to soil from fill of an unknown origin; and

- Contamination of shallow soils from panel beating and spray painting operations.

Step 2: Identify the decision.

Contamination has not been identified in soil at concentrations above residential land use standards and the site is considered suitable for the proposed residential subdivision.

Step 3: Identify inputs into the decision.

- Identification of issues of potential environmental concern (Phase 1 ESA and Section 4);
- Appropriate identification of COPCs (Phase 1 ESA and Section 4);
- Systematic soil sampling and analysis program of shallow soils across the site at a frequency consistent with minimum sampling requirements as defined in NSW EPA (1995);
- A targeted sampling and analysis program of shallow soils in the vicinity of identified potential contamination point sources;
- Appropriate quality assurance / control to enable an evaluation of the reliability of the analytical data; and
- Screening sample analytical results against appropriate assessment criteria for the intended land use (Residential).

Step 4: Define the boundaries of the site.

The project boundary is defined as the area within the site boundary (60-80 Edmondson Avenue, Austral NSW) to a maximum depth of intrusive works at approximately 1.0mbg.

Step 5: Develop a decision rule.

The results of the systematic soil sampling assessment must comply with the following decision rules:

- The 95% UCL concentration of any COPC does not exceed the assessment criteria;
- No sample exceeds 250% of the assessment criteria; and
- The standard deviation of results must be less than 50% of the assessment criteria.

The results of targeted soil sampling assessment must comply with the following decision rules:

- COPC do not exist in soil at concentrations in excess of the assessment criteria.

The results of systematic and targeted soil samples must comply with the following decision rule regarding asbestos:

- ACM was not visually observed on the site surface or in the subsurface at soil sampling locations.

Step 6: Specify acceptable limits on decision errors.

The field sampling methodology, sample preservation techniques, and laboratory analytical procedures must be appropriate to provide confidence in data quality so any comparison against assessment criteria can be considered reliable. This is achieved by defining and comparing results against the Data Quality Indicators (DQIs).

Step 7: Optimise the design for obtaining data.

This is achieved by sampling plan design in consideration of the available site history information, area of investigation, contaminant behaviour in the environment, and likely spatial distribution of contamination.

6. ASSESSMENT CRITERIA

The primary reference for environmental site assessment in Australia is the Amended Assessment of Site Contamination (ASC) National Environmental Protection Measure (NEPM) 1999 (NEPC, 2013). This document includes soil, soil vapour and groundwater criteria for use in evaluating potential contamination risk to human health and the environment.

The application of these investigation levels and screening levels is subject to a range of limitations and their selection and use must be in the context of the conceptual site model (CSM) relating to the nature and distribution of impacts and potential exposure pathways. Each relevant guideline is discussed further below and the adopted screening criteria are presented in summary sample analytical tables attached to this report.

6.1 Soil Assessment Criteria

The following soil assessment criteria were adopted for the investigation.

NEPM Health Based Investigation Level A (HILs A)

HILs are Tier 1 risk based generic assessment criteria used for the assessment of potential risks to human health from chronic exposure to contaminants in soil. They are intentionally conservative and based on a reasonable worst-case scenario for generic land use settings including Residential (HILs A/B), Open Space / Recreational (HILs C) and Commercial Industrial (HILs D). HILs A soil assessment criteria were adopted on the basis the proposed site use is residential.

NEPM Health Screening Levels A (HSLs A)

HSLs are Tier 1 risk based generic soil assessment criteria used for the assessment of potential risks to human health from chronic inhalation exposure of petroleum vapour emanating off petroleum contaminated soils (Vapour Risk). They are intentionally conservative and based on a reasonable worst-case scenario for generic soil types, contamination depth and land use settings including Residential (HSLs A/B), Open Space / Recreational (HSLs C) and Commercial Industrial (HSLs D). HSLs A soil assessment criteria were adopted. The generic soil types adopted included:

- HSL A Silt Soil 0 - <1m were conservatively adopted on basis shallow soil was disturbed and of variable composition.

NEPM Management Limits – Residential

Management Limits for petroleum have been developed for prevention of explosive vapour accumulation, prevention of the formation of observable Light Non-aqueous Phase Liquids (LNAPL) and protection against effects on buried infrastructure.

- Residential, parkland and public open space limits in fine grained soils are adopted based on the proposed residential land use.

NEPM (1999) Amendment Asbestos Criteria

Asbestos assessment criteria are included in NEPM (1999) Amendment. Those criteria apply to the assessment of known and suspected asbestos contamination in soil and address friable and non-friable forms of asbestos. The presence of asbestos contamination was not known at the time of investigation therefore its investigation was of a preliminary nature. Given the preliminary assessment the following assessment criteria was adopted:

- No visible ACM on site surface or in the subsurface at soil sampling locations.

If ACM is encountered further assessment may be warranted.

Ecological Assessment

Ecological Investigation Levels (EILs) are used for the protection of terrestrial ecosystems and have been derived for common contaminants in soil based on a species sensitivity distribution model developed for Australian conditions. EILs apply principally to contaminants in the top 2 m of soil which corresponds to the root zone and habitation zone of many species. EILs have been developed for the following contaminants:

- Arsenic (As);
- Copper (Cu);
- Chromium III (CrIII);
- Nickel (Ni);
- Lead (Pb);
- Zinc (Zn)
- DDT; and
- Naphthalene.

EILs depend on specific soil physicochemical properties and land use scenarios. The protection levels for generic land use settings are:

- 99% for areas of ecological significance;
- 80% for urban residential areas and public open space; and
- 60% for commercial and industrial uses.

80% protection was adopted on the basis the proposed land use is residential. Two soil samples (S4/0.0-0.15 and S22/0.0-0.15) were sent to the laboratory for analysis of cation exchange capacity (CEC), pH and clay content to determine appropriate EILs for site soils.

A summary of EILs adopted for site and rationale are detailed below.

Contaminant	EIL (mg/kg)	Rationale
As	100	Value for urban residential and public open space irrespective of physicochemical properties.
Cu	100	Value for urban residential and public open space based on an average CEC of 9.5, pH of 5.0 and iron content of 3.95%
CrIII	560	Value for urban residential and public open space based on average clay content of 13 % and iron content of 3.95%

Contaminant	EIL (mg/kg)	Rationale
Ni	160	Value for urban residential and public open space based on an average CEC of 9.5, pH of 5.0 and iron content of 3.95%
Pb	1100	Value for urban residential and public open space based on a background concentration of 20 mg/kg
Zn	260	Value for urban residential and public open space based on an average CEC of 9.5, pH of 5.0 and iron content of 3.95%
DDT	180	Value for urban residential and public open space irrespective of physicochemical properties.
Naphthalene	170	

In addition, Ecological Screening Levels (ESLs) have been developed. The ESLs are based on a review of Canadian guidance for petroleum hydrocarbons contamination in coarse and fine grained soil types and application of the Australian methodology. A summary of ESLs adopted for site and rationale are detailed below.

Contaminant	EIL (mg/kg)	Rationale
F1 C6-C10	180	Value for urban residential/public open space in fine grained soil.
F2 C10-C16	120	
F3 C16-C34	1300	
F4 C34-C40	5600	
Benzene	65	
Toluene	105	
Ethylbenzene	125	
Xylenes (Total)	45	
Benzo(a)pyrene	0.7	

7. INVESTIGATION METHODOLOGIES

Geo-Logix conducted environmental investigations of the former dam on 6 September and the remainder of the site on 5 and 6 October 2016. Sample locations are presented in Figure 3. The investigation methodology undertaken for each issue of potential environmental concern is presented below.

Market Garden Activities

Market gardening has historically occurred on the site. There is potential for shallow soil contamination from the application of pesticides. A systematic based sampling plan was undertaken consisting of the following scope of works:

- Sampling at 24 locations (S1 to 24) on a 24 m spaced sampling grid. The sample frequency is sufficient to detect a circular contamination hotspot with a diameter of 28.22m or greater at a 95 % statistical degree of certainty. The sampling grid meets minimum sampling standards for the site area (17,160 m^2) as per NSW EPA (1995); and

- At each location, shallow native soil samples (0-0.15 mbg) were collected for the purpose of analysis, samples were composited in the laboratory from two primary systematic soil samples for analysis of COPC's heavy metals and OCPs.

Composite Sample Identification	Parent Samples	Composite Sample Identification	Samples
C1	S1/0.0-0.15 and S2/0.0-0.15	C7	S13/0.0-0.15 and S14/0.0-0.15
C2	S3/0.0-0.15 and S4/0.0-0.15	C8	S15/0.0-0.15 and S16/0.0-0.15
C3	S5/0.0-0.15 and S6/0.0-0.15	C9	S17/0.0-0.15 and S18/0.0-0.15
C4	S7/0.0-0.15 and S8/0.0-0.15	C10	S19/0.0-0.15 and S20/0.0-0.15
C5	S9/0.0-0.15 and S10/0.0-0.15	C11	S21/0.0-0.15 and S22/0.0-0.15
C6	S11/0.0-0.15 and S12/0.0-0.15	C12	S23/0.0-0.15 and S24/0.0-0.15

Former and Current Building Structures Containing Hazardous Building Materials

There is potential for contamination of the land due to identification of the following potential contamination issues relating to hazardous building materials:

- Fragments of burnt cement fibre sheeting was observed in a fire pit to the south of the residential dwelling on 80 Edmondson Avenue;
- ACM sheeting was observed to have been used in the construction of the dwelling on 60 Edmondson Avenue;
- An asbestos pipe was observed used as a planter box in the courtyard of the dwelling on 60 Edmondson Avenue; and
- Peeling paint was observed across the exterior of the dwelling on 60 Edmondson Avenue.

To assess shallow soils in the vicinity of potential sources areas the following scope of works was completed:

- Collection of one shallow soil sample (SS1) from within the fire pit on 80 Edmondson Avenue for laboratory analysis of asbestos and lead;
- Collection of four shallow soil samples (SS2 to SS5) from within the vicinity of the building footprint of the dwelling on 60 Edmondson Avenue for laboratory analysis of asbestos and lead; and
- Collection of one sample (AC1) from the base of the planter box for laboratory analysis of asbestos.

Fill of an Unknown Origin

A former farm dam in the northern portion of the property was identified to have been filled. A number of small soil stockpiles and brick stockpiles were also observed within the northern portion of the property. The origin of the fill within the former dam and stockpiles is unknown. To assess fill material within the former dam the following scope of work was undertaken:

- Two trenches (T1 and T2) were completed with an excavator through the fill soils encountered in the former dam area to the depth of native soils at an approximate maximum depth of underlying native soil (1.0 mbg);
- Three fill soil samples (T1/1 to T1/3) were collected a varied depths within trench T1 and three fill soil samples (T2/1 to T2/3) were collected a varied depths within trench T2;
- Laboratory analysis of soil samples for fill related COPC including TRH, BTEXN, PAHs, heavy metals, OCPs and asbestos.

To assess fill material within two stockpiles located in the northeast portion of the site the following scope of works was completed:

- Collection of one soil sample from each stockpile (SP1 and SP2);
- Laboratory analysis of soil samples for fill related COPC including TRH, BTEXN, PAHs, heavy metals, OCPs and asbestos.

In addition field observations identified small burnt areas / fire pits in the central northern and central north western portions of the site. There is potential for burning of waste materials of an unknown origin. Soil samples SS8 to SS10 were collected at shallow soil depths (0.0 – 0.15 mbg) within the fire pits for laboratory analysis for fill related COPC including TRH, BTEXN, PAHs, heavy metals, OCPs and asbestos.

Panel Beating and Spray Painting Operations

Council records indicate that a panel beating and spray painting business operated in the large shed at 80 Edmondson Avenue from 1996 to at least 2008. A spray booth was also observed in the shed during at the site inspection. Contamination of panel beating and spray painting operations would result from spills of solvents and present in shallow soils. The scope of works completed to assess areas of panel beating / spray painting included:

- Collection of two soil samples (SS6 and SS7) from shallow soils in the vicinity of the edge of the shed's concrete slab;
- Concrete coring and collection of one soil sample (BH1) from beneath the slab; and
- Laboratory analysis of soil samples for vehicle maintenance related COPC including TRH, BTEX, VOCs, PAHs and heavy metals.

7.1 Soil Sampling Methodology

Trenches within the former dam area were completed using a 5.5 tonne excavator. Trenches were completed to a maximum depth of approximately 1.0 mbg. Soil samples were collected directly from the bucket of the excavator.

Shallow borings S1 to S24, SS1 to SS10 and BH1 were completed using a hand auger to depths of approximately 0.15 mbg. The soil samples were collected directly from the hand auger.

Soil samples were placed in laboratory prepared jars, labelled and placed on ice in an esky for transport under chain of custody to a NATA Accredited Laboratory for the analysis of the COPC.

Soil sample descriptions for shallow soil samples are presented in Attachment E.

7.2 Quality Assurance

Quality control (QC) sampling was undertaken in general accordance with specifications outlined in AS4482.1, *Guide to Sampling and Investigation of Potentially Contaminated Soil.* Field QC samples were collected and included the following:

Sample Identification	Sample Type	Sample Matrix	Rate of Collection
DS1	Field duplicate of T1/2	Soil	1 in 20 samples
TS1	Field triplicate of T1/2	Soil	1 in 20 samples
DS2	Field duplicate of S22/0.0-0.15	Soil	1 in 20 samples
TS2	Field triplicate of S22/0.0-0.15	Soil	1 in 20 samples
R1	Soil sampling equipment rinsate	Water	1 per day of hand auger borings
R2	Soil sampling equipment rinsate	Water	1 per day of hand auger borings

Note – Rate of QC sample collection specified as 1 in 20 samples in AS4482.1

The laboratory internal QC procedures are consistent with NEPM policy on laboratory analysis of contaminated soils.

8. INVESTIGATION RESULTS

8.1 Site Geology

The geology encountered at the site typically comprised moderate brown, damp, loose, sandy silty topsoil, with clay and gravel between 0.0 to 0.2 mbg underlain by brownish yellow, damp, soft to firm low plasticity Clay from 0.2 mbg.

Some fill, likely reworked natural low plasticity clay, was encountered surrounding the large shed. A number of fire pits were observed in the central and northern portion of the property which contained ash, charcoal and anthropogenic material including glass, metal and melted plastics.

A single fragment of bonded ACM was encountered in reworked natural sandy silty topsoil at sample location S21.

8.2 Site Hydrogeology

Groundwater was not encountered during intrusive investigations.

8.3 Soil Analytical Results

Soil analytical results are summarised in Tables 1 through 6. Laboratory reports are presented in Attachment F.

TRH and BTEX

Benzene was detected at concentrations marginally above health screening levels criteria in shallow soil at boring location SS9 completed within the fire pit located in the on the north western portion of the site (Table 1).

Petroleum hydrocarbons were not detected at concentrations above assessment criteria in all other soil samples analysed.

VOCs

With the exception of benzene noted above, VOCs were not detected in soil at concentrations above assessment criteria in all samples analysed (Table 2).

PAHs

PAHs were not detected in soil at concentrations above laboratory reporting limits in all samples analysed (Table 3).

Metals

Chromium was detected at concentrations above Residential HILs in the duplicate (DS2) and triplicate (TS2) samples of composite soil sample C11 and individual shallow soil samples SS1 and SS9 (Table 4).

Copper was detected at concentrations above Residential EILs in composite sample C12 (S23 and S24) and in individual samples SS1, SS8 and SS9.

Lead was detected at concentrations above Residential HILs and EILs in in samples collected from SS1, and SS9. Lead was detected at concentrations above Residential HILs in sample collected from SS10.

Zinc was detected at concentrations above Residential EILs in composite samples C10 and C11 and individual shallow soil sample locations SS1, SS8, SS9 and SS10.

Arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc were not detected at concentrations greater than the assessment criteria in remaining soil samples analysed.

OCPs

OCPs were not reported in any soil sample at concentrations above assessment criteria (Table 5).

Asbestos

Asbestos was detected by the laboratory in the form of loose fibre bundles in the soil sample collected at location SS2 (Table 6). Asbestos was also detected by the laboratory in the fragment sample collected at location SS2.

Asbestos was visually identified as single fragment of bonded ACM within reworked natural sandy silty topsoil at sample location S21. The laboratory confirmed the sample contained asbestos.

Asbestos was not identified in soil at any other sample location.

8.4 Soil Analytical Statistical Summary

Statistical analysis of grid based primary soil sample analytical results has been undertaken where COPC were detected at concentrations greater than the laboratory reporting limits. Statistical summary is presented in the following table. Statistical computation output sheets are presented in Attachment G.

COPC	# Sample	# Sample Detections	Residential Assessment Criteria* (mg/kg)	Min (mg/kg)	Max (mg/kg)	Mean	95% UCL	Standard Deviation
Arsenic	12	8	50	<2	17	6.7	8.793	4.272
Chromium	12	9	50	13	49	28.17	34.64	12.49
Copper	12	11	50	11	58	24.92	31.92	13.51
Lead	12	11	150	25	69	40.75	48.18	14.33
Mercury	12	2	20	0.09	0.15	0.12	0.08	0.04
Nickel	12	10	80	5.6	14	8.425	9.884	2.814
Zinc	12	12	130	19	280	60.5	106.1	72.06
4.4'-DDE	12	1	NA	<0.05	0.13	0.033	**	**
Chlordanes - Total	12	1	25	<0.1	0.1	0.054	**	**

* Residential Assessment Criteria selected based on the lowest soil assessment criteria (HILs, EILs etc) used. As grid based samples were composited from two individual samples half the assessment criteria has been adopted.

**Only one distinct value detected. ProUCL was unable to process the data set. Mean values calculated using half laboratory reporting limits (LOR) for all non-detects.

ProUCL data output is presented in Attachment G.

The sample data for all grid based samples collected meets the following qualifiers:

- The 95% Upper Confidence Limit of COPC concentration data does not exceed the soil assessment criteria;
- No single sample exceeds 250% of the soil COPC assessment criteria; and
- The standard deviation of COPC analytical results is less than 50% of the soil assessment criteria.

8.5 QA/QC Results

Soil duplicate/triplicate results are within the adopted acceptance criteria of 30-50% (AS4482.1) relative percent difference (RPD) with the exception of the following:

- Arsenic in soil triplicate pair T1/2/0.8 and TS1; and
- Arsenic in soil triplicate pair C11 and TS2.

The RPD outliers are attributed to the low levels of metals (<5 time LOR) and heterogeneity of the soils.

COPC were not detected at concentrations above laboratory reporting limits in the rinsate samples collected from the hand auger indicating decontamination procedures were adequate to prevent cross contamination (Tables 7 to 9).

A summary of Laboratory QA/QC data is presented on the following table.

Report #	Analysis Within Holding Time	Surrogate Recovery	Lab. Duplicate RPD %	Lab Matrix Spike Recovery	Lab. Control Sample	Lab Method Blank
515269-S	✓	✓	✓	✓	✓	✓
515294-S	✓	✓	✓	×	✓	✓
518936-S	✓	✓	✓	✓	✓	✓
519059-S	✓	✓	✓	✓	✓	✓
√ = Pass X = Fail - = not required * = refer to report text						

Quality Assurance Criteria	Quality Control Criteria
Holding Times	**Accuracy**
VOCs 14 days soil / water	Surrogate, matrix spike, control sample 70-130% and 30-130% for Phenols.
SVOCs 7 days water, 14 days soil	Surrogate recovery 50-150% and 20-130% for Phenols.
Pesticides 7 days water, 14 days soil	**Precision**
Metals 6 months, Mercury 28 days	Method Blank Not detected
	Duplicate - No limit (<10xEQL), 0-50% (10-20xEQL), 0-200% (>20xEQL)

The laboratory QA/QC was within the acceptable limits with the exception of the following:

Report # 515294-S

The laboratory duplicate RPD% exceeded acceptance criteria of 30 – 50% for o-xylene and total xylenes however was accepted under the laboratory QC guidelines as the results were <10 times the LOR.

The matrix spike recovery was outside of the recommended acceptance criteria for naphthalene. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference.

Geo-Logix accepts the integrity of the analytical data.

9. DISCUSSION

Fire Pits

Benzene, chromium, copper, lead and zinc were variously detected at concentrations above assessment criteria in soil samples SS1, SS8, SS9 and SS10 collected from separate fire pits located in the central western and northern portions of the site. While the exceedances of the assessment criteria in the fire pit samples constitute a non-conformance of the decision rules, the extent of impact at each location is minor and is not considered sufficient to negate the viability of the proposed subdivision. However, removal of the fire pit material is recommended based on aesthetic issues.

Asbestos Impact to Soils

Asbestos in the form of loose fibre bundles was detected in the shallow soil sample SS2 collected adjacent to the residential dwelling in the southern portion of the site. Asbestos was also confirmed by the laboratory in a fragment of fibre cement collected from the same location. The asbestos detected is likely the result of weathering of broken fragments originating from the ACM sheet cladding of the nearby dwelling. Given the presence of friable and bonded asbestos in shallow soils the occurrence is a non-conformance with the decision rules and requires additional assessment or remediation / management in order for site to be suitable for the proposed residential land use.

The asbestos impact to soils in the vicinity of SS2 however is likely limited in extent given:

- Asbestos was not detected in any other shallow soil sample collected in the vicinity of the dwelling; and
- Field observations did not identify widespread impact to soils by fragments of bonded ACM in the vicinity of the dwelling.

One fragment of bonded ACM was also identified within reworked natural sandy silty topsoil at sample location S21 and represents a non-conformance of the decision rules. It is not know if the fragment is a one off random occurrence or indicative of more widespread impact. Further assessment to determine the extent and magnitude of bonded ACM in soil would be required to confirm the suitability for residential use or define remediation / management requirements.

Metals Impact to Soils

Heavy metals chromium, copper and zinc were also detected at concentrations marginally above ecological assessment criteria in four grid based locations. The exceedences do not represent a non-conformance to the decision rules as the results meet the following:

- The 95% Upper Confidence Limit of COPC concentration data does not exceed the soil assessment criteria;
- No single sample exceeds 250% of the soil COPC assessment criteria; and
- The standard deviation of COPC analytical results is less than 50% of the soil assessment criteria.

10. CONCLUSIONS

The results of the assessment identified the following non-conformances with the decision rules:

- Asbestos in the form of loose fibre bundles and as bonded fragments in shallow soil in the vicinity of the dwelling in the southern portion of the site and a fragment of bonded ACM in shallow soil in the south-eastern portion of the site.

Further assessment or remediation / management of the above issues is required for the site to be considered suitable for the proposed residential land use.

Heavy metals and benzene were identified in ash within four fire pits in the central western and northern portions of the site. The impact is not considered sufficient to negate the viability of the proposed subdivision; however, removal of the fire pit material is recommended based on aesthetic issues.

No other contaminants of concern were detected at concentrations greater than residential landuse criteria in the soil samples analysed.

11. LIMITATIONS

This report should be read in full, and no executive summary, conclusion or other section of the report may be used or relied on in isolation, or taken as representative of the report as a whole. No responsibility is accepted by Geo-Logix, and any duty of care that may arise but for this statement is excluded, in relation to any use of any part of this report other than on this basis.

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The works undertaken by Geo-Logix are based solely on the scope of works, as agreed by the Client (Scope of Works). No other investigations, sampling, monitoring works or reporting will be carried out other than as expressly provided in the Scope of Works. **A COPY OF THE SCOPE OF WORKS IS AVAILABLE ON REQUEST.**

To the extent permitted by law, Geo-Logix makes no warranties or representations as to the:

a. suitability of the Site for any specific use, or category of use, or

b. potential statutory requirements for remediation, if any, of the Site,

c. approvals, if any, that may be needed in respect of any use or category of use, or

d. level of remediation, if any, that is warranted to render the Site suitable for any specific use, or category of use, or

e. level of ongoing monitoring of Site conditions, if any, that is required in respect of any specific use, or category of use, or

f. presence, extent or absence of any substance in, on or under the Site, other than as expressly stated in this report.

The conclusions stated in this report are based solely on the information, Scope of Works, analysis and data that are stated or expressly referred to in this report.

To the extent that the information and data relied upon to prepare this report has been conveyed to Geo-Logix by the Client or third parties orally or in the form of documents, Geo-Logix has assumed that the information and data are completely accurate and has not sought independently to verify the accuracy of the information or data. Geo-Logix assumes no responsibility or duty of care in respect of any errors or omissions in the information or data provided to it.

Without limiting the paragraph above, where laboratory tests have been carried out by others on Geo-Logix's behalf, the tests are reproduced in this report on the assumption that the tests are accurate. Geo-Logix has not sought independently to verify the accuracy of those tests and assumes no responsibility in respect of them.

Geo-Logix assumes no responsibility in respect of any changes in the condition of the Site which have occurred since the time when Geo-Logix gathered data and/or took samples from the Site on its site inspections dated **6 September and 5 to 6 October 2016**.

Given the nature of asbestos, and the difficulties involved in identifying asbestos fibres, despite the exercise of all reasonable due care and diligence, thorough investigations may not always reveal its presence in either buildings or fill. Even if asbestos has been tested for and those tests' results do not reveal the presence of asbestos at those specific points of sampling, asbestos or asbestos containing materials may still be present at the Site, particularly if fill has been imported at any time, buildings constructed prior to 1980 have been demolished on the Site or materials from such buildings have been disposed of on the Site.

Where the Scope of Works does not include offsite investigations, Geo-Logix provides no warranty as to offsite conditions, including the extent if any to which substances in the Site may be emanating off site, and if so whether any adjoining sites have been or may be impacted by contamination originating from the Site.

Where the Scope of Works does not include the investigation, sampling, monitoring or other testing of groundwater in, on or under the Site, Geo-Logix provides no warranty or representation as to the quality of groundwater on the Site or the actual or potential migration of contamination in groundwater across or off the Site.

Subsurface site conditions are typically heterogeneous, and may change with time. Samples taken from different points on the Site may not enable inferences to be drawn about the condition of areas of the Site significantly removed from the sample points, or about the condition of any part of the Site whatsoever, in particular where the proposed inferences are to be drawn a long time after the date of the report.

Geo-Logix has prepared this report with the diligence, care and skill which a reasonable person would expect from a reputable environmental consultancy and in accordance with environmental regulatory authority and industry standards, guidelines and assessment criteria applicable as at the date of this report. Industry standards and environmental criteria change frequently, and may change at any time after the date of this report.

12. REFERENCES

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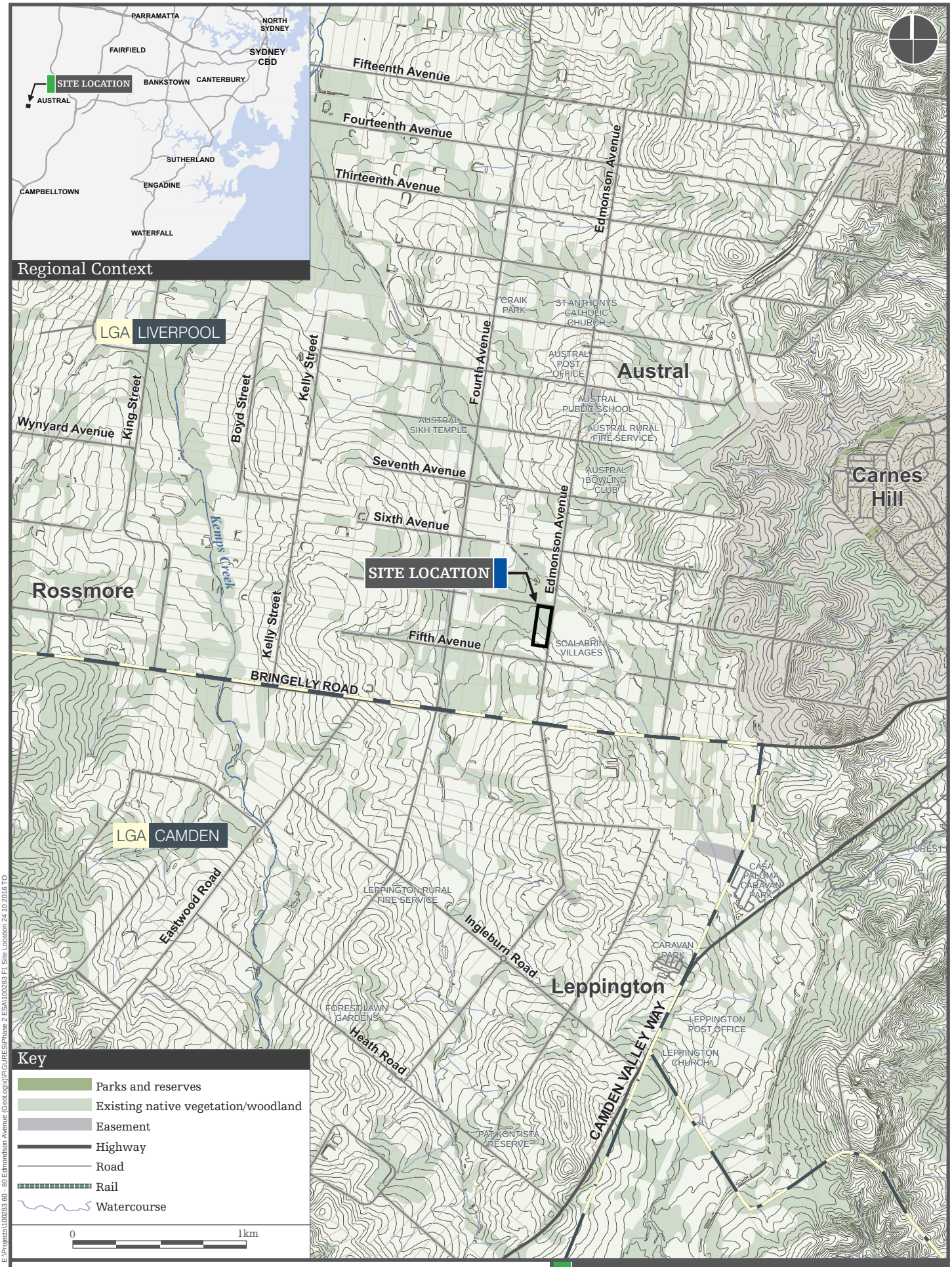
FIGURES



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SITE LOCATION

Phase 2 Environmental Site Assessment
60 - 80 Edmondson Avenue
Austral, New South Wales

Project No. 1601114

Figure 1

Site Features

1 Former farm dam
2 Stockpiles of soil
3 Stockpiles of bricks
4 Septic discharge area
5 Various stockpiles or timber, vegetation and scrap metal
6 Shipping container
7 Shed with various materials stored
8 Storage of paint cans, gas cylinders, oil drums
9 Large farm shed with spray booth
10 Attached residential unit
11 Swimming pool
12 Residential dwelling (80 Edmondson Avenue)
13 Asphalt driveway
14 Fire pit with fragments of cement sheeting
15 Truck
16 Stockpile of timber and vegetation
17 Storage of timber and scrap metal
18 Asbestos pipe planter box
19 Backyard with orchard
20 Residential dwelling (60 Edmondson Avenue)
21 Former market gardening area

SIXTH AVENUE

EDMONDSON AVENUE

Key

Site boundary
Cadastral boundary
Surface elevation (2m)

0 25m

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SITE FEATURES

Phase 2 Environmental Site Assessment
60 - 80 Edmondson Avenue
Austral, New South Wales

Project No. 1601114

Figure 2

E:\Projects\100283 60 - 80 Edmondson Avenue (Geo-Logix)\FIGURES\Phase 2 ESA\100283 F2 Site Features 24 10 2016 TO

E:\Projects\1100283 60 - 80 Edmondson Avenue (GeoLogix)\FIGURES\Phase 2 ESA\1100283 F3 Sampling Locations 25 10 2016 TO Rev A

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SAMPLING LOCATIONS

Phase 2 Environmental Site Assessment
60 - 80 Edmondson Avenue
Austral, New South Wales

Project No. 1601114

Figure 3

TABLES

Table 1 : Summary of Soil Analytical Data - Petroleum Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	T1/1/0.2	T1/2/0.8	DS1	RPD_DS1	TS1
	HSLs - A/B	Management	ESLs	Depth (m)	0.2	0.8	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	6/09/2016	6/09/2016	6/09/2016	-	6/09/2016
TRH C_6-C_{10}	-	800	-		< 20	< 20	< 20	*nc*	< 20
TRH C_6-C_{10} less BTEX (F1)	40	-	180		< 20	< 20	< 20	*nc*	< 20
TRH >C_{10}-C_{16}	-	1,000	-		< 50	< 50	< 50	*nc*	< 50
TRH >C_{10}-C_{16} less Naphthalene (F2)	230	-	120		< 50	< 50	< 50	*nc*	< 50
TRH >C_{16}-C_{34}	-	3,500	1,300		< 100	< 100	160	*nc*	< 100
TRH >C_{34}-C_{40}	-	10,000	5,600		< 100	< 100	< 100	*nc*	< 100
Benzene	0.6	-	65		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
Toluene	390	-	105		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
Ethylbenzene	NL	-	125		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
m&p-Xylenes	-	-	-		< 0.2	< 0.2	< 0.2	*nc*	< 0.2
o-Xylene	-	-	-		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
Xylenes - Total	95	-	45		< 0.3	< 0.3	< 0.3	*nc*	< 0.3
Naphthalene	4	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 1 : Summary of Soil Analytical Data - Petroleum Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	RPD_TS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.2	0.3	0.5	0.2
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
TRH C_6-C_{10}	-	800	-		*nc*	< 20	< 20	< 20	< 20
TRH C_6-C_{10} less BTEX (F1)	40	-	180		*nc*	< 20	< 20	< 20	< 20
TRH >C_{10}-C_{16}	-	1,000	-		*nc*	< 50	56	< 50	< 50
TRH >C_{10}-C_{16} less Naphthalene (F2)	230	-	120		*nc*	< 50	56	< 50	< 50
TRH >C_{16}-C_{34}	-	3,500	1,300		*nc*	160	230	< 100	130
TRH >C_{34}-C_{40}	-	10,000	5,600		*nc*	< 100	< 100	< 100	< 100
Benzene	0.6	-	65		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	390	-	105		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	NL	-	125		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	-	-	-		*nc*	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	-	-	-		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	95	-	45		*nc*	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	4	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 1 : Summary of Soil Analytical Data - Petroleum Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS1	SS6	SS7	SS8	SS9
	HSLs - A/B	Management	ESLs	Depth (m)	-	-	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
TRH C_6-C_{10}	-	800	-		< 20	--	--	< 20	< 20
TRH C_6-C_{10} less BTEX (F1)	40	-	180		< 20	--	--	< 20	< 20
TRH >C_{10}-C_{16}	-	1,000	-		< 50	--	--	< 50	< 50
TRH >C_{10}-C_{16} less Naphthalene (F2)	230	-	120		< 50	--	--	< 50	< 50
TRH >C_{16}-C_{34}	-	3,500	1,300		100	--	--	160	< 100
TRH >C_{34}-C_{40}	-	10,000	5,600		< 100	--	--	< 100	< 100
Benzene	0.6	-	65		< 0.1	< 0.1	< 0.1	< 0.1	**0.7**
Toluene	390	-	105		< 0.1	< 0.1	< 0.1	< 0.1	0.2
Ethylbenzene	NL	-	125		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	-	-	-		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	-	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	95	-	45		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	4	-	-		< 0.5	--	--	< 0.5	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 1 : Summary of Soil Analytical Data - Petroleum Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS10	BH1/0.1-0.2	SP1/0.3-0.35	SP2/0.3-0.35
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.1-0.2	0.3-0.35	0.3-0.35
	Silt	Limits	Urban Res	Type	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
TRH C_6-C_{10}	-	800	-		< 20	< 20	< 20	< 20
TRH C_6-C_{10} less BTEX (F1)	40	-	180		< 20	< 20	< 20	< 20
TRH >C_{10}-C_{16}	-	1,000	-		78	< 50	< 50	< 50
TRH >C_{10}-C_{16} less Naphthalene (F2)	230	-	120		78	< 50	< 50	< 50
TRH >C_{16}-C_{34}	-	3,500	1,300		300	300	< 100	< 100
TRH >C_{34}-C_{40}	-	10,000	5,600		< 100	240	< 100	< 100
Benzene	0.6	-	65		0.2	< 0.1	< 0.1	< 0.1
Toluene	390	-	105		0.2	< 0.1	< 0.1	< 0.1
Ethylbenzene	NL	-	125		0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	-	-	-		< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	-	-	-		< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	95	-	45		< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	4	-	-		< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	T1/1/0.2	T1/2/0.8	DS1	RPD_DS1	TS1
	HSLs - A/B	Management	ESLs	Depth (m)	0.2	0.8	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	6/09/2016	6/09/2016	6/09/2016	-	6/09/2016
1.1-Dichloroethane	-	-	-		--	--	--	--	--
1.1-Dichloroethene	-	-	-		--	--	--	--	--
1.1.1-Trichloroethane	-	-	-		--	--	--	--	--
1.1.1.2-Tetrachloroethane	-	-	-		--	--	--	--	--
1.1.2-Trichloroethane	-	-	-		--	--	--	--	--
1.1.2.2-Tetrachloroethane	-	-	-		--	--	--	--	--
1.2-Dibromoethane	-	-	-		--	--	--	--	--
1.2-Dichlorobenzene	-	-	-		--	--	--	--	--
1.2-Dichloroethane	-	-	-		--	--	--	--	--
1.2-Dichloropropane	-	-	-		--	--	--	--	--
1.2.3-Trichloropropane	-	-	-		--	--	--	--	--
1.2.4-Trimethylbenzene	-	-	-		--	--	--	--	--
1.3-Dichlorobenzene	-	-	-		--	--	--	--	--
1.3-Dichloropropane	-	-	-		--	--	--	--	--
1.3.5-Trimethylbenzene	-	-	-		--	--	--	--	--
1.4-Dichlorobenzene	-	-	-		--	--	--	--	--
2-Butanone (MEK)	-	-	-		--	--	--	--	--
2-Propanone (Acetone)	-	-	-		--	--	--	--	--
4-Chlorotoluene	-	-	-		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	T1/1/0.2	T1/2/0.8	DS1	RPD_DS1	TS1
	HSLs - A/B	Management	ESLs	Depth (m)	0.2	0.8	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	6/09/2016	6/09/2016	6/09/2016	-	6/09/2016
4-Methyl-2-pentanone (MIBK)	-	-	-		--	--	--	--	--
Allyl chloride	-	-	-		--	--	--	--	--
Benzene	0.6	-	65		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
Bromobenzene	-	-	-		--	--	--	--	--
Bromochloromethane	-	-	-		--	--	--	--	--
Bromodichloromethane	-	-	-		--	--	--	--	--
Bromoform	-	-	-		--	--	--	--	--
Bromomethane	-	-	-		--	--	--	--	--
Carbon disulfide	-	-	-		--	--	--	--	--
Carbon Tetrachloride	-	-	-		--	--	--	--	--
Chlorobenzene	-	-	-		--	--	--	--	--
Chloroethane	-	-	-		--	--	--	--	--
Chloroform	-	-	-		--	--	--	--	--
Chloromethane	-	-	-		--	--	--	--	--
cis-1.2-Dichloroethene	-	-	-		--	--	--	--	--
cis-1.3-Dichloropropene	-	-	-		--	--	--	--	--
Dibromochloromethane	-	-	-		--	--	--	--	--
Dibromomethane	-	-	-		--	--	--	--	--
Dichlorodifluoromethane	-	-	-		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	T1/1/0.2	T1/2/0.8	DS1	RPD_DS1	TS1
	HSLs - A/B	Management	ESLs	Depth (m)	0.2	0.8	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	6/09/2016	6/09/2016	6/09/2016	-	6/09/2016
Ethylbenzene	NL	-	125		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
Iodomethane	-	-	-		--	--	--	--	--
Isopropyl benzene (Cumene)	-	-	-		--	--	--	--	--
m&p-Xylenes	-	-	-		< 0.2	< 0.2	< 0.2	*nc*	< 0.2
Methylene Chloride	-	-	-		--	--	--	--	--
o-Xylene	-	-	-		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
Styrene	-	-	-		--	--	--	--	--
Tetrachloroethene	-	-	-		--	--	--	--	--
Toluene	390	-	105		< 0.1	< 0.1	< 0.1	*nc*	< 0.1
trans-1.2-Dichloroethene	-	-	-		--	--	--	--	--
trans-1.3-Dichloropropene	-	-	-		--	--	--	--	--
Trichloroethene	-	-	-		--	--	--	--	--
Trichlorofluoromethane	-	-	-		--	--	--	--	--
Vinyl chloride	-	-	-		--	--	--	--	--
Xylenes - Total	95	-	45		< 0.3	< 0.3	< 0.3	*nc*	< 0.3

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	RPD_TS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.2	0.3	0.5	0.2
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
1.1-Dichloroethane	-	-	-		--	--	--	--	--
1.1-Dichloroethene	-	-	-		--	--	--	--	--
1.1.1-Trichloroethane	-	-	-		--	--	--	--	--
1.1.1.2-Tetrachloroethane	-	-	-		--	--	--	--	--
1.1.2-Trichloroethane	-	-	-		--	--	--	--	--
1.1.2.2-Tetrachloroethane	-	-	-		--	--	--	--	--
1.2-Dibromoethane	-	-	-		--	--	--	--	--
1.2-Dichlorobenzene	-	-	-		--	--	--	--	--
1.2-Dichloroethane	-	-	-		--	--	--	--	--
1.2-Dichloropropane	-	-	-		--	--	--	--	--
1.2.3-Trichloropropane	-	-	-		--	--	--	--	--
1.2.4-Trimethylbenzene	-	-	-		--	--	--	--	--
1.3-Dichlorobenzene	-	-	-		--	--	--	--	--
1.3-Dichloropropane	-	-	-		--	--	--	--	--
1.3.5-Trimethylbenzene	-	-	-		--	--	--	--	--
1.4-Dichlorobenzene	-	-	-		--	--	--	--	--
2-Butanone (MEK)	-	-	-		--	--	--	--	--
2-Propanone (Acetone)	-	-	-		--	--	--	--	--
4-Chlorotoluene	-	-	-		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
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nc = RPD not calculated, one or both samples below laboratory reporting limit
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	RPD_TS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.2	0.3	0.5	0.2
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
4-Methyl-2-pentanone (MIBK)	-	-	-		--	--	--	--	--
Allyl chloride	-	-	-		--	--	--	--	--
Benzene	0.6	-	65		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
Bromobenzene	-	-	-		--	--	--	--	--
Bromochloromethane	-	-	-		--	--	--	--	--
Bromodichloromethane	-	-	-		--	--	--	--	--
Bromoform	-	-	-		--	--	--	--	--
Bromomethane	-	-	-		--	--	--	--	--
Carbon disulfide	-	-	-		--	--	--	--	--
Carbon Tetrachloride	-	-	-		--	--	--	--	--
Chlorobenzene	-	-	-		--	--	--	--	--
Chloroethane	-	-	-		--	--	--	--	--
Chloroform	-	-	-		--	--	--	--	--
Chloromethane	-	-	-		--	--	--	--	--
cis-1.2-Dichloroethene	-	-	-		--	--	--	--	--
cis-1.3-Dichloropropene	-	-	-		--	--	--	--	--
Dibromochloromethane	-	-	-		--	--	--	--	--
Dibromomethane	-	-	-		--	--	--	--	--
Dichlorodifluoromethane	-	-	-		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
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Total concentrations in mg/kg
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	RPD_TS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.2	0.3	0.5	0.2
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
Ethylbenzene	NL	-	125		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
Iodomethane	-	-	-		--	--	--	--	--
Isopropyl benzene (Cumene)	-	-	-		--	--	--	--	--
m&p-Xylenes	-	-	-		*nc*	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	-	-	-		--	--	--	--	--
o-Xylene	-	-	-		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	-	-	-		--	--	--	--	--
Tetrachloroethene	-	-	-		--	--	--	--	--
Toluene	390	-	105		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	-	-	-		--	--	--	--	--
trans-1.3-Dichloropropene	-	-	-		--	--	--	--	--
Trichloroethene	-	-	-		--	--	--	--	--
Trichlorofluoromethane	-	-	-		--	--	--	--	--
Vinyl chloride	-	-	-		--	--	--	--	--
Xylenes - Total	95	-	45		*nc*	< 0.3	< 0.3	< 0.3	< 0.3

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
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Total concentrations in mg/kg
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS1	SS6	SS7	SS8	SS9
	HSLs - A/B	Management	ESLs	Depth (m)	-	-	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
1.1-Dichloroethane	-	-	-		--	< 0.5	< 0.5	--	--
1.1-Dichloroethene	-	-	-		--	< 0.5	< 0.5	--	--
1.1.1-Trichloroethane	-	-	-		--	< 0.5	< 0.5	--	--
1.1.1.2-Tetrachloroethane	-	-	-		--	< 0.5	< 0.5	--	--
1.1.2-Trichloroethane	-	-	-		--	< 0.5	< 0.5	--	--
1.1.2.2-Tetrachloroethane	-	-	-		--	< 0.5	< 0.5	--	--
1.2-Dibromoethane	-	-	-		--	< 0.5	< 0.5	--	--
1.2-Dichlorobenzene	-	-	-		--	< 0.5	< 0.5	--	--
1.2-Dichloroethane	-	-	-		--	< 0.5	< 0.5	--	--
1.2-Dichloropropane	-	-	-		--	< 0.5	< 0.5	--	--
1.2.3-Trichloropropane	-	-	-		--	< 0.5	< 0.5	--	--
1.2.4-Trimethylbenzene	-	-	-		--	< 0.5	< 0.5	--	--
1.3-Dichlorobenzene	-	-	-		--	< 0.5	< 0.5	--	--
1.3-Dichloropropane	-	-	-		--	< 0.5	< 0.5	--	--
1.3.5-Trimethylbenzene	-	-	-		--	< 0.5	< 0.5	--	--
1.4-Dichlorobenzene	-	-	-		--	< 0.5	< 0.5	--	--
2-Butanone (MEK)	-	-	-		--	< 0.5	< 0.5	--	--
2-Propanone (Acetone)	-	-	-		--	< 5	< 5	--	--
4-Chlorotoluene	-	-	-		--	< 0.5	< 0.5	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS1	SS6	SS7	SS8	SS9
	HSLs - A/B	Management	ESLs	Depth (m)	-	-	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
4-Methyl-2-pentanone (MIBK)	-	-	-		--	< 0.5	< 0.5	--	--
Allyl chloride	-	-	-		--	< 0.05	< 0.05	--	--
Benzene	0.6	-	65		< 0.1	< 0.1	< 0.1	< 0.1	**0.7**
Bromobenzene	-	-	-		--	< 0.5	< 0.5	--	--
Bromochloromethane	-	-	-		--	< 0.5	< 0.5	--	--
Bromodichloromethane	-	-	-		--	< 0.5	< 0.5	--	--
Bromoform	-	-	-		--	< 0.5	< 0.5	--	--
Bromomethane	-	-	-		--	< 0.5	< 0.5	--	--
Carbon disulfide	-	-	-		--	< 0.5	< 0.5	--	--
Carbon Tetrachloride	-	-	-		--	< 0.5	< 0.5	--	--
Chlorobenzene	-	-	-		--	< 0.5	< 0.5	--	--
Chloroethane	-	-	-		--	< 0.5	< 0.5	--	--
Chloroform	-	-	-		--	< 0.5	< 0.5	--	--
Chloromethane	-	-	-		--	< 0.5	< 0.5	--	--
cis-1.2-Dichloroethene	-	-	-		--	< 0.5	< 0.5	--	--
cis-1.3-Dichloropropene	-	-	-		--	< 0.5	< 0.5	--	--
Dibromochloromethane	-	-	-		--	< 0.5	< 0.5	--	--
Dibromomethane	-	-	-		--	< 0.5	< 0.5	--	--
Dichlorodifluoromethane	-	-	-		--	< 0.5	< 0.5	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
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- = assessment criteria not available
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Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS1	SS6	SS7	SS8	SS9
	HSLs - A/B	Management	ESLs	Depth (m)	-	-	-	-	-
	Silt	Limits	Urban Res	Type	-	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Ethylbenzene	NL	-	125		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iodomethane	-	-	-		--	< 0.5	< 0.5	--	--
Isopropyl benzene (Cumene)	-	-	-		--	< 0.5	< 0.5	--	--
m&p-Xylenes	-	-	-		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	-	-	-		--	< 0.5	< 0.5	--	--
o-Xylene	-	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Styrene	-	-	-		--	< 0.5	< 0.5	--	--
Tetrachloroethene	-	-	-		--	< 0.5	< 0.5	--	--
Toluene	390	-	105		< 0.1	< 0.1	< 0.1	< 0.1	0.2
trans-1.2-Dichloroethene	-	-	-		--	< 0.5	< 0.5	--	--
trans-1.3-Dichloropropene	-	-	-		--	< 0.5	< 0.5	--	--
Trichloroethene	-	-	-		--	< 0.5	< 0.5	--	--
Trichlorofluoromethane	-	-	-		--	< 0.5	< 0.5	--	--
Vinyl chloride	-	-	-		--	< 0.5	< 0.5	--	--
Xylenes - Total	95	-	45		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS10	BH1/0.1-0.2	SP1/0.3-0.35	SP2/0.3-0.35
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.1-0.2	0.3-0.35	0.3-0.35
	Silt	Limits	Urban Res	Type	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
1.1-Dichloroethane	-	-	-		--	< 0.5	--	--
1.1-Dichloroethene	-	-	-		--	< 0.5	--	--
1.1.1-Trichloroethane	-	-	-		--	< 0.5	--	--
1.1.1.2-Tetrachloroethane	-	-	-		--	< 0.5	--	--
1.1.2-Trichloroethane	-	-	-		--	< 0.5	--	--
1.1.2.2-Tetrachloroethane	-	-	-		--	< 0.5	--	--
1.2-Dibromoethane	-	-	-		--	< 0.5	--	--
1.2-Dichlorobenzene	-	-	-		--	< 0.5	--	--
1.2-Dichloroethane	-	-	-		--	< 0.5	--	--
1.2-Dichloropropane	-	-	-		--	< 0.5	--	--
1.2.3-Trichloropropane	-	-	-		--	< 0.5	--	--
1.2.4-Trimethylbenzene	-	-	-		--	< 0.5	--	--
1.3-Dichlorobenzene	-	-	-		--	< 0.5	--	--
1.3-Dichloropropane	-	-	-		--	< 0.5	--	--
1.3.5-Trimethylbenzene	-	-	-		--	< 0.5	--	--
1.4-Dichlorobenzene	-	-	-		--	< 0.5	--	--
2-Butanone (MEK)	-	-	-		--	< 0.5	--	--
2-Propanone (Acetone)	-	-	-		--	< 5	--	--
4-Chlorotoluene	-	-	-		--	< 0.5	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS10	BH1/0.1-0.2	SP1/0.3-0.35	SP2/0.3-0.35
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.1-0.2	0.3-0.35	0.3-0.35
	Silt	Limits	Urban Res	Type	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
4-Methyl-2-pentanone (MIBK)	-	-	-		--	< 0.5	--	--
Allyl chloride	-	-	-		--	< 0.05	--	--
Benzene	0.6	-	65		0.2	< 0.1	< 0.1	< 0.1
Bromobenzene	-	-	-		--	< 0.5	--	--
Bromochloromethane	-	-	-		--	< 0.5	--	--
Bromodichloromethane	-	-	-		--	< 0.5	--	--
Bromoform	-	-	-		--	< 0.5	--	--
Bromomethane	-	-	-		--	< 0.5	--	--
Carbon disulfide	-	-	-		--	< 0.5	--	--
Carbon Tetrachloride	-	-	-		--	< 0.5	--	--
Chlorobenzene	-	-	-		--	< 0.5	--	--
Chloroethane	-	-	-		--	< 0.5	--	--
Chloroform	-	-	-		--	< 0.5	--	--
Chloromethane	-	-	-		--	< 0.5	--	--
cis-1.2-Dichloroethene	-	-	-		--	< 0.5	--	--
cis-1.3-Dichloropropene	-	-	-		--	< 0.5	--	--
Dibromochloromethane	-	-	-		--	< 0.5	--	--
Dibromomethane	-	-	-		--	< 0.5	--	--
Dichlorodifluoromethane	-	-	-		--	< 0.5	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 2 : Summary of Soil Analytical Data - Volatile Organic Compounds

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS10	BH1/0.1-0.2	SP1/0.3-0.35	SP2/0.3-0.35
	HSLs - A/B	Management	ESLs	Depth (m)	-	0.1-0.2	0.3-0.35	0.3-0.35
	Silt	Limits	Urban Res	Type	-	-	-	-
	0 to <1 m	Res/Park	Fine Soil	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
Ethylbenzene	NL	-	125		0.1	< 0.1	< 0.1	< 0.1
Iodomethane	-	-	-		--	< 0.5	--	--
Isopropyl benzene (Cumene)	-	-	-		--	< 0.5	--	--
m&p-Xylenes	-	-	-		< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride	-	-	-		--	< 0.5	--	--
o-Xylene	-	-	-		< 0.1	< 0.1	< 0.1	< 0.1
Styrene	-	-	-		--	< 0.5	--	--
Tetrachloroethene	-	-	-		--	< 0.5	--	--
Toluene	390	-	105		0.2	< 0.1	< 0.1	< 0.1
trans-1.2-Dichloroethene	-	-	-		--	< 0.5	--	--
trans-1.3-Dichloropropene	-	-	-		--	< 0.5	--	--
Trichloroethene	-	-	-		--	< 0.5	--	--
Trichlorofluoromethane	-	-	-		--	< 0.5	--	--
Vinyl chloride	-	-	-		--	< 0.5	--	--
Xylenes - Total	95	-	45		< 0.3	< 0.3	< 0.3	< 0.3

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Residential and parkland Management Limits for TPH fractions in soil, fine material.
Criteria 3 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 3 : Summary of Soil Analytical Data - Polyaromatic Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	T1/1/0.2	T1/2/0.8	DS1	RPD_DS1	TS1
	HSLs - A/B	ESLs		Depth (m)	0.2	0.8	-	-	-
	Silt	Urban Res	HILs - A	Type	-	-	-	-	-
	0 to <1 m	Fine Soil		Date	6/09/2016	6/09/2016	6/09/2016	-	6/09/2016
Acenaphthene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Acenaphthylene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Anthracene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Benz(a)anthracene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Benzo(a)pyrene	-	0.7	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Benzo(b&j)fluoranthene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Benzo(g.h.i)perylene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Benzo(k)fluoranthene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Chrysene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Dibenz(a.h)anthracene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Fluoranthene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Fluorene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Indeno(1.2.3-cd)pyrene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Naphthalene	4	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Phenanthrene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Pyrene	-	-	-		< 0.5	< 0.5	< 0.5	*nc*	< 0.5
Benzo(a)pyrene TEQ	-	-	3		0.6	0.6	0.6	*0%*	0.6
Total PAH	-	-	300		< 0.5	< 0.5	< 0.5	*nc*	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Criteria 3 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 3 : Summary of Soil Analytical Data - Polyaromatic Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	RPD_TS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
	HSLs - A/B	ESLs		Depth (m)	-	0.2	0.3	0.5	0.2
	Silt	Urban Res	HILs - A	Type	-	-	-	-	-
	0 to <1 m	Fine Soil		Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
Acenaphthene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	-	0.7	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	4	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	-	-	-		*nc*	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ	-	-	3		*0%*	0.6	0.6	0.6	0.6
Total PAH	-	-	300		*nc*	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Criteria 3 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 3 : Summary of Soil Analytical Data - Polyaromatic Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS1	SS6	SS7	SS8	SS9
	HSLs - A/B	ESLs		Depth (m)	-	-	-	-	-
	Silt	Urban Res	HILs - A	Type	-	-	-	-	-
	0 to <1 m	Fine Soil		Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Acenaphthene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Acenaphthylene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Anthracene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Benz(a)anthracene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Benzo(a)pyrene	-	0.7	-		< 0.5	--	--	< 0.5	< 0.5
Benzo(b&j)fluoranthene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Benzo(g.h.i)perylene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Benzo(k)fluoranthene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Chrysene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Dibenz(a.h)anthracene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Fluoranthene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Fluorene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Naphthalene	4	-	-		< 0.5	--	--	< 0.5	< 0.5
Phenanthrene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Pyrene	-	-	-		< 0.5	--	--	< 0.5	< 0.5
Benzo(a)pyrene TEQ	-	-	3		0.6	--	--	0.6	0.6
Total PAH	-	-	300		< 0.5	--	--	< 0.5	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Criteria 3 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 3 : Summary of Soil Analytical Data - Polyaromatic Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Sample ID	SS10	BH1/0.1-0.2	SP1/0.3-0.35	SP2/0.3-0.35
	HSLs - A/B	ESLs		Depth (m)	-	0.1-0.2	0.3-0.35	0.3-0.35
	Silt	Urban Res	HILs - A	Type	-	-	-	-
	0 to <1 m	Fine Soil		Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
Acenaphthene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	-	0.7	-		< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	4	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	-	-	-		< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ	-	-	3		0.6	0.6	0.6	0.6
Total PAH	-	-	300		< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Criteria 1 = NEPC (1999) Amended, 'A/B' Residential Soil Health Screening Levels for vapour intrusion, silt 0 to <1m.
Criteria 2 = NEPC (1999) Amended, Ecological Screening Levels for urban residential/public open space, fine soil.
Criteria 3 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Total concentrations in mg/kg
- = assessment criteria not available
NL = not limiting
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed

Bold/red indicates exceedance of assessment criteria

Table 4 : Summary of Soil Analytical Data - Heavy Metals

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	T1/1/0.2	T1/2/0.8	DS1	TS1	RPD_TS1
			EILS	½ EILS	Depth (m)	0.2	0.8	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	6/09/2016	6/09/2016	6/09/2016	6/09/2016	-
Arsenic	100	50	100	50		5.8	5	4.5	14	*95%*
Cadmium	20	10	-	-		< 0.4	< 0.4	< 0.4	< 0.4	*nc*
Chromium	100[1]	50[1]	190[2]	95[2]		22	23	16	16	*36%*
Copper	6,000	3,000	100	50		13	14	17	16	*13%*
Lead	300	150	1,100	550		19	33	29	22	*40%*
Mercury	40	20	-	-		< 0.05	< 0.05	< 0.05	< 0.1	*nc*
Nickel	400	200	160	80		6.4	7.1	7	7.7	*8%*
Zinc	7,400	3,700	260	130		48	62	62	56	*10%*

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 4 : Summary of Soil Analytical Data - Heavy Metals

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	RPD_DS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
			EILS	½ EILS	Depth (m)	-	0.2	0.3	0.5	0.2
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
Arsenic	100	50	100	50		*11%*	5	6.4	3.5	3.7
Cadmium	20	10	-	-		*nc*	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	100[1]	50[1]	190[2]	95[2]		*36%*	17	25	9.3	9.4
Copper	6,000	3,000	100	50		*19%*	16	11	9	12
Lead	300	150	1,100	550		*13%*	30	30	11	16
Mercury	40	20	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	400	200	160	80		*1%*	5.8	5.1	< 5	< 5
Zinc	7,400	3,700	260	130		*0%*	27	18	7.2	11

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
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Table 4 : Summary of Soil Analytical Data - Heavy Metals

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Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C1	C2	C3	C4	C5
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Arsenic	100	50	100	50		< 2	5.9	5.8	< 2	< 2
Cadmium	20	10	-	-		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	100[1]	50[1]	190[2]	95[2]		13	20	17	17	23
Copper	6,000	3,000	100	50		19	18	13	11	27
Lead	300	150	1,100	550		31	28	34	25	49
Mercury	40	20	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	400	200	160	80		9	13	10	5.7	9
Zinc	7,400	3,700	260	130		40	55	47	23	60

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 4 : Summary of Soil Analytical Data - Heavy Metals

Phase 2 Environmental Site Assessment

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C6	C7	C8	C9	C10
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Arsenic	100	50	100	50		< 2	7.5	5.3	5.4	7.9
Cadmium	20	10	-	-		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	100[1]	50[1]	190[2]	95[2]		17	40	23	42	36
Copper	6,000	3,000	100	50		25	16	22	16	33
Lead	300	150	1,100	550		30	34	33	41	52
Mercury	40	20	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	400	200	160	80		6	8.9	5.9	5.6	7
Zinc	7,400	3,700	260	130		35	22	20	19	**280**

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 4 : Summary of Soil Analytical Data - Heavy Metals

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Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C11	DS2	TS2 - COMP	RPD_DS2	RPD_TS2 - COMP
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	-	-	-
Arsenic	100	50	100	50		17	21	35	*21%*	*69%*
Cadmium	20	10	-	-		< 0.4	< 0.4	< 0.4	*nc*	*nc*
Chromium	100[1]	50[1]	190[2]	95[2]		49	**56**	**89**	*13%*	*58%*
Copper	6,000	3,000	100	50		41	29	36	*34%*	*13%*
Lead	300	150	1,100	550		63	59	74	*7%*	*16%*
Mercury	40	20	-	-		0.15	0.13	< 0.1	*14%*	*nc*
Nickel	400	200	160	80		7	7	11	*0%*	*44%*
Zinc	7,400	3,700	260	130		36	39	49	*8%*	*31%*

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 4 : Summary of Soil Analytical Data - Heavy Metals

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Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C12	SS1	SS2	SS3	SS4
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Arsenic	100	50	100	50		13	**75**	--	--	--
Cadmium	20	10	-	-		< 0.4	1.2	--	--	--
Chromium	100[1]	50[1]	190[2]	95[2]		41	**110**	--	--	--
Copper	6,000	3,000	100	50		**58**	**180**	--	--	--
Lead	300	150	1,100	550		69	**1,400**	67	84	140
Mercury	40	20	-	-		0.09	< 0.05	--	--	--
Nickel	400	200	160	80		14	68	--	--	--
Zinc	7,400	3,700	260	130		89	**1,100**	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Bold/red indicates exceedance of assessment criteria

Table 4 : Summary of Soil Analytical Data - Heavy Metals

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SS5	SS6	SS7	SS8	SS9
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Arsenic	100	50	100	50		--	--	--	22	**74**
Cadmium	20	10	-	-		--	--	--	2.4	1.2
Chromium	100[1]	50[1]	190[2]	95[2]		--	--	--	**69**	**110**
Copper	6,000	3,000	100	50		--	--	--	**410**	**180**
Lead	300	150	1,100	550		64	--	--	110	**1,400**
Mercury	40	20	-	-		--	--	--	0.07	< 0.05
Nickel	400	200	160	80		--	--	--	72	68
Zinc	7,400	3,700	260	130		--	--	--	**2,700**	**1,200**

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 4 : Summary of Soil Analytical Data - Heavy Metals

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60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SS10	BH1/0.1-0.2	SS1/0.0-0.15	S21/0.0-0.15
			EILS	½ EILS	Depth (m)	-	0.1-0.2	0.0-0.15	0.0-0.15
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-
			Residential	Residential	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
Arsenic	100	50	100	50		< 2	< 2	--	--
Cadmium	20	10	-	-		< 0.4	< 0.4	--	--
Chromium	100[1]	50[1]	190[2]	95[2]		35	26	--	--
Copper	6,000	3,000	100	50		**94**	25	--	--
Lead	300	150	1,100	550		**160**	13	--	--
Mercury	40	20	-	-		< 0.05	< 0.05	--	--
Nickel	400	200	160	80		31	33	--	--
Zinc	7,400	3,700	260	130		**220**	20	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 4 : Summary of Soil Analytical Data - Heavy Metals

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SP1/0.3-0.35	SP2/0.3-0.35
			EILS	½ EILS	Depth (m)	0.3-0.35	0.3-0.35
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016
Arsenic	100	50	100	50		2.7	5.3
Cadmium	20	10	-	-		< 0.4	< 0.4
Chromium	100[1]	50[1]	190[2]	95[2]		20	20
Copper	6,000	3,000	100	50		15	12
Lead	300	150	1,100	550		20	20
Mercury	40	20	-	-		< 0.05	< 0.05
Nickel	400	200	160	80		18	< 5
Zinc	7,400	3,700	260	130		18	16

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
[1]Guideline for Cromium (VI) used conservatively.
[2]Guideline for Chromium (III) used conservatively.
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11

RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	T1/1/0.2	T1/2/0.8	DS1	TS1	RPD_TS1
			EILS	½ EILS	Depth (m)	0.2	0.8	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	6/09/2016	6/09/2016	6/09/2016	6/09/2016	-
4.4'-DDD	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
4.4'-DDE	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
4.4'-DDT	-	-	180	90		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
a-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Aldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
b-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Chlordanes - Total	50	25	-	-		< 0.1	< 0.1	< 0.1	< 0.1	*nc*
d-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Dieldrin	-	-	-	-		< 0.05	0.88	0.06	0.3	*98%*
Endosulfan I	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Endosulfan II	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Endosulfan sulphate	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Endrin	10	5	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Endrin aldehyde	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Endrin ketone	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
g-BHC (Lindane)	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Heptachlor	6	3	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Heptachlor epoxide	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*
Hexachlorobenzene	10	5	-	-		< 0.05	< 0.05	< 0.05	< 0.05	*nc*

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	T1/1/0.2	T1/2/0.8	DS1	TS1	RPD_TS1
			EILS	½ EILS	Depth (m)	0.2	0.8	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	6/09/2016	6/09/2016	6/09/2016	6/09/2016	-
Methoxychlor	300	150	-	-		< 0.2	< 0.2	< 0.2	< 0.05	*nc*
Toxaphene	20	10	-	-		< 1	< 1	< 1	< 1	*nc*
Aldrin + Dieldrin	6	3	-	-		ND	0.88	0.06	0.3	*98%*
Endosulfans - Total	270	135	-	-		ND	ND	ND	ND	*nc*
DDD + DDE + DDT	240	120	-	-		ND	ND	ND	ND	*nc*
Scheduled Chemical Wastes	-	-	-	-		ND	0.88	0.06	0.3	*98%*

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	RPD_DS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
			EILS	½ EILS	Depth (m)	-	0.2	0.3	0.5	0.2
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
4.4'-DDD	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	-	-	180	90		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Chlordanes - Total	50	25	-	-		*nc*	< 0.1	< 0.1	< 0.1	< 0.1
d-BHC	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	-	-	-	-		*174%*	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	10	5	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	6	3	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	-	-	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	10	5	-	-		*nc*	< 0.05	< 0.05	< 0.05	< 0.05

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
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Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	RPD_DS1	T1/3/0.2	T2/1/0.3	T2/2/0.5	T2/3/0.2
			EILS	½ EILS	Depth (m)	-	0.2	0.3	0.5	0.2
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	-	6/09/2016	6/09/2016	6/09/2016	6/09/2016
Methoxychlor	300	150	-	-		*nc*	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	20	10	-	-		*nc*	< 1	< 1	< 1	< 1
Aldrin + Dieldrin	6	3	-	-		*174%*	ND	ND	ND	ND
Endosulfans - Total	270	135	-	-		*nc*	ND	ND	ND	ND
DDD + DDE + DDT	240	120	-	-		*nc*	ND	ND	ND	ND
Scheduled Chemical Wastes	-	-	-	-		*174%*	ND	ND	ND	ND

Notes:

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Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
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DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C1	C2	C3	C4	C5
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
4.4'-DDD	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	-	-	180	90		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlordanes - Total	50	25	-	-		< 0.1	< 0.1	< 0.1	< 0.1	0.1
d-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	10	5	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	6	3	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	10	5	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
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DS1 = duplicate of T1/2/0.8
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C1	C2	C3	C4	C5
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Methoxychlor	300	150	-	-		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	20	10	-	-		< 1	< 1	< 1	< 1	< 1
Aldrin + Dieldrin	6	3	-	-		ND	ND	ND	ND	ND
Endosulfans - Total	270	135	-	-		ND	ND	ND	ND	ND
DDD + DDE + DDT	240	120	-	-		ND	ND	ND	ND	ND
Scheduled Chemical Wastes	-	-	-	-		ND	ND	ND	ND	0.1

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C6	C7	C8	C9	C10
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
4.4'-DDD	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	0.13
4.4'-DDT	-	-	180	90		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlordanes - Total	50	25	-	-		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
d-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	10	5	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	6	3	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	-	-	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	10	5	-	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
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Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
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TS2 - COMP = triplicate of C11
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C6	C7	C8	C9	C10
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Methoxychlor	300	150	-	-		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	20	10	-	-		< 1	< 1	< 1	< 1	< 1
Aldrin + Dieldrin	6	3	-	-		ND	ND	ND	ND	ND
Endosulfans - Total	270	135	-	-		ND	ND	ND	ND	ND
DDD + DDE + DDT	240	120	-	-		ND	ND	ND	ND	0.13
Scheduled Chemical Wastes	-	-	-	-		ND	ND	ND	ND	0.13

Notes:

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Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C11	DS2	TS2 - COMP	RPD_DS2	RPD_TS2 - COMP
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	-	-	-
4.4'-DDD	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
4.4'-DDE	-	-	-	-		< 0.05	< 0.05	0.08	*nc*	*nc*
4.4'-DDT	-	-	180	90		< 0.05	< 0.05	< 0.05	*nc*	*nc*
a-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Aldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
b-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Chlordanes - Total	50	25	-	-		< 0.1	< 0.1	< 0.1	*nc*	*nc*
d-BHC	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Dieldrin	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Endosulfan I	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Endosulfan II	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Endosulfan sulphate	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Endrin	10	5	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Endrin aldehyde	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Endrin ketone	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
g-BHC (Lindane)	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Heptachlor	6	3	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Heptachlor epoxide	-	-	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*
Hexachlorobenzene	10	5	-	-		< 0.05	< 0.05	< 0.05	*nc*	*nc*

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

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Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C11	DS2	TS2 - COMP	RPD_DS2	RPD_TS2 - COMP
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	-	-	-
Methoxychlor	300	150	-	-		< 0.2	< 0.2	< 0.05	*nc*	*nc*
Toxaphene	20	10	-	-		< 1	< 1	< 1	*nc*	*nc*
Aldrin + Dieldrin	6	3	-	-		ND	ND	ND	*nc*	*nc*
Endosulfans - Total	270	135	-	-		ND	ND	ND	*nc*	*nc*
DDD + DDE + DDT	240	120	-	-		ND	ND	0.08	*nc*	*nc*
Scheduled Chemical Wastes	-	-	-	-		ND	ND	0.08	*nc*	*nc*

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
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- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
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Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

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60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C12	SS1	SS2	SS3	SS4
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
4.4'-DDD	-	-	-	-		< 0.05	--	--	--	--
4.4'-DDE	-	-	-	-		< 0.05	--	--	--	--
4.4'-DDT	-	-	180	90		< 0.05	--	--	--	--
a-BHC	-	-	-	-		< 0.05	--	--	--	--
Aldrin	-	-	-	-		< 0.05	--	--	--	--
b-BHC	-	-	-	-		< 0.05	--	--	--	--
Chlordanes - Total	50	25	-	-		< 0.1	--	--	--	--
d-BHC	-	-	-	-		< 0.05	--	--	--	--
Dieldrin	-	-	-	-		< 0.05	--	--	--	--
Endosulfan I	-	-	-	-		< 0.05	--	--	--	--
Endosulfan II	-	-	-	-		< 0.05	--	--	--	--
Endosulfan sulphate	-	-	-	-		< 0.05	--	--	--	--
Endrin	10	5	-	-		< 0.05	--	--	--	--
Endrin aldehyde	-	-	-	-		< 0.05	--	--	--	--
Endrin ketone	-	-	-	-		< 0.05	--	--	--	--
g-BHC (Lindane)	-	-	-	-		< 0.05	--	--	--	--
Heptachlor	6	3	-	-		< 0.05	--	--	--	--
Heptachlor epoxide	-	-	-	-		< 0.05	--	--	--	--
Hexachlorobenzene	10	5	-	-		< 0.05	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
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TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	C12	SS1	SS2	SS3	SS4
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Methoxychlor	300	150	-	-		< 0.2	--	--	--	--
Toxaphene	20	10	-	-		< 1	--	--	--	--
Aldrin + Dieldrin	6	3	-	-		ND	--	--	--	--
Endosulfans - Total	270	135	-	-		ND	--	--	--	--
DDD + DDE + DDT	240	120	-	-		ND	--	--	--	--
Scheduled Chemical Wastes	-	-	-	-		ND	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SS5	SS6	SS7	SS8	SS9
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
4.4'-DDD	-	-	-	-		--	--	--	--	--
4.4'-DDE	-	-	-	-		--	--	--	--	--
4.4'-DDT	-	-	180	90		--	--	--	--	--
a-BHC	-	-	-	-		--	--	--	--	--
Aldrin	-	-	-	-		--	--	--	--	--
b-BHC	-	-	-	-		--	--	--	--	--
Chlordanes - Total	50	25	-	-		--	--	--	--	--
d-BHC	-	-	-	-		--	--	--	--	--
Dieldrin	-	-	-	-		--	--	--	--	--
Endosulfan I	-	-	-	-		--	--	--	--	--
Endosulfan II	-	-	-	-		--	--	--	--	--
Endosulfan sulphate	-	-	-	-		--	--	--	--	--
Endrin	10	5	-	-		--	--	--	--	--
Endrin aldehyde	-	-	-	-		--	--	--	--	--
Endrin ketone	-	-	-	-		--	--	--	--	--
g-BHC (Lindane)	-	-	-	-		--	--	--	--	--
Heptachlor	6	3	-	-		--	--	--	--	--
Heptachlor epoxide	-	-	-	-		--	--	--	--	--
Hexachlorobenzene	10	5	-	-		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SS5	SS6	SS7	SS8	SS9
			EILS	½ EILS	Depth (m)	-	-	-	-	-
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Methoxychlor	300	150	-	-		--	--	--	--	--
Toxaphene	20	10	-	-		--	--	--	--	--
Aldrin + Dieldrin	6	3	-	-		--	--	--	--	--
Endosulfans - Total	270	135	-	-		--	--	--	--	--
DDD + DDE + DDT	240	120	-	-		--	--	--	--	--
Scheduled Chemical Wastes	-	-	-	-		--	--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SS10	BH1/0.1-0.2	SS1/0.0-0.15	S21/0.0-0.15
			EILS	½ EILS	Depth (m)	-	0.1-0.2	0.0-0.15	0.0-0.15
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-
			Residential	Residential	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
4.4'-DDD	-	-	-	-		--	--	--	--
4.4'-DDE	-	-	-	-		--	--	--	--
4.4'-DDT	-	-	180	90		--	--	--	--
a-BHC	-	-	-	-		--	--	--	--
Aldrin	-	-	-	-		--	--	--	--
b-BHC	-	-	-	-		--	--	--	--
Chlordanes - Total	50	25	-	-		--	--	--	--
d-BHC	-	-	-	-		--	--	--	--
Dieldrin	-	-	-	-		--	--	--	--
Endosulfan I	-	-	-	-		--	--	--	--
Endosulfan II	-	-	-	-		--	--	--	--
Endosulfan sulphate	-	-	-	-		--	--	--	--
Endrin	10	5	-	-		--	--	--	--
Endrin aldehyde	-	-	-	-		--	--	--	--
Endrin ketone	-	-	-	-		--	--	--	--
g-BHC (Lindane)	-	-	-	-		--	--	--	--
Heptachlor	6	3	-	-		--	--	--	--
Heptachlor epoxide	-	-	-	-		--	--	--	--
Hexachlorobenzene	10	5	-	-		--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SS10	BH1/0.1-0.2	SS1/0.0-0.15	S21/0.0-0.15
			EILS	½ EILS	Depth (m)	-	0.1-0.2	0.0-0.15	0.0-0.15
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-	-	-
			Residential	Residential	Date	5/10/2016	6/10/2016	5/10/2016	5/10/2016
Methoxychlor	300	150	-	-		--	--	--	--
Toxaphene	20	10	-	-		--	--	--	--
Aldrin + Dieldrin	6	3	-	-		--	--	--	--
Endosulfans - Total	270	135	-	-		--	--	--	--
DDD + DDE + DDT	240	120	-	-		--	--	--	--
Scheduled Chemical Wastes	-	-	-	-		--	--	--	--

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SP1/0.3-0.35	SP2/0.3-0.35
			EILS	½ EILS	Depth (m)	0.3-0.35	0.3-0.35
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016
4.4'-DDD	-	-	-	-		< 0.05	< 0.05
4.4'-DDE	-	-	-	-		< 0.05	< 0.05
4.4'-DDT	-	-	180	90		< 0.05	< 0.05
a-BHC	-	-	-	-		< 0.05	< 0.05
Aldrin	-	-	-	-		< 0.05	< 0.05
b-BHC	-	-	-	-		< 0.05	< 0.05
Chlordanes - Total	50	25	-	-		< 0.1	< 0.1
d-BHC	-	-	-	-		< 0.05	< 0.05
Dieldrin	-	-	-	-		< 0.05	< 0.05
Endosulfan I	-	-	-	-		< 0.05	< 0.05
Endosulfan II	-	-	-	-		< 0.05	< 0.05
Endosulfan sulphate	-	-	-	-		< 0.05	< 0.05
Endrin	10	5	-	-		< 0.05	< 0.05
Endrin aldehyde	-	-	-	-		< 0.05	< 0.05
Endrin ketone	-	-	-	-		< 0.05	< 0.05
g-BHC (Lindane)	-	-	-	-		< 0.05	< 0.05
Heptachlor	6	3	-	-		< 0.05	< 0.05
Heptachlor epoxide	-	-	-	-		< 0.05	< 0.05
Hexachlorobenzene	10	5	-	-		< 0.05	< 0.05

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 5 : Summary of Soil Analytical Data - Organochlorine Pesticides

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Sample ID	SP1/0.3-0.35	SP2/0.3-0.35
			EILS	½ EILS	Depth (m)	0.3-0.35	0.3-0.35
	HILs - A	½ HILs - A	Urban	Urban	Type	-	-
			Residential	Residential	Date	5/10/2016	5/10/2016
Methoxychlor	300	150	-	-		< 0.2	< 0.2
Toxaphene	20	10	-	-		< 1	< 1
Aldrin + Dieldrin	6	3	-	-		ND	ND
Endosulfans - Total	270	135	-	-		ND	ND
DDD + DDE + DDT	240	120	-	-		ND	ND
Scheduled Chemical Wastes	-	-	-	-		ND	ND

Notes:

Criteria 1 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants.
Criteria 2 = NEPC (1999) Amended, 'A' Residential Health-based Investigation Levels for soil contaminants (½ for composites).
Criteria 3 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space, minimum ACLs.
Criteria 4 = NEPC (1999) Amended, Ecological Investigation Levels for urban residential/public open space (½ for composites).
Total concentrations in mg/kg
- = assessment criteria not available
DS1 = duplicate of T1/2/0.8
TS1 = triplicate of T1/2/0.8
DS2 = duplicate of C11
TS2 - COMP = triplicate of C11
RPD = relative percent difference of duplicate/triplicate
nc = RPD not calculated, one or both samples below laboratory reporting limit

< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 6 : Summary of Soil Analytical Data - Asbestos

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Sample ID	SS1	SS2	SS3	SS4	SS5
		Depth (m)	0.0-0.15	0.0-0.15	0.0-0.15	0.0-0.15	0.0-0.15
	Asbestos	Type	Soil	Soil	Soil	Soil	Soil
	in Soil	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Fines/Fibrous Asbestos (AF/FA)	Presence		ND	ND	ND	ND	ND
Bonded Asbestos (ACM)	Presence		ND	**Amo, Chr, Cro**	ND	ND	ND

Notes:

Criteria 1 = Presence/absence of asbestos contamination in soil.
ND = no asbestos detected
Amo = Amosite asbestos detected
Chy = Chrysotile asbestos detected
Cro = Crocidolite asbestos detected
-- = sample not analysed
Bold/red indicates presence of asbestos therefore exceedance of assessment criteria

Table 6 : Summary of Soil Analytical Data - Asbestos

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Sample ID	SS6	SS7	SS8	SS9	SS10
		Depth (m)	0.0-0.15	0.0-0.15	0.0-0.15	0.0-0.15	0.0-0.15
	Asbestos	Type	Soil	Soil	Soil	Soil	Soil
	in Soil	Date	5/10/2016	5/10/2016	5/10/2016	5/10/2016	5/10/2016
Fines/Fibrous Asbestos (AF/FA)	Presence		ND	ND	ND	ND	ND
Bonded Asbestos (ACM)	Presence		ND	ND	ND	ND	ND

Notes:

Criteria 1 = Presence/absence of asbestos contamination in soil.
ND = no asbestos detected
Amo = Amosite asbestos detected
Chy = Chrysotile asbestos detected
Cro = Crocidolite asbestos detected
-- = sample not analysed
Bold/red indicates presence of asbestos therefore exceedance of assessment criteria

Table 6 : Summary of Soil Analytical Data - Asbestos

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Sample ID	SS1/0.0-0.15	SS21/0.0-0.15	AC1/0.0-0.15
		Depth (m)	0.0-0.15	0.0-0.15	0.0-0.15
	Asbestos	Type	Fragment	Fragment	Fragment
	in Soil	Date	5/10/2016	5/10/2016	5/10/2016
Fines/Fibrous Asbestos (AF/FA)	Presence		ND	**Amo, Chr**	ND
Bonded Asbestos (ACM)	Presence		ND	ND	ND

Notes:

Criteria 1 = Presence/absence of asbestos contamination in soil.
ND = no asbestos detected
Amo = Amosite asbestos detected
Chy = Chrysotile asbestos detected
Cro = Crocidolite asbestos detected
-- = sample not analysed
Bold/red indicates presence of asbestos therefore exceedance of assessment criteria

Table 7 : Summary of QAQC Water Analytical Data - Petroleum Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Sample ID	R1	R2
		Depth (m)	-	-
		Type	-	-
		Date	5/10/2016	5/10/2016
TRH C_6-C_{10}	-		< 20	< 20
TRH C_6-C_{10} less BTEX (F1)	-		< 20	< 20
TRH >C_{10}-C_{16}	-		< 50	< 50
TRH >C_{10}-C_{16} less Naphthalene (F2)	-		< 50	< 50
TRH >C_{16}-C_{34}	-		< 100	< 100
TRH >C_{34}-C_{40}	-		< 100	< 100
Benzene	-		< 1	< 1
Toluene	-		< 1	< 1
Ethylbenzene	-		< 1	< 1
m&p-Xylenes	-		< 2	< 2
o-Xylene	-		< 1	< 1
Xylenes - Total	-		< 3	< 3
Naphthalene	-		< 1	< 1

Notes:

Total concentrations in µg/L
- = assessment criteria not available
R1 = rinsate sample
R2 = rinsate sample
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 8 : Summary of QAQC Water Analytical Data - Polyaromatic Hydrocarbons

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Sample ID	R1	R2
		Depth (m)	-	-
		Type	-	-
		Date	5/10/2016	5/10/2016
Acenaphthene	-		< 1	< 1
Acenaphthylene	-		< 1	< 1
Anthracene	-		< 1	< 1
Benz(a)anthracene	-		< 1	< 1
Benzo(a)pyrene	-		< 1	< 1
Benzo(b&j)fluoranthene	-		< 1	< 1
Benzo(g.h.i)perylene	-		< 1	< 1
Benzo(k)fluoranthene	-		< 1	< 1
Chrysene	-		< 1	< 1
Dibenz(a.h)anthracene	-		< 1	< 1
Fluoranthene	-		< 1	< 1
Fluorene	-		< 1	< 1
Indeno(1.2.3-cd)pyrene	-		< 1	< 1
Naphthalene	-		< 1	< 1
Phenanthrene	-		< 1	< 1
Pyrene	-		< 1	< 1
Benzo(a)pyrene TEQ	-		--	--
Total PAH	-		< 1	< 1

Notes:

Total concentrations in µg/L
- = assessment criteria not available
R1 = rinsate sample
R2 = rinsate sample
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

Table 9 : Summary of QAQC Water Analytical Data - Heavy Metals

Phase 2 Environmental Site Assessment

Project No.: 1601114

60 - 80 Edmondson Avenue,
Austral NSW

	Criteria 1	Sample ID	R1	R2
		Depth (m)	-	-
		Type	-	-
		Date	5/10/2016	5/10/2016
Arsenic	-		< 1	< 1
Cadmium	-		< 0.2	< 0.2
Chromium	-		< 1	< 1
Copper	-		< 1	< 1
Lead	-		< 1	< 1
Mercury	-		< 0.1	< 0.1
Nickel	-		< 1	< 1
Zinc	-		< 5	< 5

Notes:

Total concentrations in µg/L
- = assessment criteria not available
R1 = rinsate sample
R2 = rinsate sample
< # or ND = analyte(s) not detected in excess of laboratory reporting limit
-- = sample not analysed
Bold/red indicates exceedance of assessment criteria

ATTACHMENT A

LIVERPOOL CITY COUNCIL

PLANNING CERTIFICATE UNDER SECTION 149
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Ref.: AUSTRAL:37484
Ppty: 23502

Cert. No.: 1262
Page No.: 1

Applicant:
GEO-LOGIX
2309/4 DAYDREAM ST
WARRIEWOOD NSW 2102

Receipt No.: 3404223
Receipt Amt.: 133.00
Date: 01-Sep-2016

Property Desc: **60-80 EDMONDSON AVENUE, AUSTRAL NSW 2179**
DP 416093 Cnr Lot A

PRESCRIBED INFORMATION PROVIDED PURSUANT TO

SECTION 149(2) OF THE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

NOTE: The following information is provided pursuant to Section 149(2) of the Environmental Planning and Assessment Act (EP&A Act) 1979 as prescribed by Schedule 4 of the Environmental Planning and Assessment Regulation (EP&A Regulation) 2000 and is applicable to the subject land as of the date of this certificate.

The Environmental Planning and Assessment Amendment Act 1997 commenced operation on the 1 July 1998. As a consequence of this Act the information contained in this certificate needs to be read in conjunction with the provisions of the Environmental Planning and Assessment (Amendment) Regulation 1998, Environmental Planning and Assessment (Further Amendment) Regulation 1998 and Environmental Planning and Assessment (Savings and Transitional) Regulation, 1998.

(1) Names of relevant planning instruments and DCPs

(1) The name of each environment planning instrument that applies to the carrying out of Development on the land is/are listed below: -

Local Environmental Plans (LEPs)
Not Applicable

State Environmental Planning Policies (SEPPs)
SEPP No 19 – Bushland in Urban Areas
SEPP No 21 – Caravan Parks
SEPP No 30 – Intensive Agriculture
SEPP No 33 – Hazardous and Offensive Development
SEPP No 44 – Koala Habitat Protection
SEPP No 50 – Canal Estate Development
SEPP No 55 – Remediation of Land
SEPP (Exempt and Complying Development Codes) 2008
SEPP No 62 – Sustainable Aquaculture
SEPP No 64 – Advertising and Signage
SEPP No 65 – Design Quality of Residential Flat Development
SEPP (Building Sustainability Index: BASIX) 2004
SEPP No. 70 – Affordable Housing (Revised Schemes)
SEPP (Infrastructure) 2007
SEPP (Mining, Petroleum Production and Extractive Industries) 2007
SEPP (Miscellaneous Consent Provisions) 2007
SEPP (Affordable Rental Housing) 2009
SEPP (Sydney Region Growth Centres) 2006
SEPP (State and Regional Development) 2011
SEPP (Housing for Seniors or People with a Disability) 2004

Deemed State Environmental Planning Policies (Deemed SEPPs)
SREP No 20 – Hawkesbury – Nepean River (No. 2 – 1997)

(2) The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been the subject of community consultation or on public exhibition under the Act (unless the Director-General has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved).

Draft Local Environmental Plans (LEPs)
Not Applicable

Draft State Environmental Planning Policies (SEPPs)
Draft State Environmental Planning Policy (Competition) 2010

(3) The name of each development control plan that applies to the carrying out of development on the land.

Liverpool Growth Centre Precincts DCP

(4) In this clause, proposed environmental planning instrument includes a planning proposal for an LEP or a draft environmental planning instrument.

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS
Not Applicable

2A. Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

To the extent that the land is within any zone (however described) under:

Part 3 of the State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (the 2006 SEPP), or

A Precinct Plan (within the meaning of the 2006 SEPP), or

A proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act, or

State Environmental Planning Policy State Significant Precincts 2005.

The land is zoned under:

SEPP (Sydney Region Growth Centres) 2006

(a) Name of zone, and the EPI from which the land zoning information is derived.
R2 Low Density Residential - SEPP (Sydney Region Growth Centres) 2006

(b) The purposes for which development may be carried out within the zone without the need for development consent

Home-based child care; Home occupations

(c) The purposes for which development may not be carried out within the zone except with development consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Business identification signs; Child care centres; Community facilities; Drainage; Dual occupancies; Dwelling houses; Educational establishments; Environmental protection works; Exhibition homes; Exhibition villages; Group homes; Health consulting rooms; Home businesses; Home industries; Multi dwelling housing; Neighbourhood shops; Places of public worship; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Shop top housing; Studio dwellings

(d) The purposes for which the instrument provides that development is prohibited within the zone

Any development not specified in item (b) or (c)

(e) Dwelling House

The development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house on the land are listed below:

No development standards applying to the land fix minimum land dimensions for the erection of a dwelling house on the land.

(f) Critical Habitat

The provisions applying to the land that relate to critical habitat are outlined below:-

The land does not include or comprise critical habitat.

(g) Conservation Area

The provisions applying to the land that relate to a conservation areas are outlined below: -

No

(h) Environmental Heritage

The provisions applying to the land that relate to an item of environmental heritage is/are outlined below:

No

3. Complying development

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18(1) (C3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Complying development under the General Development Code may be carried out on this land.

Complying development under the Rural Housing Code may be carried out on this land.

Complying development under the Fire Safety Code may be carried out on this land.

Complying development under the Housing Alterations Code may be carried out on this land.

Complying Development under the Commercial and Industrial Alterations Code may be carried out on this land.

Complying Development under the Commercial and Industrial (**New** Buildings and Additions) Code may be carried out on this land.

Complying Development under the Subdivisions Code may be carried out on this land.

Complying Development under the Demolition Code may be carried out on this land.

Complying development under the General Housing Code may be carried out on the land.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (C3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

Not Applicable

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Not Applicable

4. Coastal Protection Act 1979

There has been no notification from the Department of Public Works that the land is subject to the operation of Section 38 or 39 of the Coastal Protection Act, 1979.

4A Information relating to beaches and coasts

(1) In relation to a coastal council—whether an order has been made under Part 4D of the Coastal Protection Act 1979 in relation to temporary coastal protection works (within the meaning of that Act) on the land (or on public land adjacent to that land), except where the council is satisfied that such an order has been fully complied with.

Not Applicable

(2) In relation to a coastal council:

(a) whether the council has been notified under section 55X of the Coastal Protection Act 1979 that temporary coastal protection works (within the meaning of that Act) have been placed on the land (or on public land adjacent to that land), and

(b) if works have been so placed, whether the council is satisfied that the works have been removed and the land restored in accordance with that Act.

Not Applicable

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

In relation to a coastal council—whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

Not Applicable

5. Mine Subsidence

Whether or not the land is proclaimed to be a mine subsidence district within the meaning of Section 15 of the Mine Subsidence Compensation Act 1961.

The land is not a mine subsidence district.

6. Road Widening and Road Realignment

Whether or not the land is affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) Any environmental planning instrument, or
(c) Any resolution of the council.

The land is not affected by any road widening or road realignment.

7. Council and Other Public Authority Policies on Hazard Risk Restrictions

Whether or not the land is affected by a policy:

(a) adopted by the council, or

(b) adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils or any other risk (other than flooding).

Land Slip

The land is not affected by a policy adopted by the Council, or any other public authority and notified

to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of land slip.

Bushfire
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate which restricts the development of the land because of the likelihood of bushfire.

Tidal Inundation
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of tidal inundation.

Subsidence
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of subsidence.

Acid Sulphate Soil
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of acid sulphate soil.

Other Risks
The land is not affected by a policy adopted by the Council, or any other public authority and notified to the council for the express purpose of its adoption being referred to in a planning certificate that restricts the development of the land because of the likelihood of any other risk.

7A. Flood Related Development Controls Information

Whether or not development on that land or part of the land for purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

(1) Whether or not development on that land or part of the land for purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

Part of the land is affected by flood inundation and therefore flood related development controls apply to the land.

(2) Whether or not development on that land or part of the land for any other purpose is subject to flood related development controls.

Part of the land is affected by flood inundation and therefore flood related development controls apply to development or any other purpose.

Note: Words and expressions in this clause have the same meanings as in the instrument set out in the

Schedule to the Standard Instrument (Local Environmental Plans) Order 2006.

8. Land Reserved for Acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 27 of the Act.

No

9. Contribution Plans

The name of each contribution plan applying to the land is/are outlined below:

Liverpool Contributions Plan 2014 - **Austral and Leppington North Precincts**

9A Biodiversity certified land

If the land is biodiversity certified land (within the meaning of Part 7AA of the Threatened Species Conservation Act 1995), a statement to that effect.

The land is biodiversity certified land within the meaning of Part 7AA of the Threatened Species Conservation Act (1995).

10. Biobanking agreements

If the land is land to which a bio-banking agreement under Part 7A of the Threatened Species Conservation Act 1995 relates, a statement to that effect (but only if the council has been notified of the existence of the agreement by the Director-General of the Department of Environment, Climate Change and Water).

No

11. Bushfire Prone Land

None of the land is bush fire prone land as defined in the Environmental Planning and Assessment Act 1979.

12. Property Vegetation Plans

If the land is land to which a Property Vegetation Plan under the Native Vegetation Act 2003 applies, a statement to that effect (but only if the council has been notified of the existence of the plan by the person or body that approved the plan under that Act).

The land is not land to which a property vegetation plan relates, as all land in the Liverpool Local Government Area is excluded from the operation of the *Native Vegetation Act 2003.*

13. Orders under Trees (Disputes between Neighbours) Act 2006

Whether an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

Council has not been notified of an order made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. Directions under Part 3A

If there is a direction by the Minister in force under section 75P (2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, a statement to that effect identifying the provision that does not have effect.

No such direction applies to the land.

15. Site Compatibility Certificates and Conditions for Seniors Housing

If the land is land to which State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 applies:

(a) a statement of whether there is a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(i) The period for which the certificate is current, and
(ii) That a copy may be obtained from the head office of the Department of Planning

Council is not aware of a current site compatibility certificate (seniors housing) on the land

(b) a statement setting out any terms of a kind referred to in clause 18 (2) of that Policy that have been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land.

There have been no such terms imposed as a condition of consent to development on the land.

16. Site Compatibility Certificates for Infrastructure

A statement of whether there is a valid site compatibility certificate (infrastructure), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) The period for which the certificate is valid, and
(b) That a copy may be obtained from the head office of the Department of Planning.

Council is not aware of a current site compatibility certificate (infrastructure) on the land.

17. Site compatibility certificates and conditions for affordable rental housing

(1) A statement of whether there is a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land and, if there is a certificate, the statement is to include:

(a) the period for which the certificate is current, and
(b) that a copy may be obtained from the head office of the Department of Planning.

Council is not aware of a current site compatibility certificate (affordable rental housing) on the land.

(2) A statement setting out any terms of a kind referred to in clause 17 (1) or 38 (1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 that have been imposed as a condition of consent to a development application in respect of the land.

There have been no such terms imposed as a condition of consent to development on the land.

18. Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.
No such plan applies to the land.

(2) The date of any subdivision order that applies to the land.
No subdivision order applies to the land

(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of this Regulation.

19. Site verification certificates

A statement of whether there is a current site verification certificate, of which the council is aware, in respect of the land and, if there is a certificate, the statement is to include:

(a) The matter certified by the certificate

Council is not aware of a current site verification certificate on the land.

Note. A site verification certificate sets out the Director-General's opinion as to whether the land concerned is or is not biophysical strategic agricultural land or critical industry cluster land — see Division 3 of Part 4AA of State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

(b) The date on which the certificate ceases to be current (if any), and

Not Applicable

(c) That a copy may be obtained from the head office of the Department of Planning and Infrastructure.

Not Applicable

Note. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:

(a) That the land to which the certificate relates is significantly contaminated land within the meaning of that Act—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued

Not Applicable

(b) That the land to which the certificate relates is subject to a management order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued

Not Applicable

(c) That the land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act—if it is the subject of such an approved proposal at the date when the certificate is issued

Not Applicable

(d) That the land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act—if it is subject to such an order at the date when the certificate is issued

Not Applicable

(e) That the land to which the certificate relates is the subject of a site audit statement within the meaning of that Act—if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

Not Applicable

Note. Section 26 of the Nation Building and Jobs Plan (State Infrastructure Delivery) Act 2009 provides that a planning certificate must include advice about any exemption under section 23 or authorisation under section 24 of that Act if the council is provided with a copy of the exemption or authorisation by the Co-ordinator General under that Act.

No such exemption or authorisation applies to the land.

20. Loose-fill Asbestos Insulation

Some residential homes located in the Liverpool may have been identified as containing loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose-fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Contact NSW Fair Trading for further information.

ADDITIONAL INFORMATION PROVIDED PURSUANT TO

SECTION 149(5) OF THE

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

1. Threatened Species Conservation Act

It is advisable for any application intending to purchase and/or develop land within the Liverpool Local Government Area to approach Council to ascertain if the requirements of the Threatened Species Act, 1995 are likely to apply to their land.

If the land has native vegetation of any sort (i.e. trees, shrubs, ground covers etc), has recently been cleared or is vacant land, it may have impediments to development under the Threatened Species Act, 1995.

Enquiries should be directed to Council's Infrastructure and Environment Department on 1300 362 170.

2. Tree Preservation Provision

The land is subject to a tree preservation provision.

3. Controlled Access Road
No

4. Other Information in Relation to Water
The property is identified as flood prone and is within the medium risk flood category. Medium Flood Risk Category means land below the 1% Annual Exceedance Probability flood that is not subject to a high hydraulic hazard or where there is no significant evacuation *(See Section 1 Clause 3 of the 149 Certificate for the relevant Development Control Plan for controls relating to flood prone land)*.

For further information on flood risk, contact Council on 1300 362 170.

5. Sydney Water Corporation
The land is within an area in which development cannot be carried out unless satisfactory arrangements have been made with the M.W.S & D.B. for the provision of Water Supply and Sewerage.

6. Foreshore Building Line
Nil

7. Contaminated Land
Nil

8. Airport Noise Affectation
Nil

9. Airport Acquisition
Nil

10. Environmentally Significant Land
Nil

11. Archaeological Management Plan
Nil

12. Unhealthy Building Land Proclamation
Nil

For further information, please contact
CALL CENTRE – 1300 36 2170

Luke West
Administration Services Coordinator
Liverpool City Council

ATTACHMENT B

Plate 1 – View of the residential dwelling at 80 Edmondson Avenue.

Plate 2 – View south towards residential dwelling.

Plate 3 – Surface depressions in location of former dam

Plate 4 – Trenching across the former dam.

Plate 5 – Trenching across the former dam.

Plate 6 – Household waste used to fill the former dam.

Plate 7 – Asphalt used as fill in the former dam.

Plate 8 – Metal wire and fencing used as fill in the former dam.

Plate 9 – Stockpiles of soil northern portion of the site.

Plate 10 – Composition of soil stockpiles in northern portion of the site.

Plate 11 – Stockpile of bricks in the northern portion of the site.

Plate 12 – Composition of brick stockpile in northern portion of the site.

Plate 13 – Stockpile of bricks in the northern portion of the site.

Plate 14 – Timber sheeting in the northern portion of the site. Note shipping container in background.

Plate 15 – Material stored north of the residential dwelling.

Plate 16 – Metal sheeting stored to the north of the residential dwelling.

Plate 17 – Paint cans and chemical containers stored on the asphalt to the north of the residential dwelling.

Plate 18 – Sheets of fibre cement sheeting. Did not appear to be ACM.

Plate 19 – Drums containing glass fragments.

Plate 20 – Minor oil staining noted on ground surface near oil drums.

Plate 21 – Material storage to the north of the residential dwelling.

Plate 22 – Fire pit near attached dwelling near the shed.

Plate 23 – Attached dwelling near large shed.

Plate 24 – Rear view of the large shed.

Plate 25 – Internal view of the large shed showing mobile spray booth.

Plate 26 – Materials stored within the large shed.

Plate 27 – Collection of lawn mowers stored within the shed.

Plate 28 – Car and boat stored between the shed and western property boundary.

Plate 29 – Area of burning at SS1 in the grassed area south of the dwelling at 80 Edmondson Avenue.

Plate 30 – Fragments of burnt fibre cement sheeting in area of burning (SS1).

Plate 31 – Grassed area south of the dwelling at 80 Edmondson Avenue.

Plate 32 – Former market gardening area between the dwellings at 60 and 80 Edmondson Avenue.

Plate 33 – Fragment of ACM identified in reworked topsoil at S21.

Plate 34 – Stockpile of timber and green waste in the former market gardening area.

Plate 35 – Stockpiles of soil and grass clippings at 60 Edmondson Avenue.

Plate 36 – Timber and metal stored north of the dwelling at 60 Edmondson Avenue.

Plate 37 – Front of the dwelling located at 60 Edmondson Avenue.

Plate 38 – Peeling paint around window frames at 60 Edmondson Avenue.

Plate 39 – The garage at 60 Edmondson Avenue.

Plate 40 – Asbestos pipe used as planter box. Location of sample AC1.

ATTACHMENT C

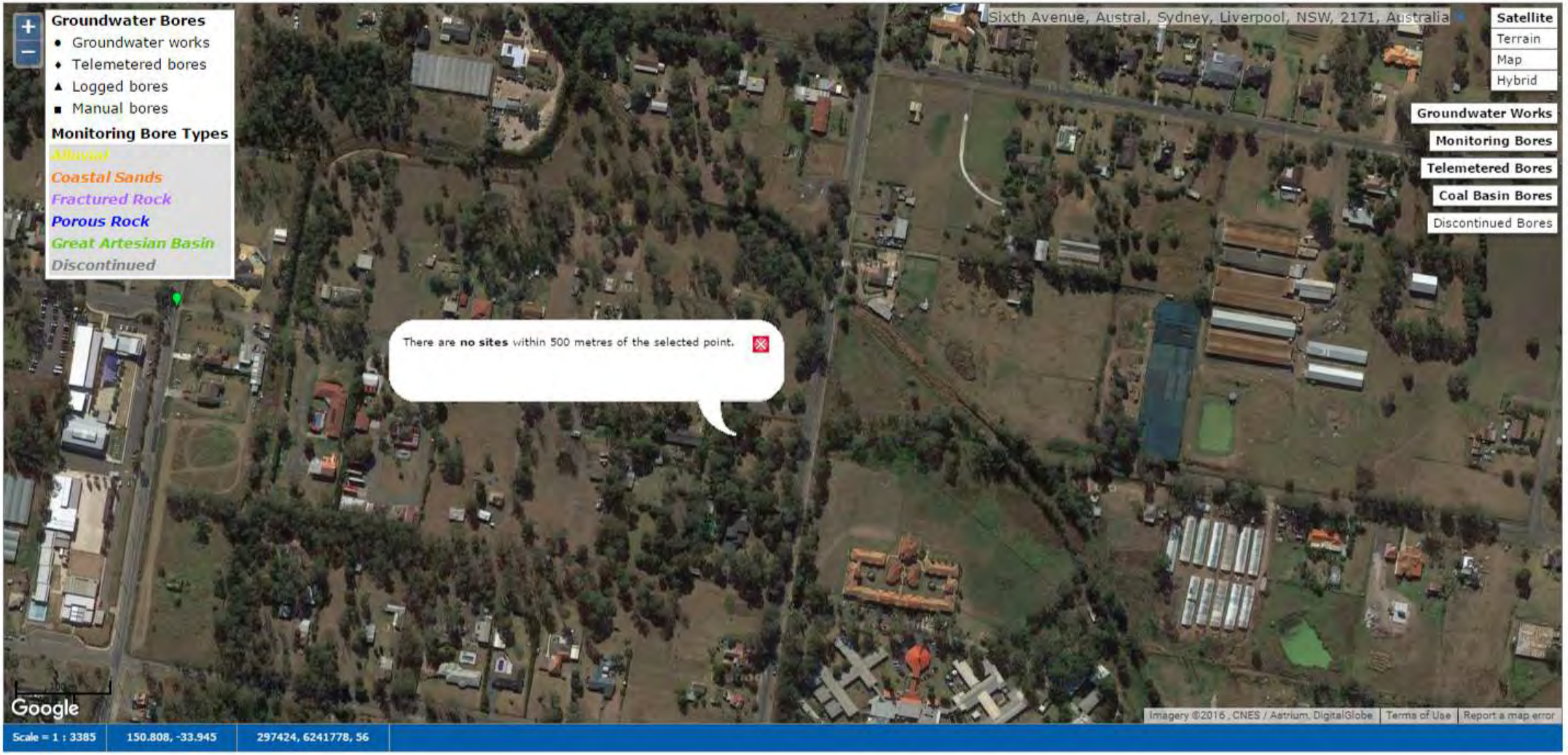
All Groundwater

All Groundwater Map

bookmark this page

All data times are Eastern Standard Time

Map | Info



ATTACHMENT D

Job No 11210049

Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr Tim Gunns	**Caller Id:**	1486843	**Phone:**	0411724429
Company:	Geo-Logix	**Mobile:**	0411724429	**Fax:**	Not Supplied
Address:	Building Q2, Level 3 Unit 2309 Daydream Stre Warriewood NSW 2102	**Email:**	tgunns@geo-logix.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables.
The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: 80 Edmondson
Working on Behalf of:
Private

Enquiry Date:	Start Date:	End Date:
07/09/2016	30/09/2016	03/10/2016

Address:
80 Edmondson Avenue
Austral NSW 2179

Job Purpose: Excavation
Onsite Activity: Vertical Boring
Location of Workplace: Private Property
Location in Road: Not Supplied

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Test Pitting

Your Responsibilities and Duty of Care

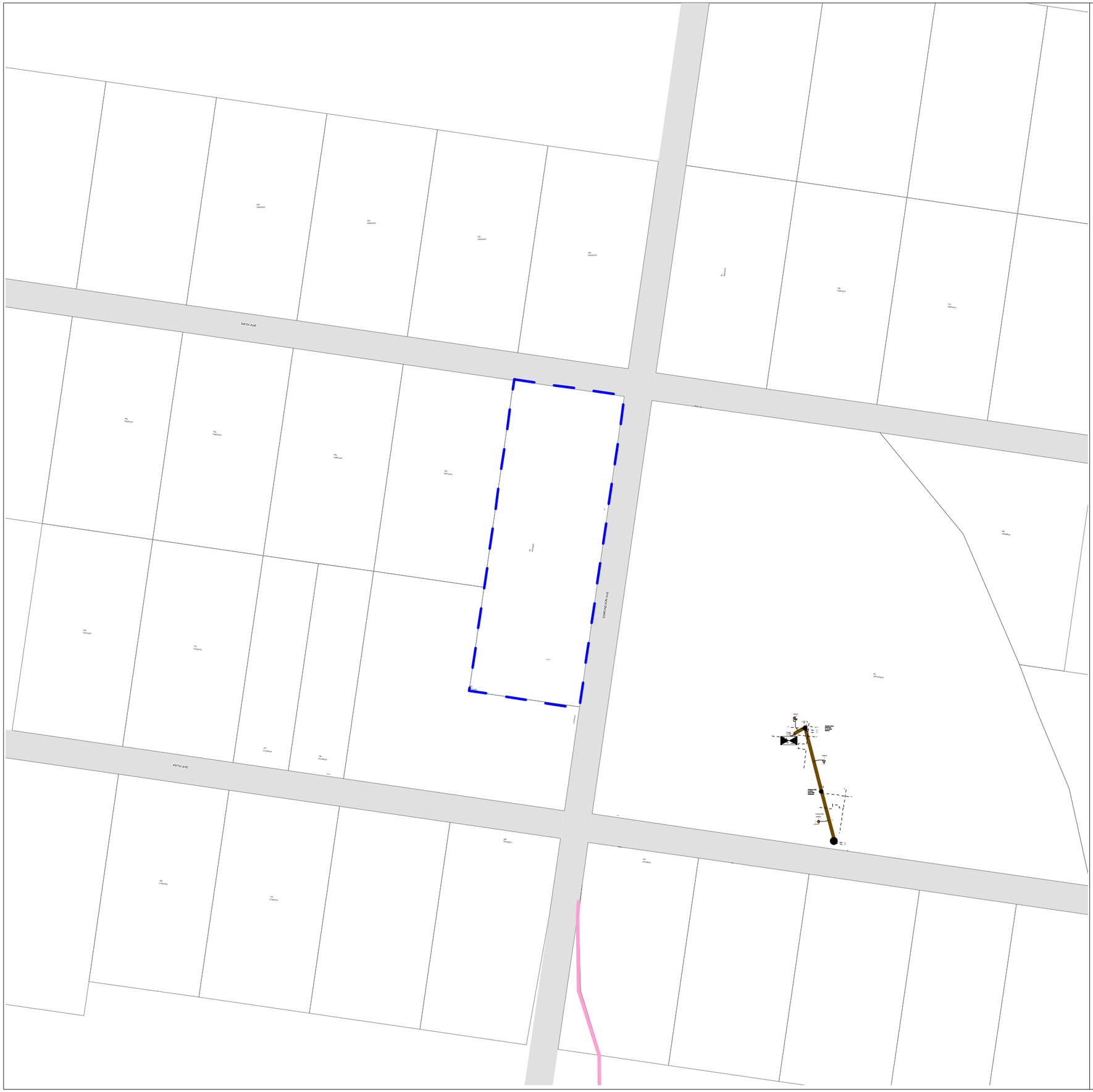
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
55505261	Endeavour Energy	0298534161	NOTIFIED
55505263	Jemena Gas West	1300880906	NOTIFIED
55505264	Sydney Water	132092	NOTIFIED
55505262	Telstra NSW, Central	1800653935	NOTIFIED

END OF UTILITIES LIST



Endeavour Energy

WARNING

- **All electrical apparatus shall be regarded as live until proved de-energised.** Contact with live electrical apparatus will cause severe injury or death.
- In accordance with the *Electricity Supply Act 1995*, you are obliged to report any damage to Endeavour Energy Assets immediately by calling **131 003**.
- The customer must obtain a new set of plans from Endeavour Energy if work has not been started or completed within twenty **(20)** working days of the original plan issue date.
- The customer must contact Endeavour Energy if any of the plans provided have blank pages, as some underground asset information may be incomplete.
- Endeavour Energy underground earth grids may exist and their location **may not** be shown on plans. Persons excavating are expected to exercise all due care, especially in the vicinity of padmount substations, pole mounted substations, pole mounted switches, transmission poles and towers.
- Endeavour Energy plans **do not** show any underground customer service mains or information relating to service mains within private property.
- Asbestos or asbestos-containing material may be present on or near Endeavour Energy's underground assets.
- Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.
- All plans must be printed and made available at the worksite where excavation is to be undertaken. Plans must be reviewed and understood by the crew on site prior to commencing excavation.

INFORMATION PROVIDED BY ENDEAVOUR ENERGY

- Any plans provided pursuant to this service are intended to show the approximate location of underground assets relative to road boundaries, property fences and other structures at the time of installation.
- Depth of underground assets may vary significantly from information provided on plans as a result of changes to road, footpath or surface levels subsequent to installation.
- Such plans have been prepared solely for use by Endeavour Energy staff for design, construction and maintenance purposes.
- All enquiry details and results are kept in a register.

DISCLAIMER

Whilst Endeavour Energy has taken all reasonable steps to ensure that the information contained in the plans is as accurate as possible it will accept no liability for inaccuracies in the information shown on such plans.

LEGEND

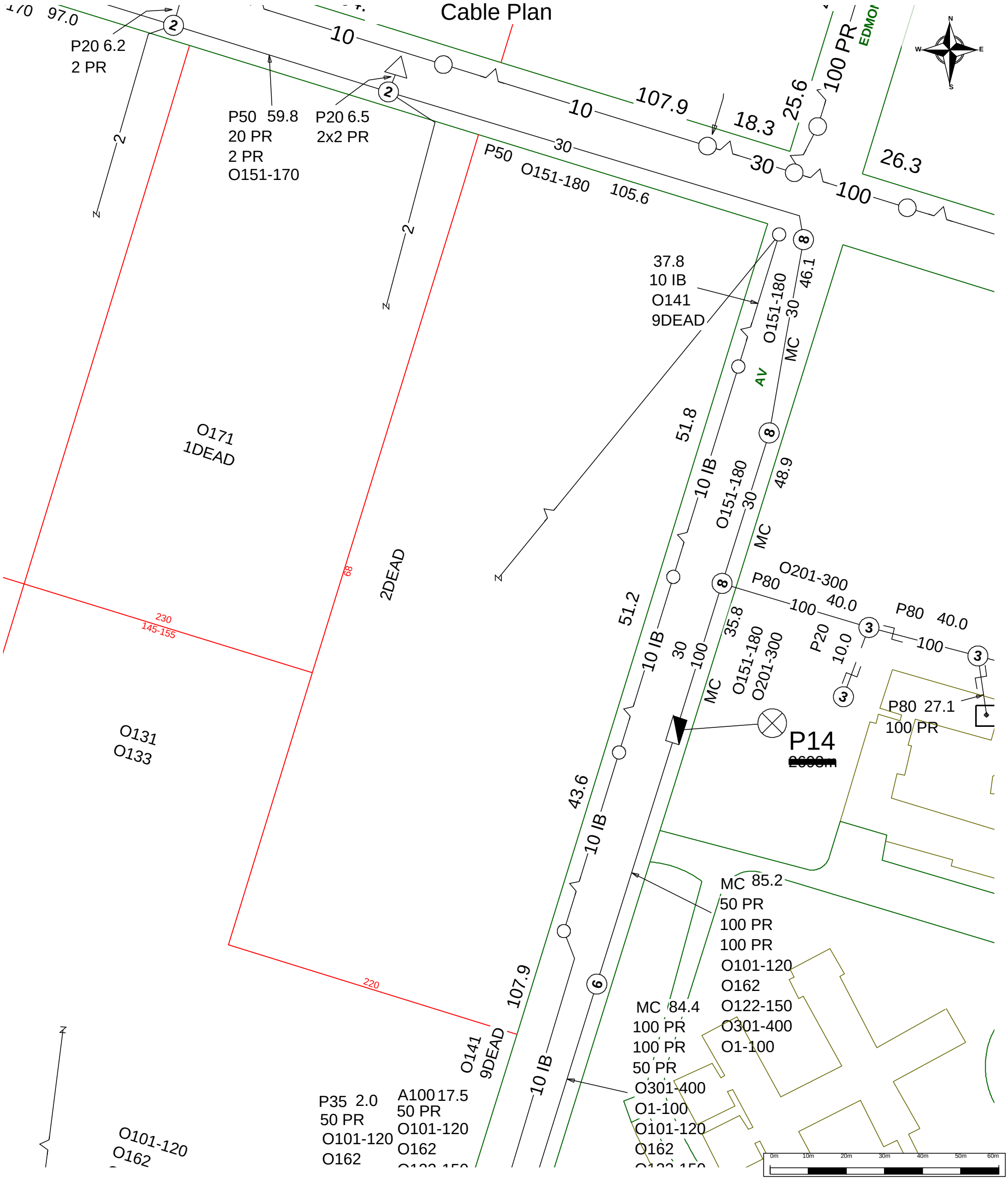
- or — Street light column
- Padmount substation
- or — Overground pillar (O.G.Box)
- Underground pit
- Duct run
- Cable run
- Typical duct section
- Asbestos warning

N

NOT TO SCALE

DBYD Sequence No.:	55505261
Issued Date:	07/09/2016

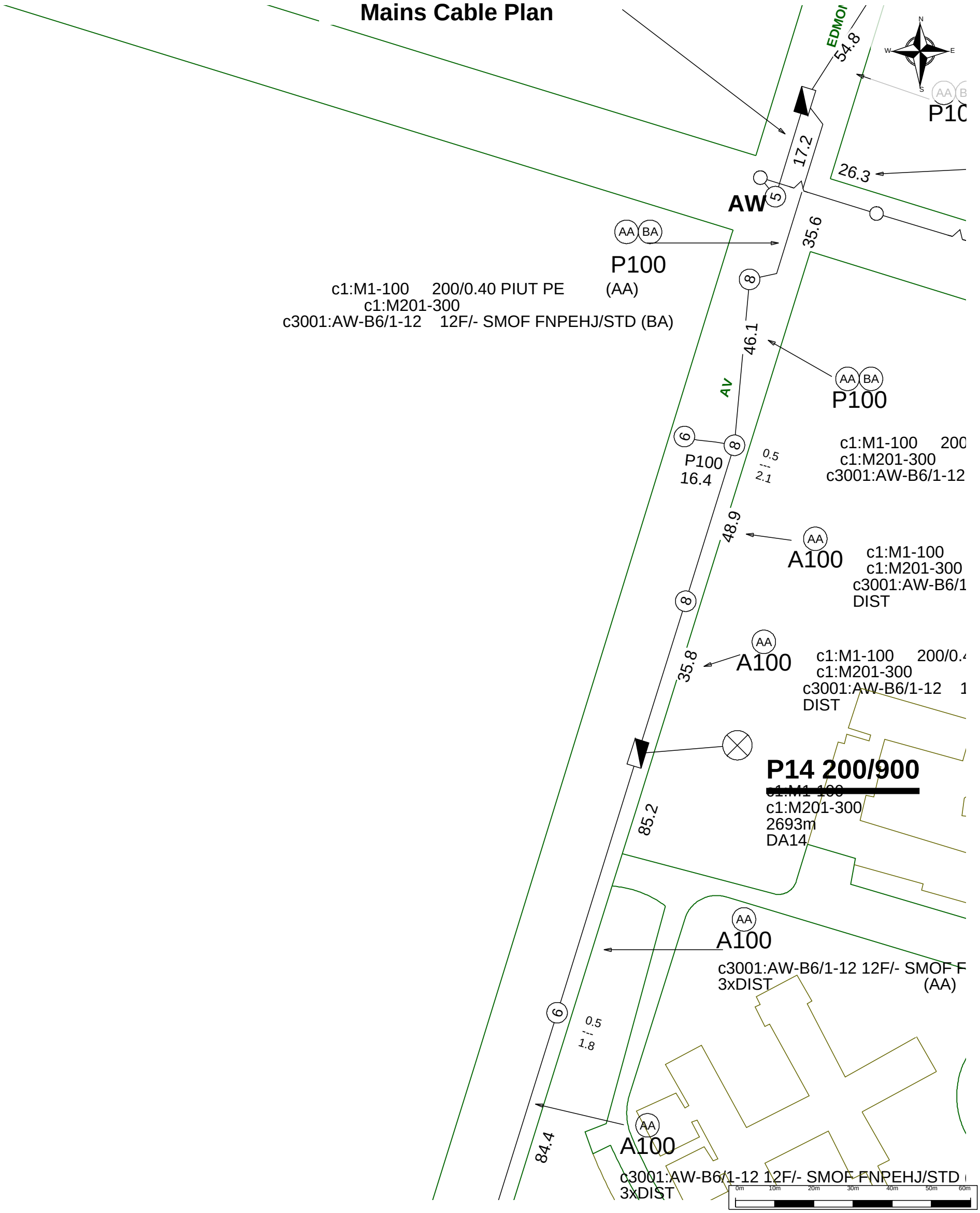
Cable Plan



Telstra For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 55505262
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.
Generated On 07/09/2016 16:52:02	

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

Mains Cable Plan



Telstra

For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 07/09/2016 16:52:06

Sequence Number: 55505262

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

LEPPINGTON IC

SCALE 1:2000

50 0 50 100 150 200

THIS MAP UPDATED ON 13/05/05
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

BR3B	LIA	LIB
BR3D	LIC	LID
BR6B	L4A	L4B

ADJOINING MAPS

719 709

NETWORK AREA

LIVERPOOL

MUNICIPALITY AREA

Jemena

KEY

		MAX ALLOWABLE OPERATING PRESSURE
T	TRUNK PIPELINE	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
400	NETWORK MAIN	400 kPa
	NETWORK MAIN	300 kPa
	NETWORK MAIN	210 kPa
100	NETWORK MAIN	100 kPa
30	NETWORK MAIN	30 kPa
	NETWORK MAIN	7 kPa
	NETWORK MAIN	2 kPa
	PROPOSED MAINS	
PR II-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODE	
1235	NETWORK VALVE NODE	
298	VALVE NUMBER	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
123	HOUSE NUMBER	

LEPPINGTON IC

LEPPINGTON 4A

SCALE 1:2000

50 0 50 100 150 200

THIS MAP UPDATED ON 17/05/2016
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

BR3D	LIC	LID
BR6B	L4A	L4B
BR6D	L4C	L4D

ADJOINING MAPS

NETWORK AREA MUNICIPALITY AREA

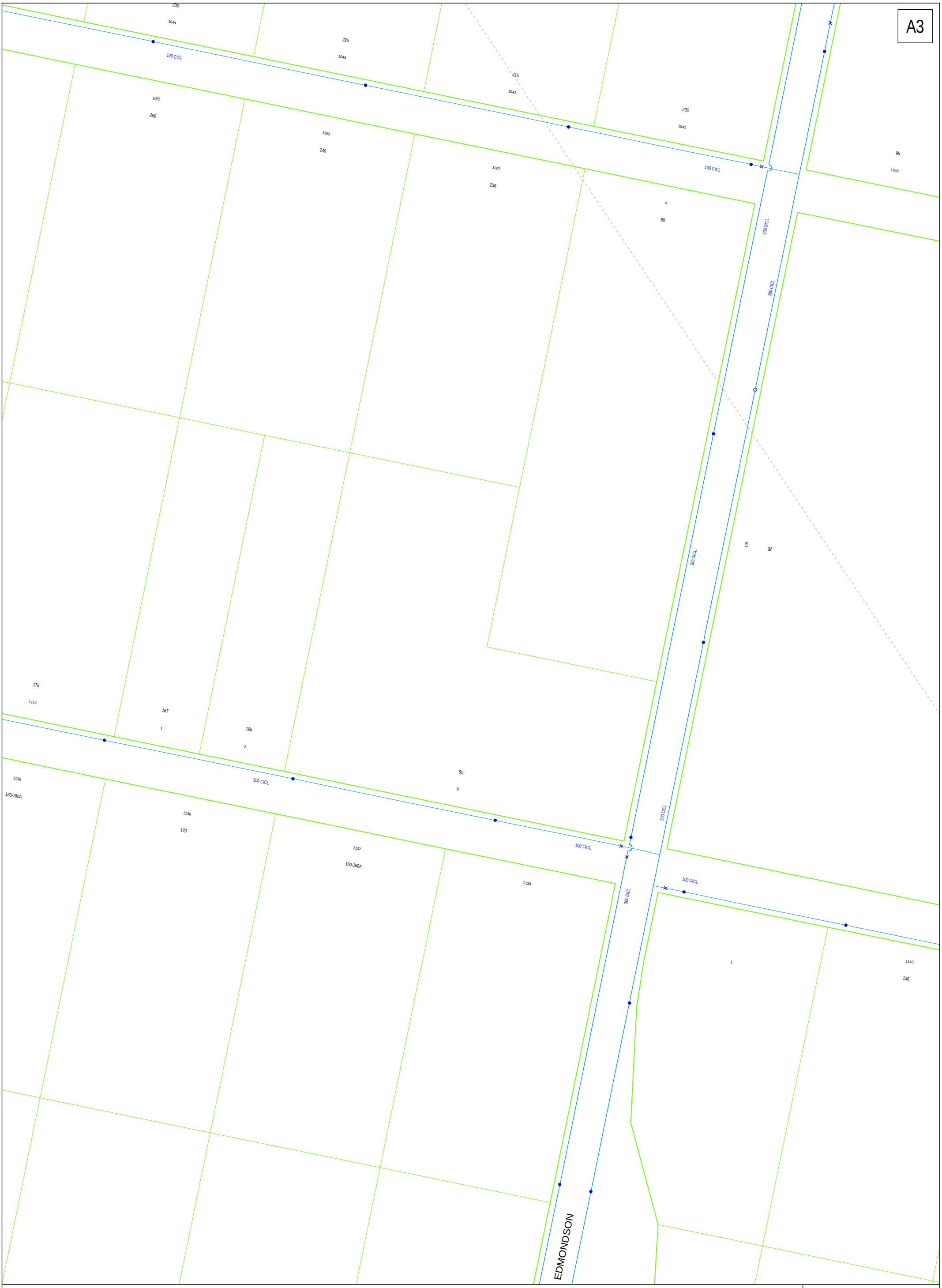
Jemena NG

KEY

		MAX ALLOWABLE OPERATING PRESSURE
T	TRUNK PIPELINE	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
400	NETWORK MAIN	400 kPa
	NETWORK MAIN	300 kPa
	NETWORK MAIN	210 kPa
100	NETWORK MAIN	100 kPa
30	NETWORK MAIN	30 kPa
	NETWORK MAIN	7 kPa
	NETWORK MAIN	2 kPa
	PROPOSED MAINS	
PR 11-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODE	
123S	NETWORK VALVE NODE	
298	VALVE NUMBER	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
123	HOUSE NUMBER	

LEPPINGTON 4A

A3



DBYD Address:
n/a Edmondson Avenue
Austral NSW 2179

DBYD Job No: 11213273

DBYD Sequence No: 55521923

Scale: 1:1500

Date of Production: 08/09/2016

Plan 1 of 1

N

0m 7m 14m 21m 28m

ATTACHMENT E

Sample ID	Sample Location	Depth	Soil Type	Description	Analysis
S1/0.0-0.15	S1	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	Composite as C1, OCPs, Metals (8)
S2/0.0-0.15	S2	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	
S3/0.0-0.15	S3	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	Composite as C2, OCPs, Metals (8)
S4/0.0-0.15	S4	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	
S5/0.0-0.15	S5	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	Composite as C3, OCPs, Metals (8)
S6/0.0-0.15	S6	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	
S7/0.0-0.15	S7	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	Composite as C4, OCPs, metals (8)
S8/0.0-0.15	S8	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	
S9/0.0-0.15	S9	0.0-0.15	Topsoil	Clay 5%, Silt 65%, Sand 20%, Gravel 10%, moderate brown (5YR4/4), dry	Composite as C5, OCPs, metals (8)
S10/0.0-0.15	S10	0.0-0.15	Fill	Clay 15%, Silt 40%, Sand 30%, Gravel 15%, moderate brown (5YR4/4), damp	
S11/0.0-0.15	S11	0.0-0.15	Fill	Clay 5%, Silt 60%, Sand 25%, Gravel 10%, moderate brown (5YR3/4), dry	Composite as C6, OCPs, metals (8)
S12/0.0-0.15	S12	0.0-0.15	Topsoil	Clay 5%, Silt 60%, Sand 30%, Gravel 5%, moderate brown (5YR3/4), dry	
S13/0.0-0.15	S13	0.0-0.15	Fill	Clay 5%, Silt 60%, Sand 25%, Gravel 10%, moderate brown (5YR3/4), dry	Composite as C7, OCPs, metals (8)
S14/0.0-0.15	S14	0.0-0.15	Topsoil	Clay 5%, Silt 60%, Sand 25%, Gravel 10%, moderate brown (5YR3/4), dry	
S15/0.0-0.15	S15	0.0-0.15	Topsoil	Clay 5%, Silt 60%, Sand 30%, Gravel 5%, moderate brown (5YR3/4), dry	Composite as C8, OCPs, metals (8)
S16/0.0-0.15	S16	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 15%, Gravel 5%, moderate brown (5YR3/4), damp	
S17/0.0-0.15	S17	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 15%, Gravel 5%, moderate brown (5YR3/4), damp	Composite as C9, OCPs, metals (8)
S18/0.0-0.15	S18	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 15%, Gravel 5%, moderate brown (5YR3/4), damp	
S19/0.0-0.15	S19	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 10%, Gravel 10%, dark reddish brown (10R3/4), damp	Composite as C10, OCPs, metals (8)

Sample ID	Sample Location	Depth	Soil Type	Description	Analysis
S20/0.0-0.15	S20	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 10%, Gravel 10%, dark reddish brown (10R3/4), damp	
S21/0.0-0.15	S21	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 10%, Gravel 10%, dark reddish brown (10R3/4), dry	Composite as C11, OCPs, metals (8)
S22/0.0-0.15	S22	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 10%, Gravel 10%, dark reddish brown (10R3/4), damp	
S23/0.0-0.15	S23	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 10%, Gravel 10%, dark reddish brown (10R3/4), damp	Composite as C12, OCPs, metals (8)
S24/0.0-0.15	S24	0.0-0.15	Topsoil	Clay 5%, Silt 75%, Sand 10%, Gravel 10%, dark reddish brown (10R3/4), damp	
SS1/0.0-0.15	SS1	0.0-0.15	Fill	Silt 50%, Sand 25%, Gravel 25%, pale yellowish brown (10YR6/2), dry	TRH/BTEX/PAH/ Metals (8), Asbestos ID
SS2/0.0-0.15	SS2	0.0-0.15	Topsoil	Clay 5%, Silt 80%, Sand 5%, Gravel 10%, dark reddish brown (10R3/4), damp	Asbestos ID, Lead
SS3/0.0-0.15	SS3	0.0-0.15	Fill	Clay 5%, Silt 70%, Sand 15%, Gravel 10%, dark reddish brown (10R3/4), damp	Asbestos ID, Lead
SS4/0.0-0.15	SS4	0.0-0.15	Fill	Clay 5%, Silt 80%, Sand 5%, Gravel 10%, dark reddish brown (10R3/4), damp	Asbestos ID, Lead
SS5/0.0-0.15	SS5	0.0-0.15	Fill	Clay 5%, Silt 60%, Sand 30%, Gravel 5%, dark reddish brown (10R3/4), damp	Asbestos ID, Lead
SS6/0.0-0.15	SS6	0.0-0.15	Fill	Clay 15%, Silt 60%, Sand 20%, Gravel 5%, moderate brown (5YR4/4), moist	Asbestos ID, VOCs
SS7/0.0-0.15	SS7	0.0-0.15	Fill	Clay 15%, Silt 60%, Sand 20%, Gravel 5%, moderate brown (5YR4/4), damp	Asbestos ID, VOCs
SS8/0.0-0.15	SS8	0.0-0.15	Fill	Silt 60%, Sand 20%, Gravel 20%, pale yellowish brown (10YR6/2), dry	TRH/BTEX/PAH/ Metals (8), Asbestos ID
SS9/0.0-0.15	SS9	0.0-0.15	Fill	Silt 60%, Sand 20%, Gravel 20%, pale yellowish brown (10YR6/2), dry	TRH/BTEX/PAH/ Metals (8), Asbestos ID
SS10/0.0-0.15	SS10	0.0-0.15	Fill	Silt 60%, Sand 20%, Gravel 20%, pale yellowish brown (10YR6/2), dry	TRH/BTEX/PAH/ Metals (8), Asbestos ID

Sample ID	Sample Location	Depth	Soil Type	Description	Analysis
AC1/0.0-0.15	AC1	0.0-0.15	Fill	Clay 5%, Silt 40%, Sand 40%, Gravel 15%, greyish brown (5YR3/2), dry	Asbestos ID
SP1	SP1	-	Fill	Clay 10%, Silt 40%, Sand 30%, Gravel 20%, greyish brown (5YR3/2), dry	TRH/BTEX/PAH/ Metals (8), Asbestos ID
SP2	SP2	-	Fill	Clay 10%, Silt 40%, Sand 30%, Gravel 20%, greyish brown (5YR3/2), dry	TRH/BTEX/PAH/ Metals (8), Asbestos ID

ATTACHMENT F

eurofins | mgt

Certificate of Analysis

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Tim Gunns**

Report **515269-S**
Project name 80 EDMONDSON AVE
Project ID 1601067
Received Date Sep 09, 2016

Client Sample ID			**T1/1/0.2**	**T1/2/0.8**	**T1/3/0.2**	**T2/1/0.3**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Se10140**	**S16-Se10141**	**S16-Se10142**	**S16-Se10143**
Date Sampled			**Not Provided**	**Not Provided**	**Not Provided**	**Not Provided**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	21	24
TRH C15-C28	50	mg/kg	57	56	94	140
TRH C29-C36	50	mg/kg	67	57	110	150
TRH C10-36 (Total)	50	mg/kg	124	113	225	314
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	85	82	87	79
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	56
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			T1/1/0.2	T1/2/0.8	T1/3/0.2	T2/1/0.3
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Se10140**	**S16-Se10141**	**S16-Se10142**	**S16-Se10143**
Date Sampled			**Not Provided**	**Not Provided**	**Not Provided**	**Not Provided**
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	100	100	94	99
p-Terphenyl-d14 (surr.)	1	%	106	107	100	103
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	0.88	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	111	133	130	142
Tetrachloro-m-xylene (surr.)	1	%	122	131	107	116
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	56
TRH >C16-C34	100	mg/kg	< 100	< 100	160	230
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Heavy Metals						
Arsenic	2	mg/kg	5.8	5.0	5.0	6.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	22	23	17	25
Copper	5	mg/kg	13	14	16	11
Lead	5	mg/kg	19	33	30	30
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	6.4	7.1	5.8	5.1
Zinc	5	mg/kg	48	62	27	18
% Moisture	1	%	21	28	25	24

Client Sample ID			T2/2/0.5	T2/3/0.2	DS1
Sample Matrix			Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Se10144	S16-Se10145	S16-Se10146
Date Sampled			Not Provided	Not Provided	Not Provided
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	26
TRH C15-C28	50	mg/kg	< 50	81	100
TRH C29-C36	50	mg/kg	< 50	78	100
TRH C10-36 (Total)	50	mg/kg	< 50	159	226
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	94	84	75
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	99	99	101
p-Terphenyl-d14 (surr.)	1	%	109	109	104
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05

Client Sample ID			T2/2/0.5	T2/3/0.2	DS1
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Se10144**	**S16-Se10145**	**S16-Se10146**
Date Sampled			**Not Provided**	**Not Provided**	**Not Provided**
Test/Reference	LOR	Unit			
Organochlorine Pesticides					
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	0.06
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	115	111	137
Tetrachloro-m-xylene (surr.)	1	%	109	110	122
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	130	160
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
Heavy Metals					
Arsenic	2	mg/kg	3.5	3.7	4.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.3	9.4	16
Copper	5	mg/kg	9.0	12	17
Lead	5	mg/kg	11	16	29
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	< 5	< 5	7.0
Zinc	5	mg/kg	7.2	11	62
% Moisture	1	%	14	20	28

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B9			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Sep 13, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Sep 12, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 12, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Sep 13, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	Sep 13, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 12, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Sep 12, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Sep 12, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1497	**Received:**	Sep 9, 2016 1:00 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	515269	**Due:**	Sep 16, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	80 EDMONDSON AVE				
Project ID:	1601067				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	T1/1/0.2	Not Provided		Soil	S16-Se10140	X	X	X
2	T1/2/0.8	Not Provided		Soil	S16-Se10141	X	X	X
3	T1/3/0.2	Not Provided		Soil	S16-Se10142	X	X	X
4	T2/1/0.3	Not Provided		Soil	S16-Se10143	X	X	X
5	T2/2/0.5	Not Provided		Soil	S16-Se10144	X	X	X
6	T2/3/0.2	Not Provided		Soil	S16-Se10145	X	X	X
7	DS1	Not Provided		Soil	S16-Se10146		X	X
Test Counts						6	7	7

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	73			70-130	Pass	
TRH C10-C14	%	75			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	81			70-130	Pass	
Toluene	%	82			70-130	Pass	
Ethylbenzene	%	84			70-130	Pass	
m&p-Xylenes	%	89			70-130	Pass	
o-Xylene	%	88			70-130	Pass	
Xylenes - Total	%	89			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	107			70-130	Pass	
TRH C6-C10	%	72			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	112			70-130	Pass	
Acenaphthylene	%	114			70-130	Pass	
Anthracene	%	128			70-130	Pass	
Benz(a)anthracene	%	113			70-130	Pass	
Benzo(a)pyrene	%	93			70-130	Pass	
Benzo(b&j)fluoranthene	%	77			70-130	Pass	
Benzo(g.h.i)perylene	%	88			70-130	Pass	
Benzo(k)fluoranthene	%	122			70-130	Pass	
Chrysene	%	123			70-130	Pass	
Dibenz(a.h)anthracene	%	78			70-130	Pass	
Fluoranthene	%	124			70-130	Pass	
Fluorene	%	110			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	81			70-130	Pass	
Naphthalene	%	125			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Phenanthrene	%	128			70-130	Pass	
Pyrene	%	120			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	109			70-130	Pass	
4.4'-DDD	%	115			70-130	Pass	
4.4'-DDE	%	115			70-130	Pass	
4.4'-DDT	%	114			70-130	Pass	
a-BHC	%	107			70-130	Pass	
Aldrin	%	107			70-130	Pass	
b-BHC	%	103			70-130	Pass	
d-BHC	%	107			70-130	Pass	
Dieldrin	%	110			70-130	Pass	
Endosulfan I	%	110			70-130	Pass	
Endosulfan II	%	110			70-130	Pass	
Endosulfan sulphate	%	118			70-130	Pass	
Endrin	%	105			70-130	Pass	
Endrin aldehyde	%	121			70-130	Pass	
Endrin ketone	%	115			70-130	Pass	
g-BHC (Lindane)	%	108			70-130	Pass	
Heptachlor	%	102			70-130	Pass	
Heptachlor epoxide	%	109			70-130	Pass	
Hexachlorobenzene	%	106			70-130	Pass	
Methoxychlor	%	112			70-130	Pass	
Toxaphene	%	113			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	79			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	114			70-130	Pass	
Cadmium	%	118			70-130	Pass	
Chromium	%	127			70-130	Pass	
Copper	%	119			70-130	Pass	
Lead	%	124			70-130	Pass	
Mercury	%	118			70-130	Pass	
Nickel	%	117			70-130	Pass	
Zinc	%	121			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-Se10151	NCP	%	117			70-130	Pass	
Acenaphthylene	S16-Se10151	NCP	%	115			70-130	Pass	
Anthracene	S16-Se10151	NCP	%	116			70-130	Pass	
Benz(a)anthracene	S16-Se10151	NCP	%	114			70-130	Pass	
Benzo(a)pyrene	S16-Se10151	NCP	%	102			70-130	Pass	
Benzo(b&j)fluoranthene	S16-Se10151	NCP	%	89			70-130	Pass	
Benzo(g.h.i)perylene	S16-Se10151	NCP	%	81			70-130	Pass	
Benzo(k)fluoranthene	S16-Se10151	NCP	%	124			70-130	Pass	
Chrysene	S16-Se10151	NCP	%	126			70-130	Pass	
Dibenz(a.h)anthracene	S16-Se10151	NCP	%	76			70-130	Pass	
Fluoranthene	S16-Se10151	NCP	%	121			70-130	Pass	
Fluorene	S16-Se10151	NCP	%	116			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-Se10151	NCP	%	77			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Naphthalene	S16-Se10151	NCP	%	118			70-130	Pass	
Phenanthrene	S16-Se10151	NCP	%	122			70-130	Pass	
Pyrene	S16-Se10151	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Toxaphene	S16-Se05918	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-Se10144	CP	%	85			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-Se10144	CP	%	87			70-130	Pass	
Toluene	S16-Se10144	CP	%	115			70-130	Pass	
Ethylbenzene	S16-Se10144	CP	%	116			70-130	Pass	
m&p-Xylenes	S16-Se10144	CP	%	120			70-130	Pass	
o-Xylene	S16-Se10144	CP	%	120			70-130	Pass	
Xylenes - Total	S16-Se10144	CP	%	120			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Se10144	CP	%	122			70-130	Pass	
TRH C6-C10	S16-Se10144	CP	%	119			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-Se10144	CP	%	210			70-130	Fail	
4.4'-DDD	S16-Se10144	CP	%	117			70-130	Pass	
4.4'-DDE	S16-Se10144	CP	%	112			70-130	Pass	
4.4'-DDT	S16-Se10144	CP	%	78			70-130	Pass	
a-BHC	S16-Se10144	CP	%	102			70-130	Pass	
Aldrin	S16-Se10144	CP	%	105			70-130	Pass	
b-BHC	S16-Se10144	CP	%	100			70-130	Pass	
d-BHC	S16-Se10144	CP	%	105			70-130	Pass	
Dieldrin	S16-Se10144	CP	%	107			70-130	Pass	
Endosulfan I	S16-Se10144	CP	%	106			70-130	Pass	
Endosulfan II	S16-Se10144	CP	%	106			70-130	Pass	
Endosulfan sulphate	S16-Se10144	CP	%	110			70-130	Pass	
Endrin	S16-Se10144	CP	%	98			70-130	Pass	
Endrin aldehyde	S16-Se10144	CP	%	123			70-130	Pass	
Endrin ketone	S16-Se10144	CP	%	116			70-130	Pass	
g-BHC (Lindane)	S16-Se10144	CP	%	103			70-130	Pass	
Heptachlor	S16-Se10144	CP	%	100			70-130	Pass	
Heptachlor epoxide	S16-Se10144	CP	%	107			70-130	Pass	
Hexachlorobenzene	S16-Se10144	CP	%	100			70-130	Pass	
Methoxychlor	S16-Se10144	CP	%	87			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S16-Se10146	CP	%	70			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Se10146	CP	%	75			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-Se10146	CP	%	90			70-130	Pass	
Cadmium	S16-Se10146	CP	%	93			70-130	Pass	
Chromium	S16-Se10146	CP	%	100			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Copper	S16-Se10146	CP	%	95			70-130	Pass	
Lead	S16-Se10146	CP	%	117			70-130	Pass	
Mercury	S16-Se10146	CP	%	95			70-130	Pass	
Nickel	S16-Se10146	CP	%	88			70-130	Pass	
Zinc	S16-Se10146	CP	%	78			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-Se10143	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Se10143	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-Se10143	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-Se10143	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-Se10143	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-Se10143	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-Se10143	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Se10143	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-Se10143	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-Se10143	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-Se10143	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-Se10143	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-Se10143	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Se10144	CP	%	14	14	3.0	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S16-Se10145	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-Se10145	CP	mg/kg	81	73	11	30%	Pass	
TRH C29-C36	S16-Se10145	CP	mg/kg	78	74	4.0	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-Se10145	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-Se10145	CP	mg/kg	130	120	7.0	30%	Pass	
TRH >C34-C40	S16-Se10145	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Se10145	CP	mg/kg	3.7	3.6	4.0	30%	Pass	
Cadmium	S16-Se10145	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Se10145	CP	mg/kg	9.4	9.9	6.0	30%	Pass	
Copper	S16-Se10145	CP	mg/kg	12	12	1.0	30%	Pass	
Lead	S16-Se10145	CP	mg/kg	16	15	1.0	30%	Pass	
Mercury	S16-Se10145	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-Se10145	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S16-Se10145	CP	mg/kg	11	12	6.0	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-Se10146	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Ivan Taylor	Senior Analyst-Metal (NSW)
Rhys Thomas	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention:	Tim Gunns
Report	515269-AID
Project Name	80 EDMONDSON AVE
Project ID	1601067
Received Date	Sep 09, 2016
Date Reported	Sep 16, 2016

Methodology:

Asbestos ID	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. Bulk samples include building materials, soils and ores.
Subsampling Soil Samples	The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) Iron ores - Sampling and Sample preparation procedures is employed. Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis in accordance with AS 4964-2004.
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30°C. The resultant material is then ground and examined in accordance with AS 4964-2004.
Limit of Reporting	The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, “Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise” therefore such values reported are outside the scope of Eurofins | mgt NATA accreditation as designated by an asterisk.

Project Name 80 EDMONDSON AVE
Project ID 1601067
Date Sampled
Report 515269-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
T1/1/0.2	16-Se10140	not provided	Approximate Sample 93g Sample consisted of: Brown coarse grain soil and rocks.	No asbestos detected. Organic fibre detected. No respirable fibres detected.
T1/2/0.8	16-Se10141	not provided	Approximate Sample 29g Sample consisted of: Brown coarse grain soil and rocks.	No asbestos detected. Organic fibre detected. No respirable fibres detected.
T1/3/0.2	16-Se10142	not provided	Approximate Sample 21g Sample consisted of: Brown coarse grain soil and rocks.	No asbestos detected. Organic fibre detected. No respirable fibres detected.
T2/1/0.3	16-Se10143	not provided	Approximate Sample 26g Sample consisted of: Brown coarse grain soil and rocks.	No asbestos detected. Organic fibre detected. No respirable fibres detected.
T2/2/0.5	16-Se10144	not provided	Approximate Sample 68g Sample consisted of: Brown coarse grain soil and rocks.	No asbestos detected. Organic fibre detected. No respirable fibres detected.
T2/3/0.2	16-Se10145	not provided	Approximate Sample 37g Sample consisted of: Brown coarse grain soil and rocks.	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Sep 15, 2016	Indefinite

eurofins | mgt

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Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1497	**Received:**	Sep 9, 2016 1:00 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	515269	**Due:**	Sep 16, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	80 EDMONDSON AVE				
Project ID:	1601067				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	T1/1/0.2	Not Provided		Soil	S16-Se10140	X	X	X
2	T1/2/0.8	Not Provided		Soil	S16-Se10141	X	X	X
3	T1/3/0.2	Not Provided		Soil	S16-Se10142	X	X	X
4	T2/1/0.3	Not Provided		Soil	S16-Se10143	X	X	X
5	T2/2/0.5	Not Provided		Soil	S16-Se10144	X	X	X
6	T2/3/0.2	Not Provided		Soil	S16-Se10145	X	X	X
7	DS1	Not Provided		Soil	S16-Se10146		X	X
Test Counts						6	7	7

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Stardards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substatntial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

The samples received were not collected in approved asbestos bags and were therefore sub-sampled from the 250mL glass jars. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Authorised by:

Rhys Thomas Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

CHAIN OF CUSTODY

Geo-Logix

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722

Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: 80 Edmondson Ave
Project Number: 1601067 Date Submitted: 9-9-16

Purchase Order No: P01497
Quote Reference: n/a
Invoice to: accounts@geo-logix.com.au
TAT required: STD

515269

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	B9	HOLD	Asbestos ID
	TP1/0.2		X						X		X
	TP1/0.8		X						X		X
	TP3/0.2		X						X		X
	TP2/0.3		X						X		X
	TP2/0.5		X						X		X
	TP4/0.2		X						X		X
	DS1		X						X		

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/N
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Mg/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Cl

CHAIN OF CUSTODY

Relinquished by: Ben Reed Date/Time: 9/9/16 Signature:

Received by: Date/Time: Signature:

Rec: Signalk 9.9.11 1300

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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NATA # 1261 Site # 18217

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

Sample Receipt Advice

Company name:	**Geo-Logix P/L**
Contact name:	Tim Gunns
Project name:	80 EDMONDSON AVE
Project ID:	1601067
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Sep 9, 2016 1:00 PM
Eurofins | mgt reference:	**515269**

Sample information

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

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 1.8 degrees Celsius.

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

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

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

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Tim Gunns - tgunns@geo-logix.com.au.

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1497	**Received:**	Sep 9, 2016 1:00 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	515269	**Due:**	Sep 16, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	80 EDMONDSON AVE				
Project ID:	1601067				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	T1/1/0.2	Not Provided		Soil	S16-Se10140	X	X	X
2	T1/2/0.8	Not Provided		Soil	S16-Se10141	X	X	X
3	T1/3/0.2	Not Provided		Soil	S16-Se10142	X	X	X
4	T2/1/0.3	Not Provided		Soil	S16-Se10143	X	X	X
5	T2/2/0.5	Not Provided		Soil	S16-Se10144	X	X	X
6	T2/3/0.2	Not Provided		Soil	S16-Se10145	X	X	X
7	DS1	Not Provided		Soil	S16-Se10146		X	X
Test Counts						6	7	7

eurofins | mgt

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Tim Gunns**

Report **518936-S-V2**
Project name AUSTRAL PHASE 2
Project ID 1601114B
Received Date Oct 07, 2016

Client Sample ID			**C1**	**C2**	**C3**	**C4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Oc07063**	**S16-Oc07066**	**S16-Oc07069**	**S16-Oc07072**
Date Sampled			**Oct 05, 2016**	**Oct 05, 2016**	**Oct 05, 2016**	**Oct 05, 2016**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	94	98	93	99
Tetrachloro-m-xylene (surr.)	1	%	82	84	73	81
Heavy Metals						
Arsenic	2	mg/kg	< 2	5.9	5.8	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	13	20	17	17
Copper	5	mg/kg	19	18	13	11
Lead	5	mg/kg	31	28	34	25
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	9.0	13	10	5.7
Zinc	5	mg/kg	40	55	47	23
% Moisture	1	%	8.3	11	10	17

Client Sample ID			C5	C6	C7	C8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07075	S16-Oc07078	S16-Oc07081	S16-Oc07084
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	105	101	108	113
Tetrachloro-m-xylene (surr.)	1	%	94	95	80	102
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	7.5	5.3
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	23	17	40	23
Copper	5	mg/kg	27	25	16	22
Lead	5	mg/kg	49	30	34	33
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	9.0	6.0	8.9	5.9
Zinc	5	mg/kg	60	35	22	20
% Moisture	1	%	29	17	11	15

Client Sample ID			C9	C10	C11	C12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07087	S16-Oc07090	S16-Oc07093	S16-Oc07096
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	0.13	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			C9	C10	C11	C12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07087	S16-Oc07090	S16-Oc07093	S16-Oc07096
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
d-BHC	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	109	110	95	105
Tetrachloro-m-xylene (surr.)	1	%	96	99	73	92
Heavy Metals						
Arsenic	2	mg/kg	5.4	7.9	17	13
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	42	36	49	41
Copper	5	mg/kg	16	33	41	58
Lead	5	mg/kg	41	52	63	69
Mercury	0.05	mg/kg	< 0.05	< 0.05	0.15	0.09
Nickel	5	mg/kg	5.6	7.0	7.0	14
Zinc	5	mg/kg	19	280	36	89
% Moisture	1	%	16	21	10	15

Client Sample ID			SS1	SS2	SS3	SS4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07099	S16-Oc07100	S16-Oc07101	S16-Oc07102
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	-
TRH C10-C14	20	mg/kg	54	-	-	-
TRH C15-C28	50	mg/kg	62	-	-	-
TRH C29-C36	50	mg/kg	51	-	-	-
TRH C10-36 (Total)	50	mg/kg	167	-	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	-
Toluene	0.1	mg/kg	< 0.1	-	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	-
o-Xylene	0.1	mg/kg	< 0.1	-	-	-
Xylenes - Total	0.3	mg/kg	< 0.3	-	-	-
4-Bromofluorobenzene (surr.)	1	%	74	-	-	-

Client Sample ID			SS1	SS2	SS3	SS4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07099	S16-Oc07100	S16-Oc07101	S16-Oc07102
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	-	-	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-	-	-
TRH C6-C10	20	mg/kg	< 20	-	-	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	-
Acenaphthene	0.5	mg/kg	< 0.5	-	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	-
Anthracene	0.5	mg/kg	< 0.5	-	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-	-	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Chrysene	0.5	mg/kg	< 0.5	-	-	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-	-	-
Fluoranthene	0.5	mg/kg	< 0.5	-	-	-
Fluorene	0.5	mg/kg	< 0.5	-	-	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	-
Naphthalene	0.5	mg/kg	< 0.5	-	-	-
Phenanthrene	0.5	mg/kg	< 0.5	-	-	-
Pyrene	0.5	mg/kg	< 0.5	-	-	-
Total PAH*	0.5	mg/kg	< 0.5	-	-	-
2-Fluorobiphenyl (surr.)	1	%	116	-	-	-
p-Terphenyl-d14 (surr.)	1	%	115	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	100	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
Heavy Metals						
Arsenic	2	mg/kg	75	-	-	-
Cadmium	0.4	mg/kg	1.2	-	-	-
Chromium	5	mg/kg	110	-	-	-
Copper	5	mg/kg	180	-	-	-
Lead	5	mg/kg	1400	67	84	140
Mercury	0.05	mg/kg	< 0.05	-	-	-
Nickel	5	mg/kg	68	-	-	-
Zinc	5	mg/kg	1100	-	-	-
% Moisture	1	%	16	19	7.7	23

Client Sample ID			SS5	SS6	SS7	SS8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07103	S16-Oc07104	S16-Oc07105	S16-Oc07106
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	31
TRH C15-C28	50	mg/kg	-	-	-	88
TRH C29-C36	50	mg/kg	-	-	-	100
TRH C10-36 (Total)	50	mg/kg	-	-	-	219
BTEX						
Benzene	0.1	mg/kg	-	-	-	< 0.1
Toluene	0.1	mg/kg	-	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	-	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	-	-	-	< 0.2
o-Xylene	0.1	mg/kg	-	-	-	< 0.1
Xylenes - Total	0.3	mg/kg	-	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	-	-	-	68
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.3-Dichloropropane	0.5	mg/kg	-	< 0.5	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Propanone (Acetone)	5	mg/kg	-	< 5	< 5	-
4-Chlorotoluene	0.5	mg/kg	-	< 0.5	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	< 0.5	< 0.5	-
Allyl chloride	0.05	mg/kg	-	< 0.05	< 0.05	-
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Bromobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromoform	0.5	mg/kg	-	< 0.5	< 0.5	-
Bromomethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Carbon disulfide	0.5	mg/kg	-	< 0.5	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	< 0.5	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	< 0.5	< 0.5	-
Chloroethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Chloroform	0.5	mg/kg	-	< 0.5	< 0.5	-
Chloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5	-

Client Sample ID			SS5	SS6	SS7	SS8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07103	S16-Oc07104	S16-Oc07105	S16-Oc07106
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Volatile Organics						
Dibromochloromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Dibromomethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Iodomethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Isopropyl benzene (Cumene)	0.5	mg/kg	-	< 0.5	< 0.5	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
Methylene Chloride	0.5	mg/kg	-	< 0.5	< 0.5	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Styrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	< 0.5	< 0.5	-
Trichloroethene	0.5	mg/kg	-	< 0.5	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	-	< 0.5	< 0.5	-
Vinyl chloride	0.5	mg/kg	-	< 0.5	< 0.5	-
Xylenes - Total	0.3	mg/kg	-	< 0.3	< 0.3	-
Fluorobenzene (surr.)	1	%	-	95	94	-
4-Bromofluorobenzene (surr.)	1	%	-	111	129	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	-	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	-	-	-	< 50
TRH C6-C10	20	mg/kg	-	-	-	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	-	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	-	-	1.2
Acenaphthene	0.5	mg/kg	-	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	-	-	< 0.5
Anthracene	0.5	mg/kg	-	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	-	-	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	-	-	-	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	-	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Chrysene	0.5	mg/kg	-	-	-	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	-	-	-	< 0.5
Fluoranthene	0.5	mg/kg	-	-	-	< 0.5
Fluorene	0.5	mg/kg	-	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	-	-	< 0.5
Naphthalene	0.5	mg/kg	-	-	-	< 0.5
Phenanthrene	0.5	mg/kg	-	-	-	< 0.5
Pyrene	0.5	mg/kg	-	-	-	< 0.5
Total PAH*	0.5	mg/kg	-	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	-	-	90
p-Terphenyl-d14 (surr.)	1	%	-	-	-	70

Client Sample ID			SS5	SS6	SS7	SS8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07103	S16-Oc07104	S16-Oc07105	S16-Oc07106
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	-	-	< 50
TRH >C16-C34	100	mg/kg	-	-	-	160
TRH >C34-C40	100	mg/kg	-	-	-	< 100
Heavy Metals						
Arsenic	2	mg/kg	-	-	-	22
Cadmium	0.4	mg/kg	-	-	-	2.4
Chromium	5	mg/kg	-	-	-	69
Copper	5	mg/kg	-	-	-	410
Lead	5	mg/kg	64	-	-	110
Mercury	0.05	mg/kg	-	-	-	0.07
Nickel	5	mg/kg	-	-	-	72
Zinc	5	mg/kg	-	-	-	2700
% Moisture	1	%	14	9.1	18	16

Client Sample ID			SS9	SS10	BH1/0.1-0.2	SP1/0.3-0.35
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07107	S16-Oc07108	S16-Oc07109	S16-Oc07114
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 06, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	31	54	41	< 20
TRH C15-C28	50	mg/kg	< 50	190	150	< 50
TRH C29-C36	50	mg/kg	< 50	180	210	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	424	401	< 50
BTEX						
Benzene	0.1	mg/kg	0.7	0.2	< 0.1	< 0.1
Toluene	0.1	mg/kg	0.2	0.2	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	77	85	95	92
Volatile Organics						
1.1-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
1.1.1-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.1.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2-Trichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.1.2.2-Tetrachloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dibromoethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloroethane	0.5	mg/kg	-	-	< 0.5	-
1.2-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.2.3-Trichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.2.4-Trimethylbenzene	0.5	mg/kg	-	-	< 0.5	-
1.3-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-

Client Sample ID			SS9	SS10	BH1/0.1-0.2	SP1/0.3-0.35
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07107	S16-Oc07108	S16-Oc07109	S16-Oc07114
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 06, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Volatile Organics						
1.3-Dichloropropane	0.5	mg/kg	-	-	< 0.5	-
1.3.5-Trimethylbenzene	0.5	mg/kg	-	-	< 0.5	-
1.4-Dichlorobenzene	0.5	mg/kg	-	-	< 0.5	-
2-Butanone (MEK)	0.5	mg/kg	-	-	< 0.5	-
2-Propanone (Acetone)	5	mg/kg	-	-	< 5	-
4-Chlorotoluene	0.5	mg/kg	-	-	< 0.5	-
4-Methyl-2-pentanone (MIBK)	0.5	mg/kg	-	-	< 0.5	-
Allyl chloride	0.05	mg/kg	-	-	< 0.05	-
Benzene	0.1	mg/kg	-	-	< 0.1	-
Bromobenzene	0.5	mg/kg	-	-	< 0.5	-
Bromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromodichloromethane	0.5	mg/kg	-	-	< 0.5	-
Bromoform	0.5	mg/kg	-	-	< 0.5	-
Bromomethane	0.5	mg/kg	-	-	< 0.5	-
Carbon disulfide	0.5	mg/kg	-	-	< 0.5	-
Carbon Tetrachloride	0.5	mg/kg	-	-	< 0.5	-
Chlorobenzene	0.5	mg/kg	-	-	< 0.5	-
Chloroethane	0.5	mg/kg	-	-	< 0.5	-
Chloroform	0.5	mg/kg	-	-	< 0.5	-
Chloromethane	0.5	mg/kg	-	-	< 0.5	-
cis-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
cis-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Dibromochloromethane	0.5	mg/kg	-	-	< 0.5	-
Dibromomethane	0.5	mg/kg	-	-	< 0.5	-
Dichlorodifluoromethane	0.5	mg/kg	-	-	< 0.5	-
Ethylbenzene	0.1	mg/kg	-	-	< 0.1	-
Iodomethane	0.5	mg/kg	-	-	< 0.5	-
Isopropyl benzene (Cumene)	0.5	mg/kg	-	-	< 0.5	-
m&p-Xylenes	0.2	mg/kg	-	-	< 0.2	-
Methylene Chloride	0.5	mg/kg	-	-	< 0.5	-
o-Xylene	0.1	mg/kg	-	-	< 0.1	-
Styrene	0.5	mg/kg	-	-	< 0.5	-
Tetrachloroethene	0.5	mg/kg	-	-	< 0.5	-
Toluene	0.1	mg/kg	-	-	< 0.1	-
trans-1.2-Dichloroethene	0.5	mg/kg	-	-	< 0.5	-
trans-1.3-Dichloropropene	0.5	mg/kg	-	-	< 0.5	-
Trichloroethene	0.5	mg/kg	-	-	< 0.5	-
Trichlorofluoromethane	0.5	mg/kg	-	-	< 0.5	-
Vinyl chloride	0.5	mg/kg	-	-	< 0.5	-
Xylenes - Total	0.3	mg/kg	-	-	< 0.3	-
Fluorobenzene (surr.)	1	%	-	-	92	-
4-Bromofluorobenzene (surr.)	1	%	-	-	95	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	78	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20

Client Sample ID			SS9	SS10	BH1/0.1-0.2	SP1/0.3-0.35
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07107	S16-Oc07108	S16-Oc07109	S16-Oc07114
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 06, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	78	83	80	96
p-Terphenyl-d14 (surr.)	1	%	51	80	92	106
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
4.4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4.4'-DDT	0.05	mg/kg	-	-	-	< 0.05
a-BHC	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
b-BHC	0.05	mg/kg	-	-	-	< 0.05
d-BHC	0.05	mg/kg	-	-	-	< 0.05
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	-	-	< 0.05
Endrin ketone	0.05	mg/kg	-	-	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05
Methoxychlor	0.2	mg/kg	-	-	-	< 0.2
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchlorendate (surr.)	1	%	-	-	-	102
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	84
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	78	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	300	300	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	240	< 100

Client Sample ID			SS9	SS10	BH1/0.1-0.2	SP1/0.3-0.35
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07107	S16-Oc07108	S16-Oc07109	S16-Oc07114
Date Sampled			Oct 05, 2016	Oct 05, 2016	Oct 06, 2016	Oct 05, 2016
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	74	< 2	< 2	2.7
Cadmium	0.4	mg/kg	1.2	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	110	35	26	20
Copper	5	mg/kg	180	94	25	15
Lead	5	mg/kg	1400	160	13	20
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	5	mg/kg	68	31	33	18
Zinc	5	mg/kg	1200	220	20	18
% Moisture	1	%	14	16	5.5	9.6

Client Sample ID			SP2/0.3-0.35	DS2
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07115	S16-Oc08760
Date Sampled			Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	-
TRH C10-C14	20	mg/kg	30	-
TRH C15-C28	50	mg/kg	< 50	-
TRH C29-C36	50	mg/kg	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	-
BTEX				
Benzene	0.1	mg/kg	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	87	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	-
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	-
TRH C6-C10	20	mg/kg	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	-
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-

Client Sample ID			SP2/0.3-0.35	DS2
Sample Matrix			Soil	Soil
Eurofins | mgt Sample No.			S16-Oc07115	S16-Oc08760
Date Sampled			Oct 05, 2016	Oct 05, 2016
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	93	-
p-Terphenyl-d14 (surr.)	1	%	98	-
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-BHC	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-BHC	0.05	mg/kg	< 0.05	< 0.05
d-BHC	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.2	mg/kg	< 0.2	< 0.2
Toxaphene	1	mg/kg	< 1	< 1
Dibutylchlorendate (surr.)	1	%	95	110
Tetrachloro-m-xylene (surr.)	1	%	77	81
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	50	mg/kg	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-
Heavy Metals				
Arsenic	2	mg/kg	5.3	21
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	20	56
Copper	5	mg/kg	12	29
Lead	5	mg/kg	20	59
Mercury	0.05	mg/kg	< 0.05	0.13
Nickel	5	mg/kg	< 5	7.0
Zinc	5	mg/kg	16	39
% Moisture	1	%	7.8	10

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B9			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Oct 13, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Oct 12, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 12, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 13, 2016	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Organochlorine Pesticides	Sydney	Oct 13, 2016	14 Day
- Method: E013 Organochlorine Pesticides (OC)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 13, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Oct 12, 2016	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
Volatile Organics	Sydney	Oct 12, 2016	7 Day
- Method: E016 Volatile Organic Compounds (VOC)			
Heavy Metals	Sydney	Oct 12, 2016	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Sydney	Oct 11, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

eurofins | mgt

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Brisbane
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Phone : +61 7 3902 4600
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Company Name:	Geo-Logix P/L	**Order No.:**	PO1547	**Received:**	Oct 7, 2016 5:25 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	518936	**Due:**	Oct 14, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	C1	Oct 05, 2016		Soil	S16-Oc07063					X	X		X		
2	S1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07064			X							
3	S2/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07065			X							
4	C2	Oct 05, 2016		Soil	S16-Oc07066					X	X		X		
5	S3/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07067			X							
6	S4/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07068			X							
7	C3	Oct 05, 2016		Soil	S16-Oc07069					X	X		X		
8	S5/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07070			X							
9	S6/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07071			X							
10	C4	Oct 05, 2016		Soil	S16-Oc07072					X	X		X		

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

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUSTRAL PHASE 2
Project ID: 1601114B

Order No.: PO1547
Report #: 518936
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Oct 7, 2016 5:25 PM
Due: Oct 14, 2016
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
11	S7/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07073			X							
12	S8/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07074			X							
13	C5	Oct 05, 2016		Soil	S16-Oc07075					X	X		X		
14	S9/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07076			X							
15	S10/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07077			X							
16	C6	Oct 05, 2016		Soil	S16-Oc07078					X	X		X		
17	S11/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07079			X							
18	S12/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07080			X							
19	C7	Oct 05, 2016		Soil	S16-Oc07081					X	X		X		
20	S13/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07082			X							
21	S14/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07083			X							
22	C8	Oct 05, 2016		Soil	S16-Oc07084					X	X		X		

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

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUSTRAL PHASE 2
Project ID: 1601114B

Order No.: PO1547
Report #: 518936
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Oct 7, 2016 5:25 PM
Due: Oct 14, 2016
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
23	S15/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07085			X							
24	S16/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07086			X							
25	C9	Oct 05, 2016		Soil	S16-Oc07087					X	X		X		
26	S17/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07088			X							
27	S18/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07089			X							
28	C10	Oct 05, 2016		Soil	S16-Oc07090					X	X		X		
29	S19/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07091			X							
30	S20/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07092			X							
31	C11	Oct 05, 2016		Soil	S16-Oc07093					X	X		X		
32	S21/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07094			X							
33	S22/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07095			X							
34	C12	Oct 05, 2016		Soil	S16-Oc07096					X	X		X		

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Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
35	S23/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07097			X							
36	S24/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07098			X							
37	SS1	Oct 05, 2016		Soil	S16-Oc07099	X							X	X	
38	SS2	Oct 05, 2016		Soil	S16-Oc07100	X			X				X		
39	SS3	Oct 05, 2016		Soil	S16-Oc07101	X			X				X		
40	SS4	Oct 05, 2016		Soil	S16-Oc07102	X			X				X		
41	SS5	Oct 05, 2016		Soil	S16-Oc07103	X			X				X		
42	SS6	Oct 05, 2016		Soil	S16-Oc07104	X						X	X		
43	SS7	Oct 05, 2016		Soil	S16-Oc07105	X						X	X		
44	SS8	Oct 05, 2016		Soil	S16-Oc07106	X							X	X	
45	SS9	Oct 05, 2016		Soil	S16-Oc07107	X							X	X	
46	SS10	Oct 05, 2016		Soil	S16-Oc07108	X							X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
47	BH1/0.1-0.2	Oct 06, 2016		Soil	S16-Oc07109							X	X	X	
48	SS1/0.0-0.15	Oct 05, 2016		Other	S16-Oc07110	X									
49	S21/0.0-0.15	Oct 05, 2016		Other	S16-Oc07111	X									
50	DS2	Oct 05, 2016		Soil	S16-Oc07112		X								
51	AC1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07113	X									
52	SP1/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07114								X		X
53	SP2/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07115								X		X
54	R1	Oct 05, 2016		Water	S16-Oc07116									X	
55	R2	Oct 05, 2016		Water	S16-Oc07117									X	
56	DS2	Oct 05, 2016		Soil	S16-Oc08760					X	X		X		
Test Counts						13	1	24	4	13	13	3	26	7	2

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Volatile Organics							
1.1-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
1.1.1-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.1.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2-Trichloroethane	mg/kg	< 0.5			0.5	Pass	
1.1.2.2-Tetrachloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dibromoethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloroethane	mg/kg	< 0.5			0.5	Pass	
1.2-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.3-Trichloropropane	mg/kg	< 0.5			0.5	Pass	
1.2.4-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
1.3-Dichloropropane	mg/kg	< 0.5			0.5	Pass	
1.3.5-Trimethylbenzene	mg/kg	< 0.5			0.5	Pass	
1.4-Dichlorobenzene	mg/kg	< 0.5			0.5	Pass	
2-Butanone (MEK)	mg/kg	< 0.5			0.5	Pass	
2-Propanone (Acetone)	mg/kg	< 5			5	Pass	
4-Chlorotoluene	mg/kg	< 0.5			0.5	Pass	
4-Methyl-2-pentanone (MIBK)	mg/kg	< 0.5			0.5	Pass	
Allyl chloride	mg/kg	< 0.05			0.05	Pass	
Bromobenzene	mg/kg	< 0.5			0.5	Pass	
Bromochloromethane	mg/kg	< 0.5			0.5	Pass	
Bromodichloromethane	mg/kg	< 0.5			0.5	Pass	
Bromoform	mg/kg	< 0.5			0.5	Pass	
Bromomethane	mg/kg	< 0.5			0.5	Pass	
Carbon disulfide	mg/kg	< 0.5			0.5	Pass	
Carbon Tetrachloride	mg/kg	< 0.5			0.5	Pass	
Chlorobenzene	mg/kg	< 0.5			0.5	Pass	
Chloroethane	mg/kg	< 0.5			0.5	Pass	
Chloroform	mg/kg	< 0.5			0.5	Pass	
Chloromethane	mg/kg	< 0.5			0.5	Pass	
cis-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
cis-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Dibromochloromethane	mg/kg	< 0.5			0.5	Pass	
Dibromomethane	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dichlorodifluoromethane	mg/kg	< 0.5			0.5	Pass	
Iodomethane	mg/kg	< 0.5			0.5	Pass	
Isopropyl benzene (Cumene)	mg/kg	< 0.5			0.5	Pass	
Methylene Chloride	mg/kg	< 0.5			0.5	Pass	
Styrene	mg/kg	< 0.5			0.5	Pass	
Tetrachloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.2-Dichloroethene	mg/kg	< 0.5			0.5	Pass	
trans-1.3-Dichloropropene	mg/kg	< 0.5			0.5	Pass	
Trichloroethene	mg/kg	< 0.5			0.5	Pass	
Trichlorofluoromethane	mg/kg	< 0.5			0.5	Pass	
Vinyl chloride	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Methoxychlor	mg/kg	< 0.2			0.2	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	101			70-130	Pass	
TRH C10-C14	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	90			70-130	Pass	
Toluene	%	92			70-130	Pass	
Ethylbenzene	%	92			70-130	Pass	
m&p-Xylenes	%	91			70-130	Pass	
o-Xylene	%	91			70-130	Pass	
Xylenes - Total	%	91			70-130	Pass	
LCS - % Recovery							
Volatile Organics							
1.1-Dichloroethane	%	75			70-130	Pass	
1.1-Dichloroethene	%	80			70-130	Pass	
1.1.1-Trichloroethane	%	88			70-130	Pass	
1.1.1.2-Tetrachloroethane	%	96			70-130	Pass	
1.1.2-Trichloroethane	%	87			70-130	Pass	
1.1.2.2-Tetrachloroethane	%	75			70-130	Pass	
1.2-Dibromoethane	%	83			70-130	Pass	
1.2-Dichlorobenzene	%	85			70-130	Pass	
1.2-Dichloroethane	%	87			70-130	Pass	
1.2-Dichloropropane	%	109			70-130	Pass	
1.2.3-Trichloropropane	%	79			70-130	Pass	
1.2.4-Trimethylbenzene	%	86			70-130	Pass	
1.3-Dichlorobenzene	%	87			70-130	Pass	
1.3-Dichloropropane	%	92			70-130	Pass	
1.3.5-Trimethylbenzene	%	86			70-130	Pass	
1.4-Dichlorobenzene	%	86			70-130	Pass	
2-Butanone (MEK)	%	104			70-130	Pass	
2-Propanone (Acetone)	%	74			70-130	Pass	
4-Chlorotoluene	%	84			70-130	Pass	
4-Methyl-2-pentanone (MIBK)	%	80			70-130	Pass	
Allyl chloride	%	87			70-130	Pass	
Bromobenzene	%	88			70-130	Pass	
Bromochloromethane	%	114			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Bromodichloromethane	%	93			70-130	Pass	
Bromoform	%	73			70-130	Pass	
Bromomethane	%	78			70-130	Pass	
Carbon disulfide	%	73			70-130	Pass	
Carbon Tetrachloride	%	84			70-130	Pass	
Chlorobenzene	%	91			70-130	Pass	
Chloroethane	%	79			70-130	Pass	
Chloroform	%	93			70-130	Pass	
Chloromethane	%	102			70-130	Pass	
cis-1.2-Dichloroethene	%	93			70-130	Pass	
cis-1.3-Dichloropropene	%	84			70-130	Pass	
Dibromochloromethane	%	81			70-130	Pass	
Dibromomethane	%	91			70-130	Pass	
Dichlorodifluoromethane	%	89			70-130	Pass	
Iodomethane	%	74			70-130	Pass	
Isopropyl benzene (Cumene)	%	83			70-130	Pass	
Methylene Chloride	%	89			70-130	Pass	
Styrene	%	83			70-130	Pass	
Tetrachloroethene	%	79			70-130	Pass	
trans-1.2-Dichloroethene	%	73			70-130	Pass	
trans-1.3-Dichloropropene	%	96			70-130	Pass	
Trichloroethene	%	95			70-130	Pass	
Trichlorofluoromethane	%	90			70-130	Pass	
Vinyl chloride	%	84			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	79			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	112			70-130	Pass	
Acenaphthylene	%	107			70-130	Pass	
Anthracene	%	109			70-130	Pass	
Benz(a)anthracene	%	114			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	%	73			70-130	Pass	
Benzo(g.h.i)perylene	%	88			70-130	Pass	
Benzo(k)fluoranthene	%	119			70-130	Pass	
Chrysene	%	120			70-130	Pass	
Dibenz(a.h)anthracene	%	84			70-130	Pass	
Fluoranthene	%	110			70-130	Pass	
Fluorene	%	105			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	91			70-130	Pass	
Naphthalene	%	107			70-130	Pass	
Phenanthrene	%	94			70-130	Pass	
Pyrene	%	107			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	91			70-130	Pass	
4.4'-DDD	%	92			70-130	Pass	
4.4'-DDE	%	90			70-130	Pass	
4.4'-DDT	%	90			70-130	Pass	
a-BHC	%	87			70-130	Pass	
Aldrin	%	85			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
b-BHC	%	83			70-130	Pass	
d-BHC	%	117			70-130	Pass	
Dieldrin	%	92			70-130	Pass	
Endosulfan I	%	91			70-130	Pass	
Endosulfan II	%	90			70-130	Pass	
Endosulfan sulphate	%	93			70-130	Pass	
Endrin	%	96			70-130	Pass	
Endrin aldehyde	%	104			70-130	Pass	
Endrin ketone	%	91			70-130	Pass	
g-BHC (Lindane)	%	88			70-130	Pass	
Heptachlor	%	104			70-130	Pass	
Heptachlor epoxide	%	93			70-130	Pass	
Hexachlorobenzene	%	85			70-130	Pass	
Methoxychlor	%	86			70-130	Pass	
Toxaphene	%	84			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	94			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	92			70-130	Pass	
Cadmium	%	98			70-130	Pass	
Chromium	%	101			70-130	Pass	
Copper	%	102			70-130	Pass	
Lead	%	95			70-130	Pass	
Mercury	%	104			70-130	Pass	
Nickel	%	96			70-130	Pass	
Zinc	%	82			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Mercury	S16-Oc06920	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Cadmium	S16-Oc08460	NCP	%	90			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S16-Oc07081	CP	%	93			70-130	Pass	
4.4'-DDD	S16-Oc07081	CP	%	95			70-130	Pass	
4.4'-DDE	S16-Oc07081	CP	%	92			70-130	Pass	
4.4'-DDT	S16-Oc07081	CP	%	93			70-130	Pass	
a-BHC	S16-Oc07081	CP	%	85			70-130	Pass	
Aldrin	S16-Oc07081	CP	%	83			70-130	Pass	
b-BHC	S16-Oc07081	CP	%	78			70-130	Pass	
d-BHC	S16-Oc07081	CP	%	117			70-130	Pass	
Dieldrin	S16-Oc07081	CP	%	94			70-130	Pass	
Endosulfan I	S16-Oc07081	CP	%	91			70-130	Pass	
Endosulfan II	S16-Oc07081	CP	%	91			70-130	Pass	
Endosulfan sulphate	S16-Oc07081	CP	%	90			70-130	Pass	
Endrin	S16-Oc07081	CP	%	100			70-130	Pass	
Endrin aldehyde	S16-Oc07081	CP	%	75			70-130	Pass	
Endrin ketone	S16-Oc07081	CP	%	102			70-130	Pass	
g-BHC (Lindane)	S16-Oc07081	CP	%	84			70-130	Pass	
Heptachlor	S16-Oc07081	CP	%	104			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide	S16-Oc07081	CP	%	95			70-130	Pass	
Hexachlorobenzene	S16-Oc07081	CP	%	77			70-130	Pass	
Methoxychlor	S16-Oc07081	CP	%	98			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S16-Oc07084	CP	%	103			70-130	Pass	
Chromium	S16-Oc07084	CP	%	98			70-130	Pass	
Copper	S16-Oc07084	CP	%	83			70-130	Pass	
Lead	S16-Oc07084	CP	%	106			70-130	Pass	
Nickel	S16-Oc07084	CP	%	88			70-130	Pass	
Zinc	S16-Oc07084	CP	%	95			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S16-Oc07472	NCP	%	114			70-130	Pass	
Acenaphthylene	S16-Oc07472	NCP	%	108			70-130	Pass	
Anthracene	S16-Oc07472	NCP	%	110			70-130	Pass	
Benz(a)anthracene	S16-Oc07472	NCP	%	117			70-130	Pass	
Benzo(a)pyrene	S16-Oc07472	NCP	%	121			70-130	Pass	
Benzo(b&j)fluoranthene	S16-Oc07472	NCP	%	107			70-130	Pass	
Benzo(g.h.i)perylene	S16-Oc07472	NCP	%	83			70-130	Pass	
Benzo(k)fluoranthene	S16-Oc07472	NCP	%	123			70-130	Pass	
Chrysene	S16-Oc07472	NCP	%	102			70-130	Pass	
Dibenz(a.h)anthracene	S16-Oc07472	NCP	%	79			70-130	Pass	
Fluoranthene	S16-Oc07472	NCP	%	111			70-130	Pass	
Fluorene	S16-Oc07472	NCP	%	104			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S16-Oc07472	NCP	%	82			70-130	Pass	
Naphthalene	S16-Oc07472	NCP	%	111			70-130	Pass	
Phenanthrene	S16-Oc07472	NCP	%	95			70-130	Pass	
Pyrene	S16-Oc07472	NCP	%	123			70-130	Pass	
Spike - % Recovery									
Volatile Organics				Result 1					
1.1-Dichloroethane	S16-Oc03157	NCP	%	83			70-130	Pass	
1.1-Dichloroethene	S16-Oc03157	NCP	%	70			70-130	Pass	
1.1.1-Trichloroethane	S16-Oc03157	NCP	%	102			70-130	Pass	
1.1.1.2-Tetrachloroethane	S16-Oc03157	NCP	%	106			70-130	Pass	
1.1.2-Trichloroethane	S16-Oc03157	NCP	%	100			70-130	Pass	
1.1.2.2-Tetrachloroethane	S16-Oc03157	NCP	%	83			70-130	Pass	
1.2-Dibromoethane	S16-Oc03157	NCP	%	99			70-130	Pass	
1.2-Dichlorobenzene	S16-Oc03157	NCP	%	110			70-130	Pass	
1.2-Dichloroethane	S16-Oc03157	NCP	%	87			70-130	Pass	
1.2-Dichloropropane	S16-Oc03157	NCP	%	116			70-130	Pass	
1.2.3-Trichloropropane	S16-Oc03157	NCP	%	112			70-130	Pass	
1.2.4-Trimethylbenzene	S16-Oc03157	NCP	%	112			70-130	Pass	
1.3-Dichlorobenzene	S16-Oc03157	NCP	%	112			70-130	Pass	
1.3-Dichloropropane	S16-Oc03157	NCP	%	108			70-130	Pass	
1.3.5-Trimethylbenzene	S16-Oc03157	NCP	%	111			70-130	Pass	
1.4-Dichlorobenzene	S16-Oc03157	NCP	%	110			70-130	Pass	
2-Propanone (Acetone)	S16-Oc03157	NCP	%	75			70-130	Pass	
4-Chlorotoluene	S16-Oc03157	NCP	%	111			70-130	Pass	
4-Methyl-2-pentanone (MIBK)	S16-Oc03157	NCP	%	78			70-130	Pass	
Allyl chloride	S16-Oc03157	NCP	%	71			70-130	Pass	
Bromobenzene	S16-Oc03157	NCP	%	119			70-130	Pass	
Bromochloromethane	S16-Oc03157	NCP	%	80			70-130	Pass	
Bromodichloromethane	S16-Oc03157	NCP	%	97			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Bromoform	S16-Oc03157	NCP	%	82			70-130	Pass	
Bromomethane	S16-Oc03157	NCP	%	88			70-130	Pass	
Carbon Tetrachloride	S16-Oc03157	NCP	%	97			70-130	Pass	
Chlorobenzene	S16-Oc03157	NCP	%	107			70-130	Pass	
Chloroethane	S16-Oc03157	NCP	%	74			70-130	Pass	
Chloroform	S16-Oc03157	NCP	%	83			70-130	Pass	
Chloromethane	S16-Oc03157	NCP	%	122			70-130	Pass	
cis-1.2-Dichloroethene	S16-Oc03157	NCP	%	79			70-130	Pass	
cis-1.3-Dichloropropene	S16-Oc03157	NCP	%	91			70-130	Pass	
Dibromochloromethane	S16-Oc03157	NCP	%	90			70-130	Pass	
Dibromomethane	S16-Oc03157	NCP	%	99			70-130	Pass	
Dichlorodifluoromethane	S16-Oc03157	NCP	%	93			70-130	Pass	
Isopropyl benzene (Cumene)	S16-Oc03157	NCP	%	106			70-130	Pass	
Methylene Chloride	S16-Oc03157	NCP	%	92			70-130	Pass	
Styrene	S16-Oc03157	NCP	%	102			70-130	Pass	
Tetrachloroethene	S16-Oc03157	NCP	%	94			70-130	Pass	
trans-1.2-Dichloroethene	S16-Oc03157	NCP	%	72			70-130	Pass	
trans-1.3-Dichloropropene	S16-Oc03157	NCP	%	97			70-130	Pass	
Trichloroethene	S16-Oc03157	NCP	%	121			70-130	Pass	
Trichlorofluoromethane	S16-Oc03157	NCP	%	74			70-130	Pass	
Vinyl chloride	S16-Oc03157	NCP	%	95			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-Oc07114	CP	%	111			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-Oc07114	CP	%	104			70-130	Pass	
Toluene	S16-Oc07114	CP	%	107			70-130	Pass	
Ethylbenzene	S16-Oc07114	CP	%	107			70-130	Pass	
m&p-Xylenes	S16-Oc07114	CP	%	105			70-130	Pass	
o-Xylene	S16-Oc07114	CP	%	106			70-130	Pass	
Xylenes - Total	S16-Oc07114	CP	%	105			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Oc07114	CP	%	121			70-130	Pass	
TRH C6-C10	S16-Oc07114	CP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S16-Oc07115	CP	%	80			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Oc07115	CP	%	84			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Oc07063	CP	%	8.3	8.5	3.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S16-Oc07078	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
b-BHC	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S16-Oc07078	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S16-Oc07078	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Toxaphene	S16-Oc07078	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Oc07081	CP	mg/kg	7.5	8.5	13	30%	Pass	
Cadmium	S16-Oc07081	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Oc07081	CP	mg/kg	40	39	3.0	30%	Pass	
Copper	S16-Oc07081	CP	mg/kg	16	15	5.0	30%	Pass	
Lead	S16-Oc07081	CP	mg/kg	34	34	1.0	30%	Pass	
Mercury	S16-Oc07081	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Nickel	S16-Oc07081	CP	mg/kg	8.9	7.3	19	30%	Pass	
Zinc	S16-Oc07081	CP	mg/kg	22	20	10	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Oc07093	CP	%	10	10	1.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S16-Oc07103	CP	mg/kg	9.9	12	17	30%	Pass	
Cadmium	S16-Oc07103	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S16-Oc07103	CP	mg/kg	31	38	19	30%	Pass	
Copper	S16-Oc07103	CP	mg/kg	38	37	3.0	30%	Pass	
Lead	S16-Oc07103	CP	mg/kg	64	66	2.0	30%	Pass	
Mercury	S16-Oc07103	CP	mg/kg	0.06	0.07	11	30%	Pass	
Nickel	S16-Oc07103	CP	mg/kg	6.2	6.9	11	30%	Pass	
Zinc	S16-Oc07103	CP	mg/kg	81	85	5.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S16-Oc07107	CP	%	14	12	12	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-Oc07109	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Oc07109	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S16-Oc07109	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S16-Oc07109	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S16-Oc07109	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S16-Oc07109	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	S16-Oc07109	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Volatile Organics				Result 1	Result 2	RPD			
1.1-Dichloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1-Dichloroethene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1-Trichloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.1.2-Tetrachloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2-Trichloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.1.2.2-Tetrachloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dibromoethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichlorobenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2-Dichloropropane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.3-Trichloropropane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.2.4-Trimethylbenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichlorobenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3-Dichloropropane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.3.5-Trimethylbenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
1.4-Dichlorobenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Butanone (MEK)	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2-Propanone (Acetone)	S16-Oc07109	CP	mg/kg	< 5	< 5	<1	30%	Pass	
4-Chlorotoluene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Methyl-2-pentanone (MIBK)	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Allyl chloride	S16-Oc07109	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Bromobenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromochloromethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromodichloromethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromoform	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Bromomethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon disulfide	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Carbon Tetrachloride	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chlorobenzene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloroform	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chloromethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.2-Dichloroethene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
cis-1.3-Dichloropropene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromochloromethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibromomethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dichlorodifluoromethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Iodomethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Isopropyl benzene (Cumene)	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Methylene Chloride	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Styrene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Tetrachloroethene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.2-Dichloroethene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
trans-1.3-Dichloropropene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichloroethene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Trichlorofluoromethane	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Vinyl chloride	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Oc07109	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S16-Oc07109	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S16-Oc07114	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S16-Oc07114	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S16-Oc07114	CP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-Oc07114	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S16-Oc07114	CP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S16-Oc07114	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S16-Oc07115	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Comments

This report has been revised to amend Sample ID for sample S16-Oc07111.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Rhys Thomas	Senior Analyst-Asbestos (NSW)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention:	Tim Gunns
Report	518936-V2-AID
Project Name	AUSTRAL PHASE 2
Project ID	1601114B
Received Date	Oct 07, 2016
Date Reported	Oct 17, 2016

Methodology:

Asbestos ID	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. Bulk samples include building materials, soils and ores.
Subsampling Soil Samples	The whole sample submitted is first dried and then sieved through a 10mm sieve followed by a 2mm sieve. All fibrous matter viz greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) Iron ores - Sampling and Sample preparation procedures is employed. Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis in accordance with AS 4964-2004.
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated and where required interfering organic fibres or matter may be removed by treating the sample for several hours at a temperature not exceeding 400 ± 30°C. The resultant material is then ground and examined in accordance with AS 4964-2004.
Limit of Reporting	The nominal detection limit of the AS4964 method is around 0.01%. The examination of large sample sizes (at least 500 ml is recommended) may improve the likelihood of identifying asbestos material in the greater than 2 mm fraction. The NEPM screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. NOTE: NATA News, September 2011 – page 34, states, “Weighing of fibres is problematic and can lead to loss of fibres and potential exposure for laboratory analysts. To request laboratories to report information which is outside the scope of AS 4964-2004 and the scope of their accreditation is misleading and is most unwise” therefore such values reported are outside the scope of Eurofins | mgt NATA accreditation as designated by an asterisk.

Project Name AUSTRAL PHASE 2
Project ID 1601114B
Date Sampled Oct 05, 2016
Report 518936-V2-AID

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
SS1	16-Oc07099	Oct 05, 2016	Approximate Sample 26g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS2	16-Oc07100	Oct 05, 2016	Approximate Sample 63g Sample consisted of: Brown coarse grain soil and rocks	Chrysotile, amosite and crocidolite asbestos detected in the form of loose fibre bundles. Approximate raw weight of asbestos = 0.0038g* Total estimated asbestos content in the sample = 0.0036g* Organic fibre detected. No respirable fibres detected.
SS3	16-Oc07101	Oct 05, 2016	Approximate Sample 51g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS4	16-Oc07102	Oct 05, 2016	Approximate Sample 56g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS5	16-Oc07103	Oct 05, 2016	Approximate Sample 50g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS6	16-Oc07104	Oct 05, 2016	Approximate Sample 82g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS7	16-Oc07105	Oct 05, 2016	Approximate Sample 69g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS8	16-Oc07106	Oct 05, 2016	Approximate Sample 21g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS9	16-Oc07107	Oct 05, 2016	Approximate Sample 31g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Client Sample ID	Eurofins | mgt Sample No.	Date Sampled	Sample Description	Result
SS10	16-Oc07108	Oct 05, 2016	Approximate Sample 26g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.
SS1/0.0-0.15	16-Oc07110	Oct 05, 2016	Approximate Sample 25g / 150x40x3mm Sample consisted of: Grey compressed cement	No asbestos detected.
S21/0.0-0.15	16-Oc07111	Oct 05, 2016	Approximate Sample 2g / 20x20x2mm Sample consisted of: Grey fibre cement material	Chrysotile and amosite asbestos detected.
AC1/0.0-0.15	16-Oc07113	Oct 05, 2016	Approximate Sample 46g Sample consisted of: Brown coarse grain soil and rocks	No asbestos detected. Organic fibre detected. No respirable fibres detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Oct 10, 2016	Indefinite

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

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUSTRAL PHASE 2
Project ID: 1601114B

Order No.: PO1547
Report #: 518936
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Oct 7, 2016 5:25 PM
Due: Oct 14, 2016
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	C1	Oct 05, 2016		Soil	S16-Oc07063					X	X		X		
2	S1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07064			X							
3	S2/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07065			X							
4	C2	Oct 05, 2016		Soil	S16-Oc07066					X	X		X		
5	S3/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07067			X							
6	S4/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07068			X							
7	C3	Oct 05, 2016		Soil	S16-Oc07069					X	X		X		
8	S5/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07070			X							
9	S6/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07071			X							
10	C4	Oct 05, 2016		Soil	S16-Oc07072					X	X		X		

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Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
11	S7/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07073			X							
12	S8/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07074			X							
13	C5	Oct 05, 2016		Soil	S16-Oc07075					X	X		X		
14	S9/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07076			X							
15	S10/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07077			X							
16	C6	Oct 05, 2016		Soil	S16-Oc07078					X	X		X		
17	S11/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07079			X							
18	S12/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07080			X							
19	C7	Oct 05, 2016		Soil	S16-Oc07081					X	X		X		
20	S13/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07082			X							
21	S14/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07083			X							
22	C8	Oct 05, 2016		Soil	S16-Oc07084					X	X		X		

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Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
23	S15/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07085			X							
24	S16/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07086			X							
25	C9	Oct 05, 2016		Soil	S16-Oc07087					X	X		X		
26	S17/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07088			X							
27	S18/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07089			X							
28	C10	Oct 05, 2016		Soil	S16-Oc07090					X	X		X		
29	S19/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07091			X							
30	S20/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07092			X							
31	C11	Oct 05, 2016		Soil	S16-Oc07093					X	X		X		
32	S21/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07094			X							
33	S22/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07095			X							
34	C12	Oct 05, 2016		Soil	S16-Oc07096					X	X		X		

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Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
35	S23/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07097			X							
36	S24/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07098			X							
37	SS1	Oct 05, 2016		Soil	S16-Oc07099	X							X	X	
38	SS2	Oct 05, 2016		Soil	S16-Oc07100	X			X				X		
39	SS3	Oct 05, 2016		Soil	S16-Oc07101	X			X				X		
40	SS4	Oct 05, 2016		Soil	S16-Oc07102	X			X				X		
41	SS5	Oct 05, 2016		Soil	S16-Oc07103	X			X				X		
42	SS6	Oct 05, 2016		Soil	S16-Oc07104	X						X	X		
43	SS7	Oct 05, 2016		Soil	S16-Oc07105	X						X	X		
44	SS8	Oct 05, 2016		Soil	S16-Oc07106	X							X	X	
45	SS9	Oct 05, 2016		Soil	S16-Oc07107	X							X	X	
46	SS10	Oct 05, 2016		Soil	S16-Oc07108	X							X	X	

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Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
47	BH1/0.1-0.2	Oct 06, 2016		Soil	S16-Oc07109							X	X	X	
48	SS1/0.0-0.15	Oct 05, 2016		Other	S16-Oc07110	X									
49	S21/0.0-0.15	Oct 05, 2016		Other	S16-Oc07111	X									
50	DS2	Oct 05, 2016		Soil	S16-Oc07112		X								
51	AC1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07113	X									
52	SP1/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07114								X		X
53	SP2/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07115								X		X
54	R1	Oct 05, 2016		Water	S16-Oc07116									X	
55	R2	Oct 05, 2016		Water	S16-Oc07117									X	
56	DS2	Oct 05, 2016		Soil	S16-Oc08760					X	X		X		
Test Counts						13	1	24	4	13	13	3	26	7	2

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
COC	Chain of custody
SRA	Sample Receipt Advice
ISO	International Stardards Organisation
AS	Australian Standards
WA DOH	Western Australia Department of Health
NOHSC	National Occupational Health and Safety Commission
ACM	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
FA	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
PACM	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
AF	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substatntial degree of damage which increases the potential for fibre release.)
AC	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

Comments

This report has been revised to amend Sample ID for sample S16-Oc07111.

Oc07099 - Oc07108 and Oc07113, The samples received were not collected in approved asbestos bags and were therefore sub-sampled from the 250mL glass jars. Valid sub-sampling procedures were applied so as to ensure that the sub-samples to be analysed accurately represented the samples received.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Authorised by:

Rhys Thomas Senior Analyst-Asbestos (NSW)

Glenn Jackson
National Operations Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Uncertainty data is available on request

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Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Tim Gunns**

Report **518936-W-V2**
Project name AUSTRAL PHASE 2
Project ID 1601114B
Received Date Oct 07, 2016

Client Sample ID			**R1**	**R2**
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S16-Oc07116**	**S16-Oc07117**
Date Sampled			**Oct 05, 2016**	**Oct 05, 2016**
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1	< 0.1
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total	0.003	mg/L	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	103	105
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.01	mg/L	< 0.01	< 0.01
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05	< 0.05
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02	< 0.02
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001

Client Sample ID			R1	R2
Sample Matrix			**Water**	**Water**
Eurofins | mgt Sample No.			**S16-Oc07116**	**S16-Oc07117**
Date Sampled			**Oct 05, 2016**	**Oct 05, 2016**
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Total PAH*	0.001	mg/L	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	73	64
p-Terphenyl-d14 (surr.)	1	%	73	59
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1
Heavy Metals				
Arsenic	0.001	mg/L	< 0.001	< 0.001
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002
Chromium	0.001	mg/L	< 0.001	< 0.001
Copper	0.001	mg/L	< 0.001	< 0.001
Lead	0.001	mg/L	< 0.001	< 0.001
Mercury	0.0001	mg/L	< 0.0001	< 0.0001
Nickel	0.001	mg/L	< 0.001	< 0.001
Zinc	0.005	mg/L	< 0.005	< 0.005

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B9			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Oct 13, 2016	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Sydney	Oct 10, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 10, 2016	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Sydney	Oct 13, 2016	7 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Oct 13, 2016	7 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Sydney	Oct 10, 2016	28 Day
- Method: LTM-MET-3040 Metals in Waters by ICP-MS			

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1547	**Received:**	Oct 7, 2016 5:25 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	518936	**Due:**	Oct 14, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	C1	Oct 05, 2016		Soil	S16-Oc07063					X	X		X		
2	S1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07064			X							
3	S2/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07065			X							
4	C2	Oct 05, 2016		Soil	S16-Oc07066					X	X		X		
5	S3/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07067			X							
6	S4/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07068			X							
7	C3	Oct 05, 2016		Soil	S16-Oc07069					X	X		X		
8	S5/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07070			X							
9	S6/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07071			X							
10	C4	Oct 05, 2016		Soil	S16-Oc07072					X	X		X		

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Warriewood
NSW 2102

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Project ID: 1601114B

Order No.: PO1547
Report #: 518936
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Oct 7, 2016 5:25 PM
Due: Oct 14, 2016
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
11	S7/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07073			X							
12	S8/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07074			X							
13	C5	Oct 05, 2016		Soil	S16-Oc07075					X	X		X		
14	S9/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07076			X							
15	S10/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07077			X							
16	C6	Oct 05, 2016		Soil	S16-Oc07078					X	X		X		
17	S11/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07079			X							
18	S12/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07080			X							
19	C7	Oct 05, 2016		Soil	S16-Oc07081					X	X		X		
20	S13/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07082			X							
21	S14/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07083			X							
22	C8	Oct 05, 2016		Soil	S16-Oc07084					X	X		X		

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Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
23	S15/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07085			X							
24	S16/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07086			X							
25	C9	Oct 05, 2016		Soil	S16-Oc07087					X	X		X		
26	S17/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07088			X							
27	S18/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07089			X							
28	C10	Oct 05, 2016		Soil	S16-Oc07090					X	X		X		
29	S19/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07091			X							
30	S20/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07092			X							
31	C11	Oct 05, 2016		Soil	S16-Oc07093					X	X		X		
32	S21/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07094			X							
33	S22/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07095			X							
34	C12	Oct 05, 2016		Soil	S16-Oc07096					X	X		X		

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Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
35	S23/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07097			X							
36	S24/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07098			X							
37	SS1	Oct 05, 2016		Soil	S16-Oc07099	X							X	X	
38	SS2	Oct 05, 2016		Soil	S16-Oc07100	X			X				X		
39	SS3	Oct 05, 2016		Soil	S16-Oc07101	X			X				X		
40	SS4	Oct 05, 2016		Soil	S16-Oc07102	X			X				X		
41	SS5	Oct 05, 2016		Soil	S16-Oc07103	X			X				X		
42	SS6	Oct 05, 2016		Soil	S16-Oc07104	X						X	X		
43	SS7	Oct 05, 2016		Soil	S16-Oc07105	X						X	X		
44	SS8	Oct 05, 2016		Soil	S16-Oc07106	X							X	X	
45	SS9	Oct 05, 2016		Soil	S16-Oc07107	X							X	X	
46	SS10	Oct 05, 2016		Soil	S16-Oc07108	X							X	X	

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Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
47	BH1/0.1-0.2	Oct 06, 2016		Soil	S16-Oc07109							X	X	X	
48	SS1/0.0-0.15	Oct 05, 2016		Other	S16-Oc07110	X									
49	S21/0.0-0.15	Oct 05, 2016		Other	S16-Oc07111	X									
50	DS2	Oct 05, 2016		Soil	S16-Oc07112		X								
51	AC1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07113	X									
52	SP1/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07114								X		X
53	SP2/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07115								X		X
54	R1	Oct 05, 2016		Water	S16-Oc07116									X	
55	R2	Oct 05, 2016		Water	S16-Oc07117									X	
56	DS2	Oct 05, 2016		Soil	S16-Oc08760					X	X		X		
Test Counts						13	1	24	4	13	13	3	26	7	2

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	114			70-130	Pass	
TRH C10-C14	%	95			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	100			70-130	Pass	
Toluene	%	105			70-130	Pass	
Ethylbenzene	%	105			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
o-Xylene	%	107			70-130	Pass	
Xylenes - Total	%	104			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	95			70-130	Pass	
TRH C6-C10	%	101			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	126			70-130	Pass	
Acenaphthylene	%	114			70-130	Pass	
Anthracene	%	128			70-130	Pass	
Benz(a)anthracene	%	106			70-130	Pass	
Benzo(a)pyrene	%	97			70-130	Pass	
Benzo(b&j)fluoranthene	%	83			70-130	Pass	
Benzo(g.h.i)perylene	%	125			70-130	Pass	
Benzo(k)fluoranthene	%	106			70-130	Pass	
Chrysene	%	115			70-130	Pass	
Dibenz(a.h)anthracene	%	109			70-130	Pass	
Fluoranthene	%	119			70-130	Pass	
Fluorene	%	121			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	114			70-130	Pass	
Naphthalene	%	130			70-130	Pass	
Phenanthrene	%	130			70-130	Pass	
Pyrene	%	122			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	93			70-130	Pass	
Cadmium	%	96			70-130	Pass	
Chromium	%	99			70-130	Pass	
Copper	%	97			70-130	Pass	
Lead	%	100			70-130	Pass	
Mercury	%	97			70-130	Pass	
Nickel	%	91			70-130	Pass	
Zinc	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S16-Oc07118	NCP	%	96			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S16-Oc07118	NCP	%	89			70-130	Pass	
Toluene	S16-Oc07118	NCP	%	94			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Ethylbenzene	S16-Oc07118	NCP	%	94			70-130	Pass	
m&p-Xylenes	S16-Oc07118	NCP	%	92			70-130	Pass	
o-Xylene	S16-Oc07118	NCP	%	94			70-130	Pass	
Xylenes - Total	S16-Oc07118	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S16-Oc07118	NCP	%	75			70-130	Pass	
TRH C6-C10	S16-Oc07118	NCP	%	85			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	S16-Oc06733	NCP	%	121			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S16-Oc06733	NCP	%	126			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C10-C14	S16-Oc06732	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S16-Oc06732	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S16-Oc06732	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S16-Oc06732	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S16-Oc06732	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S16-Oc06732	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S16-Oc07117	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S16-Oc07117	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S16-Oc07117	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S16-Oc07117	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S16-Oc07117	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S16-Oc07117	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total	S16-Oc07117	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S16-Oc07117	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S16-Oc07117	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	

Comments

This report has been revised to amend Sample ID for sample S16-Oc07111.

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Nibha Vaidya	Analytical Services Manager
Ryan Hamilton	Senior Analyst-Organic (NSW)
Ryan Hamilton	Senior Analyst-Volatile (NSW)

Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

CHAIN OF CUSTODY

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St. Warriewood
NSW 2102
ABN: 86 116 112 936
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Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: Austral Phase 2
Project Number: 1601114B
Date Submitted: 07-10-16

Purchase Order No: PO1547
Quote Reference: 161006GLX 518936
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	HOLD	COMPOSITE	OCP/M8	B9	B7	ASBESTOS ID	LEAD	VOC
	S1/0.0-0.15	05-10-16	X					Composite with S2/0.0-0.15		X						
	S2/0.0-0.15	05-10-16	X					Composite with S1/0.0-0.15		X						
	S3/0.0-0.15	05-10-16	X					Composite with S4/0.0-0.15		X						
	S4/0.0-0.15	05-10-16	X					Composite with S3/0.0-0.15		X						
	S5/0.0-0.15	05-10-16	X					Composite with S6/0.0-0.15		X						
	S6/0.0-0.15	05-10-16	X					Composite with S5/0.0-0.15		X						
	S7/0.0-0.15	05-10-16	X					Composite with S8/0.0-0.15		X						
	S8/0.0-0.15	05-10-16	X					Composite with S7/0.0-0.15		X						
	S9/0.0-0.15	05-10-16	X					Composite with S10/0.0-0.15		X						
	S10/0.0-0.15	05-10-16	X					Composite with S9/0.0-0.15		X						
	S11/0.0-0.15	05-10-16	X					Composite with S12/0.0-0.15		X						
	S12/0.0-0.15	05-10-16	X					Composite with S11/0.0-0.15		X						
	S13/0.0-0.15	05-10-16	X					Composite with S14/0.0-0.15		X						
	S14/0.0-0.15	05-10-16	X					Composite with S13/0.0-0.15		X						
	S15/0.0-0.15	05-10-16	X					Composite with S16/0.0-0.15		X						
	S16/0.0-0.15	05-10-16	X					Composite with S15/0.0-0.15		X						
	S17/0.0-0.15	05-10-16	X					Composite with S18/0.0-0.15		X						
	S18/0.0-0.15	05-10-16	X					Composite with S17/0.0-0.15		X						
	S19/0.0-0.15	05-10-16	X					Composite with S20/0.0-0.15		X						
	S20/0.0-0.15	05-10-16	X					Composite with S19/0.0-0.15		X						
	S21/0.0-0.15	05-10-16	X					Composite with S22/0.0-0.15		X						

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TG Date/Time: 7-10-16 Signature:

Received by: Date/Time: 7-10-16 Signature:
Eurofins Effingt. 071016 1725.

CHAIN OF CUSTODY

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ABN: 86 116 892 936
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Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: Austral Phase 2
Project Number: 1601114B
Date Submitted: 07-10-16

Purchase Order No: PO1547
Quote Reference: 161006GLX
Invoice to: accounts@geo-logix.com.au
TAT required: STD

PTO →

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	HOLD	COMPOSITE	OCP/M8	B9	B7	ASBESTOS ID	LEAD	VOC
	S22/0.0-0.15	06-10-16	X					Composite with S21/0.0-0.15		x						
	S23/0.0-0.15	06-10-16	X					Composite with S24/0.2-0.25		X						
	S24/0.0-0.16	06-10-16	X					Composite with S23/0.0-0.15		X						
	C1	-	X					Comp of S1/S2 as above			X					
	C2	-	X					Comp of S3/S4 as above			X					
	C3	-	X					Comp of S5/S6 as above			X					
	C4	-	X					Comp of S7/S8 as above			X					
	C5	-	X					Comp of S9/S10 as above			X					
	C6	-	X					Comp of S11/S12 as above			X					
	C7	-	X					Comp of S13/S14 as above			X					
	C8	-	X					Comp of S15/S16 as above			X					
	C9	-	X					Comp of S17/S18 as above			X					
	C10	-	X					Comp of S19/S20 as above			X					
	C11	-	X					Comp of S21/S22 as above			X					
	C12	-	X					Comp of S23/S24 as above			X					
	SS1	05-10-16	X										X	X		
	SS2	05-10-16	X											X	X	
	SS3	05-10-16	X											X	X	
	SS4	05-10-16	X											X	X	
	SS5	05-10-16	X											X	X	
	SS6	05-10-16	X											X		X
	SS7	05-10-16	X											X		X
	SS8	05-10-16	X										X	X		

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TH Date/Time: 7-10-16 Signature:

Received by: Date/Time: 7-10-16 Signature:

CHAIN OF CUSTODY

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	SS9	05-10-16	X										X	X		
	SS10	05-10-16	X										X	X		
	BH1/0.1-0.2	06-10-16	X										X			X
	SS1/0.0-0.15	05-10-16					X	Fibro fragement						X		
	S21/0.0-0.15	05-10-16					X	Fibro fragement						X		
	DS2	05-10-16	X								X					
	AC1/0.0-0.15	05-10-16	X											X		
	SP1/0.3-0.35	05-10-16	X									X				
	SP2/0.3-0.35	05-10-16	X									X				
	R1	05-10-16		X									X			
	R2	06-10-16		X									X			

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TR Date/Time: 7-10-16 Signature:

Received by: Date/Time: 7-10-16 Signature:

Siamak Sobhanei

From: Nibha Vaidya
Sent: Tuesday, 11 October 2016 10:25 AM
To: !AU04_CAU001_EnviroSampleNSW
Subject: FW: Dups and Trips for Austral

Importance: High

Can you please make the below amendments? Please confirm once done.

Kind Regards,

Nibha Vaidya
Phone : +61 2 9900 8415
Mobile : +61 499 900 805
Email : NibhaVaidya@eurofins.com

From: Tim Gunns [mailto:tgunns@geo-logix.com.au]
Sent: Tuesday, 11 October 2016 10:17 AM
To: Nibha Vaidya
Subject: Dups and Trips for Austral

Hi Nibha

As discussed can you please update the following jobs in regards to the dups and trips.

1601114C

- Cancel DS2 and TS2
- Split composite C10 into a duplicate (DS2) and triplicate (TS2) #518939
- Send triplicate to Melbourne

1601114B

- Cancel DS2 and TS2
- Split composite C11 into a duplicate (DS2) and triplicate (TS2) #518936
- Send triplicate to Melbourne

Also, the Tamworth job got pushed back so I will have to pick up the sample jars tomorrow instead.

Cheers

Tim

Tim Gunns | Project Scientist
Unit 2309/4 Daydream St, Warriewood NSW 2102
T: 02 9979 1722 | M: 0411 724 429 | W: www.geo-logix.com.au

Geo-Logix
environment • geotech
Sydney | Brisbane | Canberra

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Site # 1254 & 14271

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NATA # 1261 Site # 18217

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

Sample Receipt Advice

Company name:	**Geo-Logix P/L**
Contact name:	Tim Gunns
Project name:	AUSTRAL PHASE 2
Project ID:	1601114B
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 7, 2016 5:25 PM
Eurofins | mgt reference:	**518936**

Sample information

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

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : .9 degrees Celsius.

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

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

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

☑ Appropriate sample containers have been used.

☑ Sample containers for volatile analysis received with zero headspace.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Tim Gunns - tgunns@geo-logix.com.au.

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NATA # 1261 Site # 20794

Company Name: Geo-Logix P/L
Address: Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Project Name: AUSTRAL PHASE 2
Project ID: 1601114B

Order No.: PO1547
Report #: 518936
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Oct 7, 2016 5:25 PM
Due: Oct 14, 2016
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	C1	Oct 05, 2016		Soil	S16-Oc07063					X	X		X		
2	S1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07064			X							
3	S2/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07065			X							
4	C2	Oct 05, 2016		Soil	S16-Oc07066					X	X		X		
5	S3/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07067			X							
6	S4/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07068			X							
7	C3	Oct 05, 2016		Soil	S16-Oc07069					X	X		X		
8	S5/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07070			X							
9	S6/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07071			X							
10	C4	Oct 05, 2016		Soil	S16-Oc07072					X	X		X		

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Received: Oct 7, 2016 5:25 PM
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Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
11	S7/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07073			X							
12	S8/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07074			X							
13	C5	Oct 05, 2016		Soil	S16-Oc07075					X	X		X		
14	S9/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07076			X							
15	S10/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07077			X							
16	C6	Oct 05, 2016		Soil	S16-Oc07078					X	X		X		
17	S11/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07079			X							
18	S12/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07080			X							
19	C7	Oct 05, 2016		Soil	S16-Oc07081					X	X		X		
20	S13/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07082			X							
21	S14/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07083			X							
22	C8	Oct 05, 2016		Soil	S16-Oc07084					X	X		X		

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Warriewood
NSW 2102

Project Name: AUSTRAL PHASE 2
Project ID: 1601114B

Order No.: PO1547
Report #: 518936
Phone: 02 9979 1722
Fax: 02 9979 1222

Received: Oct 7, 2016 5:25 PM
Due: Oct 14, 2016
Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
23	S15/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07085			X							
24	S16/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07086			X							
25	C9	Oct 05, 2016		Soil	S16-Oc07087					X	X		X		
26	S17/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07088			X							
27	S18/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07089			X							
28	C10	Oct 05, 2016		Soil	S16-Oc07090					X	X		X		
29	S19/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07091			X							
30	S20/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07092			X							
31	C11	Oct 05, 2016		Soil	S16-Oc07093					X	X		X		
32	S21/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07094			X							
33	S22/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07095			X							
34	C12	Oct 05, 2016		Soil	S16-Oc07096					X	X		X		

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Project Name: AUSTRAL PHASE 2
Project ID: 1601114B

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Received: Oct 7, 2016 5:25 PM
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Priority: 5 Day
Contact Name: Tim Gunns

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
35	S23/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07097			X							
36	S24/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07098			X							
37	SS1	Oct 05, 2016		Soil	S16-Oc07099	X							X	X	
38	SS2	Oct 05, 2016		Soil	S16-Oc07100	X			X				X		
39	SS3	Oct 05, 2016		Soil	S16-Oc07101	X			X				X		
40	SS4	Oct 05, 2016		Soil	S16-Oc07102	X			X				X		
41	SS5	Oct 05, 2016		Soil	S16-Oc07103	X			X				X		
42	SS6	Oct 05, 2016		Soil	S16-Oc07104	X						X	X		
43	SS7	Oct 05, 2016		Soil	S16-Oc07105	X						X	X		
44	SS8	Oct 05, 2016		Soil	S16-Oc07106	X							X	X	
45	SS9	Oct 05, 2016		Soil	S16-Oc07107	X							X	X	
46	SS10	Oct 05, 2016		Soil	S16-Oc07108	X							X	X	

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NATA # 1261 Site # 20794

Company Name:	Geo-Logix P/L	**Order No.:**	PO1547	**Received:**	Oct 7, 2016 5:25 PM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	518936	**Due:**	Oct 14, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Asbestos Absence /Presence	CANCELLED	HOLD	Lead	Organochlorine Pesticides	Metals M8	Volatile Organics	Moisture Set	Eurofins | mgt Suite B7	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271															
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794															
External Laboratory															
47	BH1/0.1-0.2	Oct 06, 2016		Soil	S16-Oc07109							X	X	X	
48	SS1/0.0-0.15	Oct 05, 2016		Other	S16-Oc07110	X									
49	S21/0.0-0.15	Oct 05, 2016		Other	S16-Oc07111	X									
50	DS2	Oct 05, 2016		Soil	S16-Oc07112		X								
51	AC1/0.0-0.15	Oct 05, 2016		Soil	S16-Oc07113	X									
52	SP1/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07114								X		X
53	SP2/0.3-0.35	Oct 05, 2016		Soil	S16-Oc07115								X		X
54	R1	Oct 05, 2016		Water	S16-Oc07116									X	
55	R2	Oct 05, 2016		Water	S16-Oc07117									X	
56	DS2	Oct 05, 2016		Soil	S16-Oc08760					X	X		X		
Test Counts						13	1	24	4	13	13	3	26	7	2

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Certificate of Analysis

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: **Tim Gunns**

Report **515294-S**
Project name 80 EDMONDSON AVE
Project ID 1601067
Received Date Sep 12, 2016

Client Sample ID			**TS1**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M16-Se10507**
Date Sampled			**Sep 09, 2016**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-36 (Total)	50	mg/kg	< 50
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	55
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene[N02]	0.5	mg/kg	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5

Client Sample ID			TS1
Sample Matrix			Soil
Eurofins | mgt Sample No.			M16-Se10507
Date Sampled			Sep 09, 2016
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	93
p-Terphenyl-d14 (surr.)	1	%	84
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	0.30
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Dibutylchlorendate (surr.)	1	%	140
Tetrachloro-m-xylene (surr.)	1	%	120
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
Heavy Metals			
Arsenic	2	mg/kg	14
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	16
Copper	5	mg/kg	16
Lead	5	mg/kg	22
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	7.7
Zinc	5	mg/kg	56
% Moisture	1	%	28

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Eurofins | mgt Suite B9			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Sep 13, 2016	14 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
BTEX	Melbourne	Sep 13, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 13, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Polycyclic Aromatic Hydrocarbons	Melbourne	Sep 13, 2016	14 Day
- Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons			
Organochlorine Pesticides	Melbourne	Sep 13, 2016	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Melbourne	Sep 13, 2016	14 Day
- Method: TRH C6-C40 - LTM-ORG-2010			
Metals M8	Melbourne	Sep 13, 2016	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Sep 12, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

Company Name:	Geo-Logix P/L	**Order No.:**	PO1498	**Received:**	Sep 12, 2016 8:10 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	515294	**Due:**	Sep 19, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	80 EDMONDSON AVE				
Project ID:	1601067				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TS1	Sep 09, 2016		Soil	M16-Se10507	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

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

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Nephelometric Turbidity Units

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	89			70-130	Pass	
TRH C10-C14	%	97			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	92			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	94			70-130	Pass	
m&p-Xylenes	%	93			70-130	Pass	
Xylenes - Total	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	108			70-130	Pass	
TRH C6-C10	%	86			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	95			70-130	Pass	
Acenaphthylene	%	105			70-130	Pass	
Anthracene	%	92			70-130	Pass	
Benz(a)anthracene	%	97			70-130	Pass	
Benzo(a)pyrene	%	81			70-130	Pass	
Benzo(b&j)fluoranthene	%	97			70-130	Pass	
Benzo(g.h.i)perylene	%	78			70-130	Pass	
Benzo(k)fluoranthene	%	77			70-130	Pass	
Chrysene	%	92			70-130	Pass	
Dibenz(a.h)anthracene	%	97			70-130	Pass	
Fluoranthene	%	79			70-130	Pass	
Fluorene	%	98			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	86			70-130	Pass	
Naphthalene	%	98			70-130	Pass	
Phenanthrene	%	117			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Pyrene	%	75			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	104			70-130	Pass	
4.4'-DDE	%	100			70-130	Pass	
4.4'-DDT	%	95			70-130	Pass	
a-BHC	%	106			70-130	Pass	
Aldrin	%	114			70-130	Pass	
b-BHC	%	102			70-130	Pass	
d-BHC	%	111			70-130	Pass	
Dieldrin	%	111			70-130	Pass	
Endosulfan I	%	107			70-130	Pass	
Endosulfan II	%	98			70-130	Pass	
Endosulfan sulphate	%	104			70-130	Pass	
Endrin	%	103			70-130	Pass	
Endrin aldehyde	%	96			70-130	Pass	
Endrin ketone	%	118			70-130	Pass	
g-BHC (Lindane)	%	108			70-130	Pass	
Heptachlor	%	97			70-130	Pass	
Heptachlor epoxide	%	106			70-130	Pass	
Hexachlorobenzene	%	94			70-130	Pass	
Methoxychlor	%	102			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	100			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Cadmium	%	102			80-120	Pass	
Chromium	%	104			80-120	Pass	
Copper	%	112			80-120	Pass	
Lead	%	101			80-120	Pass	
Mercury	%	96			75-125	Pass	
Nickel	%	101			80-120	Pass	
Zinc	%	90			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	M16-Se10333	NCP	%	101			70-130	Pass	
TRH C10-C14	M16-Se10769	NCP	%	94			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	M16-Se10333	NCP	%	94			70-130	Pass	
Toluene	M16-Se10333	NCP	%	100			70-130	Pass	
Ethylbenzene	M16-Se10333	NCP	%	102			70-130	Pass	
m&p-Xylenes	M16-Se10333	NCP	%	102			70-130	Pass	
o-Xylene	M16-Se10333	NCP	%	103			70-130	Pass	
Xylenes - Total	M16-Se10333	NCP	%	102			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M16-Se10333	NCP	%	115			70-130	Pass	
TRH C6-C10	M16-Se10333	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Acenaphthene	M16-Se10427	NCP	%	94			70-130	Pass	
Acenaphthylene	M16-Se10427	NCP	%	103			70-130	Pass	
Anthracene	M16-Se10427	NCP	%	87			70-130	Pass	
Benz(a)anthracene	M16-Se10427	NCP	%	110			70-130	Pass	
Benzo(a)pyrene	M16-Se10427	NCP	%	91			70-130	Pass	
Benzo(b&j)fluoranthene	M16-Se10427	NCP	%	79			70-130	Pass	
Benzo(g.h.i)perylene	M16-Se10427	NCP	%	111			70-130	Pass	
Benzo(k)fluoranthene	M16-Se10427	NCP	%	97			70-130	Pass	
Chrysene	M16-Se10427	NCP	%	84			70-130	Pass	
Dibenz(a.h)anthracene	M16-Se10427	NCP	%	123			70-130	Pass	
Fluoranthene	M16-Se10427	NCP	%	103			70-130	Pass	
Fluorene	M16-Se10427	NCP	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	M16-Se10427	NCP	%	113			70-130	Pass	
Naphthalene	M16-Se10427	NCP	%	int			70-130	Fail	Q08
Phenanthrene	M16-Se10427	NCP	%	103			70-130	Pass	
Pyrene	M16-Se10427	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	Z16-Se13181	NCP	%	124			70-130	Pass	
4.4'-DDE	Z16-Se13181	NCP	%	115			70-130	Pass	
4.4'-DDT	Z16-Se13181	NCP	%	104			70-130	Pass	
a-BHC	Z16-Se13181	NCP	%	119			70-130	Pass	
Aldrin	Z16-Se13181	NCP	%	123			70-130	Pass	
b-BHC	Z16-Se13181	NCP	%	119			70-130	Pass	
d-BHC	Z16-Se13181	NCP	%	128			70-130	Pass	
Dieldrin	Z16-Se13181	NCP	%	125			70-130	Pass	
Endosulfan I	Z16-Se13181	NCP	%	113			70-130	Pass	
Endosulfan II	Z16-Se13181	NCP	%	107			70-130	Pass	
Endosulfan sulphate	Z16-Se13181	NCP	%	116			70-130	Pass	
Endrin	Z16-Se13181	NCP	%	117			70-130	Pass	
Endrin aldehyde	Z16-Se13181	NCP	%	102			70-130	Pass	
Endrin ketone	Z16-Se13181	NCP	%	126			70-130	Pass	
g-BHC (Lindane)	Z16-Se13181	NCP	%	123			70-130	Pass	
Heptachlor	Z16-Se13181	NCP	%	107			70-130	Pass	
Heptachlor epoxide	Z16-Se13181	NCP	%	113			70-130	Pass	
Hexachlorobenzene	Z16-Se13181	NCP	%	105			70-130	Pass	
Methoxychlor	Z16-Se13181	NCP	%	111			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M16-Se10769	NCP	%	96			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M16-Se10336	NCP	%	85			75-125	Pass	
Cadmium	M16-Se10336	NCP	%	81			75-125	Pass	
Chromium	M16-Se10336	NCP	%	85			75-125	Pass	
Copper	M16-Se10336	NCP	%	91			75-125	Pass	
Lead	M16-Se10336	NCP	%	81			75-125	Pass	
Mercury	M16-Se10326	NCP	%	94			70-130	Pass	
Nickel	M16-Se10336	NCP	%	77			75-125	Pass	
Zinc	M16-Se10326	NCP	%	82			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M16-Se10767	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M16-Se10768	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M16-Se10768	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M16-Se10768	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M16-Se10767	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M16-Se10767	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M16-Se10767	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M16-Se10767	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M16-Se10767	NCP	mg/kg	0.2	0.1	41	30%	Fail	Q15
Xylenes - Total	M16-Se10767	NCP	mg/kg	0.4	< 0.3	42	30%	Fail	Q15
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M16-Se10767	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M16-Se10767	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M16-Se10426	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M16-Se10404	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-BHC	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Heptachlor	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M16-Se10404	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M16-Se10404	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	M16-Se10768	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	M16-Se10768	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	M16-Se10768	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M16-Se10336	NCP	mg/kg	10	10	2.0	30%	Pass	
Cadmium	M16-Se10336	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M16-Se10336	NCP	mg/kg	6.4	6.4	<1	30%	Pass	
Copper	M16-Se10336	NCP	mg/kg	15	15	1.0	30%	Pass	
Lead	M16-Se10336	NCP	mg/kg	15	14	3.0	30%	Pass	
Mercury	M16-Se10326	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M16-Se10336	NCP	mg/kg	14	15	5.0	30%	Pass	
Zinc	M16-Se10336	NCP	mg/kg	42	42	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M16-Se10426	NCP	%	22	21	6.0	30%	Pass	

Quality Control Analyte Summary Compliance

The table below is the actual occurrence of QC performed on the batch of samples within this report and as defined below

Analysis	Samples Analysed	Laboratory Duplicates Reported	Laboratory Matrix Spikes Reported	Method Blanks Reported	Laboratory Control Samples Reported
BTEX	1	1	1	1	1
Total Recoverable Hydrocarbons - 1999 NEPM	1	1	1	1	1
Total Recoverable Hydrocarbons - 2013 NEPM	1	1	1	1	1
Polycyclic Aromatic Hydrocarbons	1	1	1	1	1
Organochlorine Pesticides	1	1	1	1	1
Heavy Metals	1	1	1	1	1
% Moisture	1	1	NA	NA	NA

Quality Control Parameter Frequency Compliance follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure April 2011, Schedule B3, Guideline on Laboratory Analysis of Potentially Contaminated Soils and US EPA SW-846 Chapter 1: 'Quality Control'.

It comprises the following when a laboratory process batch is deemed to consist of up to 20 samples that are similar in terms of matrix and test procedure, and are processed as one unit for QC purposes. If more than 20 samples are being processed, they are considered as more than one batch.

Method blank

One method blank per process batch.

Laboratory duplicate

There should be at least one duplicate per process batch, or two duplicates if the process batch exceeds 10 samples.

Laboratory control sample (LCS)

There should be at least one LCS per process batch.

Matrix spikes

There should be one matrix spike per matrix type per process batch.

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference
Q15	The RPD reported passes Eurofins | mgt's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised By

Nibha Vaidya	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

CHAIN OF CUSTODY

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102
ABN: 86 116 892 936
P: (02) 9979 1722

Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: 80 Edmondson Ave
Project Number: 160067 Date Submitted: 9-9-16

Purchase Order No: PO14928
Quote Reference: n/a
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	B9	HOLD	Asbestos
	TS1		X					send to melb as triplicate	X		

Eurofins | MGT Suite Codes	
B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: Ben Poole Date/Time: 9/9/16 Signature:

Received by: khuyag Date/Time: Signature:

Rec: Siamak 9.9.16

DANIEL WRIGHT #515294 12092016

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Sample Receipt Advice

Company name:	**Geo-Logix P/L**
Contact name:	Tim Gunns
Project name:	80 EDMONDSON AVE
Project ID:	1601067
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Sep 12, 2016 8:10 AM
Eurofins | mgt reference:	**515294**

Sample information

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

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 9.8 degrees Celsius.

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

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

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

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Tim Gunns - tgunns@geo-logix.com.au.

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Melbourne
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NATA # 1261 Site # 18217

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1498	**Received:**	Sep 12, 2016 8:10 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	515294	**Due:**	Sep 19, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	80 EDMONDSON AVE				
Project ID:	1601067				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	Eurofins | mgt Suite B9
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X
Sydney Laboratory - NATA Site # 18217							
Brisbane Laboratory - NATA Site # 20794							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	TS1	Sep 09, 2016		Soil	M16-Se10507	X	X
Test Counts						1	1

eurofins | mgt

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Tim Gunns**

Report **519059-S**
Project name AUSTRAL PHASE 2
Project ID 1601114B
Received Date Oct 11, 2016

Client Sample ID			**TS2 - COMP**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M16-Oc12555**
Date Sampled			**Not Provided**
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	0.08
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Dibutylchlorendate (surr.)	1	%	148
Tetrachloro-m-xylene (surr.)	1	%	68
Heavy Metals			
Arsenic	2	mg/kg	35
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	89
Copper	5	mg/kg	36
Lead	5	mg/kg	74
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	11
Zinc	5	mg/kg	49
% Moisture	1	%	12

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Organochlorine Pesticides	Melbourne	Oct 14, 2016	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
Metals M8	Melbourne	Oct 14, 2016	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Oct 14, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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NATA # 1261 Site # 18217

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1548	**Received:**	Oct 11, 2016 8:30 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	519059	**Due:**	Oct 18, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Organochlorine Pesticides	Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TS2	Not Provided		Soil	M16-Oc08611	X			
2	TS2 - COMP	Not Provided		Soil	M16-Oc12555		X	X	X
Test Counts						1	1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	129			70-130	Pass	
4.4'-DDE	%	98			70-130	Pass	
4.4'-DDT	%	92			70-130	Pass	
a-BHC	%	109			70-130	Pass	
Aldrin	%	116			70-130	Pass	
b-BHC	%	106			70-130	Pass	
d-BHC	%	114			70-130	Pass	
Dieldrin	%	109			70-130	Pass	
Endosulfan I	%	121			70-130	Pass	
Endosulfan II	%	115			70-130	Pass	
Endosulfan sulphate	%	125			70-130	Pass	
Endrin	%	109			70-130	Pass	
Endrin aldehyde	%	119			70-130	Pass	
Endrin ketone	%	113			70-130	Pass	
g-BHC (Lindane)	%	111			70-130	Pass	
Heptachlor	%	103			70-130	Pass	
Heptachlor epoxide	%	122			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene			%	105			70-130	Pass	
Methoxychlor			%	94			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	108			80-120	Pass	
Cadmium			%	119			80-120	Pass	
Chromium			%	110			80-120	Pass	
Copper			%	108			80-120	Pass	
Lead			%	111			80-120	Pass	
Mercury			%	109			75-125	Pass	
Nickel			%	109			80-120	Pass	
Zinc			%	108			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	A16-Oc06428	NCP	%	123			70-130	Pass	
4.4'-DDE	A16-Oc06428	NCP	%	127			70-130	Pass	
4.4'-DDT	A16-Oc06428	NCP	%	88			70-130	Pass	
a-BHC	A16-Oc06428	NCP	%	118			70-130	Pass	
Aldrin	A16-Oc06428	NCP	%	121			70-130	Pass	
b-BHC	A16-Oc06428	NCP	%	113			70-130	Pass	
d-BHC	A16-Oc06428	NCP	%	125			70-130	Pass	
Dieldrin	A16-Oc06428	NCP	%	118			70-130	Pass	
Endosulfan I	A16-Oc06428	NCP	%	122			70-130	Pass	
Endosulfan II	A16-Oc06428	NCP	%	116			70-130	Pass	
Endosulfan sulphate	A16-Oc06428	NCP	%	127			70-130	Pass	
Endrin	A16-Oc06428	NCP	%	116			70-130	Pass	
Endrin aldehyde	A16-Oc06428	NCP	%	120			70-130	Pass	
Endrin ketone	A16-Oc06428	NCP	%	130			70-130	Pass	
g-BHC (Lindane)	A16-Oc06428	NCP	%	119			70-130	Pass	
Heptachlor	A16-Oc06428	NCP	%	113			70-130	Pass	
Heptachlor epoxide	A16-Oc06428	NCP	%	127			70-130	Pass	
Hexachlorobenzene	A16-Oc06428	NCP	%	113			70-130	Pass	
Methoxychlor	A16-Oc06428	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M16-Oc12206	NCP	%	108			75-125	Pass	
Cadmium	M16-Oc12206	NCP	%	108			75-125	Pass	
Chromium	M16-Oc12206	NCP	%	102			75-125	Pass	
Copper	M16-Oc12206	NCP	%	116			75-125	Pass	
Lead	M16-Oc12206	NCP	%	113			75-125	Pass	
Mercury	M16-Oc12206	NCP	%	119			70-130	Pass	
Nickel	M16-Oc12206	NCP	%	102			75-125	Pass	
Zinc	M16-Oc12206	NCP	%	118			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M16-Oc12555	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M16-Oc12555	CP	mg/kg	0.08	0.09	4.0	30%	Pass	
4.4'-DDT	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
b-BHC	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M16-Oc12555	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M16-Oc12204	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M16-Oc12204	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M16-Oc12204	NCP	mg/kg	8.1	7.0	14	30%	Pass	
Copper	M16-Oc12204	NCP	mg/kg	5.7	5.7	1.0	30%	Pass	
Lead	M16-Oc12204	NCP	mg/kg	< 5	5.1	9.0	30%	Pass	
Mercury	M16-Oc12204	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M16-Oc12204	NCP	mg/kg	6.8	6.0	13	30%	Pass	
Zinc	M16-Oc12204	NCP	mg/kg	21	22	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M16-Oc12830	NCP	%	15	13	10	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

CHAIN OF CUSTODY

Geo-Logix

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722

Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: Austral Phase 2
Project Number: 1601114B
Date Submitted: 07-10-16

Purchase Order No: PO1548
Quote Reference: 161006GLX
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	HOLD	COMPOSITE	OCP/M8	B9
	TS2	05-10-16	X					END TO MELBOURNE AS TRIPLICAT			X	

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TG Date/Time: 7-10-16 Signature:

Received by: Date/Time: 7-10-16 Signature:

PAMBL WRIGHT 11/10/16 #619059

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

Melbourne
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Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

Sydney
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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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

Sample Receipt Advice

Company name:	**Geo-Logix P/L**
Contact name:	Tim Gunns
Project name:	AUSTRAL PHASE 2
Project ID:	1601114B
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 11, 2016 8:30 AM
Eurofins | mgt reference:	**519059**

Sample information

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

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 11.9 degrees Celsius.

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

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

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

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Tim Gunns - tgunns@geo-logix.com.au.

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1548	**Received:**	Oct 11, 2016 8:30 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	519059	**Due:**	Oct 18, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Organochlorine Pesticides	Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TS2	Not Provided		Soil	M16-Oc08611	X			
2	TS2 - COMP	Not Provided		Soil	M16-Oc12555		X	X	X
Test Counts						1	1	1	1

eurofins | mgt

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

Attention: **Tim Gunns**

Report **519059-S**
Project name AUSTRAL PHASE 2
Project ID 1601114B
Received Date Oct 11, 2016

Client Sample ID			**TS2 - COMP**
Sample Matrix			**Soil**
Eurofins | mgt Sample No.			**M16-Oc12555**
Date Sampled			**Not Provided**
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	0.08
4.4'-DDT	0.05	mg/kg	< 0.05
a-BHC	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-BHC	0.05	mg/kg	< 0.05
d-BHC	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-BHC (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	1	mg/kg	< 1
Dibutylchlorendate (surr.)	1	%	148
Tetrachloro-m-xylene (surr.)	1	%	68
Heavy Metals			
Arsenic	2	mg/kg	35
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	89
Copper	5	mg/kg	36
Lead	5	mg/kg	74
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	11
Zinc	5	mg/kg	49
% Moisture	1	%	12

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Organochlorine Pesticides	Melbourne	Oct 14, 2016	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			
Metals M8	Melbourne	Oct 14, 2016	28 Days
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
% Moisture	Melbourne	Oct 14, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Organochlorine Pesticides	Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TS2	Not Provided		Soil	M16-Oc08611	X			
2	TS2 - COMP	Not Provided		Soil	M16-Oc12555		X	X	X
Test Counts						1	1	1	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
4.4'-DDD	%	129			70-130	Pass	
4.4'-DDE	%	98			70-130	Pass	
4.4'-DDT	%	92			70-130	Pass	
a-BHC	%	109			70-130	Pass	
Aldrin	%	116			70-130	Pass	
b-BHC	%	106			70-130	Pass	
d-BHC	%	114			70-130	Pass	
Dieldrin	%	109			70-130	Pass	
Endosulfan I	%	121			70-130	Pass	
Endosulfan II	%	115			70-130	Pass	
Endosulfan sulphate	%	125			70-130	Pass	
Endrin	%	109			70-130	Pass	
Endrin aldehyde	%	119			70-130	Pass	
Endrin ketone	%	113			70-130	Pass	
g-BHC (Lindane)	%	111			70-130	Pass	
Heptachlor	%	103			70-130	Pass	
Heptachlor epoxide	%	122			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene			%	105			70-130	Pass	
Methoxychlor			%	94			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	108			80-120	Pass	
Cadmium			%	119			80-120	Pass	
Chromium			%	110			80-120	Pass	
Copper			%	108			80-120	Pass	
Lead			%	111			80-120	Pass	
Mercury			%	109			75-125	Pass	
Nickel			%	109			80-120	Pass	
Zinc			%	108			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	A16-Oc06428	NCP	%	123			70-130	Pass	
4.4'-DDE	A16-Oc06428	NCP	%	127			70-130	Pass	
4.4'-DDT	A16-Oc06428	NCP	%	88			70-130	Pass	
a-BHC	A16-Oc06428	NCP	%	118			70-130	Pass	
Aldrin	A16-Oc06428	NCP	%	121			70-130	Pass	
b-BHC	A16-Oc06428	NCP	%	113			70-130	Pass	
d-BHC	A16-Oc06428	NCP	%	125			70-130	Pass	
Dieldrin	A16-Oc06428	NCP	%	118			70-130	Pass	
Endosulfan I	A16-Oc06428	NCP	%	122			70-130	Pass	
Endosulfan II	A16-Oc06428	NCP	%	116			70-130	Pass	
Endosulfan sulphate	A16-Oc06428	NCP	%	127			70-130	Pass	
Endrin	A16-Oc06428	NCP	%	116			70-130	Pass	
Endrin aldehyde	A16-Oc06428	NCP	%	120			70-130	Pass	
Endrin ketone	A16-Oc06428	NCP	%	130			70-130	Pass	
g-BHC (Lindane)	A16-Oc06428	NCP	%	119			70-130	Pass	
Heptachlor	A16-Oc06428	NCP	%	113			70-130	Pass	
Heptachlor epoxide	A16-Oc06428	NCP	%	127			70-130	Pass	
Hexachlorobenzene	A16-Oc06428	NCP	%	113			70-130	Pass	
Methoxychlor	A16-Oc06428	NCP	%	94			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	M16-Oc12206	NCP	%	108			75-125	Pass	
Cadmium	M16-Oc12206	NCP	%	108			75-125	Pass	
Chromium	M16-Oc12206	NCP	%	102			75-125	Pass	
Copper	M16-Oc12206	NCP	%	116			75-125	Pass	
Lead	M16-Oc12206	NCP	%	113			75-125	Pass	
Mercury	M16-Oc12206	NCP	%	119			70-130	Pass	
Nickel	M16-Oc12206	NCP	%	102			75-125	Pass	
Zinc	M16-Oc12206	NCP	%	118			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	M16-Oc12555	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M16-Oc12555	CP	mg/kg	0.08	0.09	4.0	30%	Pass	
4.4'-DDT	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-BHC	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
b-BHC	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-BHC	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-BHC (Lindane)	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M16-Oc12555	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M16-Oc12555	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	M16-Oc12204	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	M16-Oc12204	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	M16-Oc12204	NCP	mg/kg	8.1	7.0	14	30%	Pass	
Copper	M16-Oc12204	NCP	mg/kg	5.7	5.7	1.0	30%	Pass	
Lead	M16-Oc12204	NCP	mg/kg	< 5	5.1	9.0	30%	Pass	
Mercury	M16-Oc12204	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	M16-Oc12204	NCP	mg/kg	6.8	6.0	13	30%	Pass	
Zinc	M16-Oc12204	NCP	mg/kg	21	22	3.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M16-Oc12830	NCP	%	15	13	10	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

CHAIN OF CUSTODY

Geo-Logix

Geo-Logix Pty Ltd
Building Q2, Level 3 Unit 2309/4
Daydream St, Warriewood
NSW 2102

ABN: 86 116 892 936

P: (02) 9979 1722

Project Manager: Tim Gunns
Contact Email: tgunns@geo-logix.com.au
Project Name: Austral Phase 2
Project Number: 1601114B
Date Submitted: 07-10-16

Purchase Order No: PO1548
Quote Reference: 161006GLX
Invoice to: accounts@geo-logix.com.au
TAT required: STD

ANALYSIS REQUIRED

Lab ID	Sample ID	Date	Matrix: Soil	Water	Air	Paint / ACM	Other	Comments	HOLD	COMPOSITE	OCP/M8	B9
	TS2	05-10-16	X					END TO MELBOURNE AS TRIPLICAT			X	

Eurofins | MGT Suite Codes

B1	TRH/BTEXN
B1A	TRH/MAH
B2	TRH/BTEXN/Pb
B2A	TRH/MAH/Pb
B3	PAH/Phenols
B4	TRH/BTEXN/PAH
B4A	TRH/BTEXN/PAH/Phenols
B5	TRH/BTEXN/M7
B6	TRH/BTEXN/M8
B7	TRH/BTEXN/PAH/M8
B7A	TRH/BTEXN/PAH/Phenols/M8
B8	TRH/VOC/PAH/M8
B9	TRH/BTEXN/PAH/OCP/M8
B10	TRH/BTEXN/PAH/OCP/OPP/M8
B11	Na/K/Ca/Mg/Cl/SO4/CO3/HCO3/NH3/NO3
B11A	B11/Alkalinity
B11B	B11/EC/TDS
B12	TRH/BTEXN/Oxygenates/Ethanol
B12A	TRH/BTEXN/Oxygenates
B13	OCP/PCB
B14	OCP/OPP
B15	OCP/OPP/PCB
B16	TDS/SO4/CH4/Alk/BOD/COD/HPC/CUB
B17	SO4/NO3/Fe++/HPC/CUB
B18	Cl-/SO4/pH
B19	N/P/K
B20	CEC/%ESP/Ca/Ma/Na/K
R21	%Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay

CHAIN OF CUSTODY

Relinquished by: TG Date/Time: 7-10-16 Signature:

Received by: Date/Time: 7-10-16 Signature:

PAMBL WRIGHT 11/10/16 #619059

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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Phone : +61 3 8564 5000
NATA # 1261
Site # 1254 & 14271

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

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

Sample Receipt Advice

Company name:	**Geo-Logix P/L**
Contact name:	Tim Gunns
Project name:	AUSTRAL PHASE 2
Project ID:	1601114B
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 11, 2016 8:30 AM
Eurofins | mgt reference:	**519059**

Sample information

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

☑ Sample Temperature of a random sample selected from the batch as recorded by Eurofins | mgt Sample Receipt : 11.9 degrees Celsius.

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

☑ COC has been completed correctly.

☑ Attempt to chill was evident.

☑ Appropriately preserved sample containers have been used.

☑ All samples were received in good condition.

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

☑ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to Tim Gunns - tgunns@geo-logix.com.au.

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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NATA # 1261 Site # 18217

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NATA # 1261 Site # 20794

Company Name:	Geo-Logix P/L	**Order No.:**	PO1548	**Received:**	Oct 11, 2016 8:30 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	519059	**Due:**	Oct 18, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						HOLD	Organochlorine Pesticides	Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	TS2	Not Provided		Soil	M16-Oc08611	X			
2	TS2 - COMP	Not Provided		Soil	M16-Oc12555		X	X	X
Test Counts						1	1	1	1

Certificate of Analysis

Geo-Logix P/L
Bld Q2 Level 3, 2309/4 Daydream St
Warriewood
NSW 2102

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Tim Gunns**

Report **519965-S**
Project name ADDITIONAL: AUSTRAL PHASE 2
Project ID 1601114B
Received Date Oct 14, 2016

Client Sample ID			**S4/0.0-0.15**	**S22/0.0-0.15**
Sample Matrix			**Soil**	**Soil**
Eurofins | mgt Sample No.			**S16-Oc15458**	**S16-Oc15459**
Date Sampled			**Oct 05, 2016**	**Oct 05, 2016**
Test/Reference	LOR	Unit		
% Clay	1	%	11	15
Conductivity (1:5 aqueous extract at 25°C)	5	uS/cm	130	33
pH (units)(1:5 soil:CaCl2 extract)	0.1	pH Units	5.1	4.9
Total Organic Carbon	0.1	%	5.6	4.6
% Moisture	1	%	13	12
Heavy Metals				
Iron	20	mg/kg	21000	58000
Heavy Metals				
Iron (%)	0.01	%	2.1	5.8
Ion Exchange Properties				
Cation Exchange Capacity	0.05	meq/100g	19	13

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
NEPM Screen for Soil Classification			
% Clay	Brisbane	Oct 19, 2016	6 Day
- Method: LTM-GEN-7040			
Conductivity (1:5 aqueous extract at 25°C)	Sydney	Oct 19, 2016	7 Day
- Method: LTM-INO-4030			
pH (units)(1:5 soil:CaCl2 extract)	Sydney	Oct 19, 2016	7 Day
- Method: LTM-GEN-7090 pH in soil by ISE			
Total Organic Carbon	Melbourne	Oct 19, 2016	28 Day
- Method: APHA 5310B Total Organic Carbon			
Heavy Metals	Sydney	Oct 20, 2016	180 Day
- Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)			
Ion Exchange Properties	Melbourne	Oct 19, 2016	
% Moisture	Sydney	Oct 18, 2016	14 Day
- Method: LTM-GEN-7080 Moisture			

ABN – 50 005 085 521 e.mail : EnviroSales@eurofins.com web : www.eurofins.com.au

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NATA # 1261 Site # 18217

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1547	**Received:**	Oct 14, 2016 10:45 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	519965	**Due:**	Oct 21, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	Tim Gunns
Project Name:	ADDITIONAL: AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	NEPM Screen for Soil Classification
Melbourne Laboratory - NATA Site # 1254 & 14271							X
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	S4/0.0-0.15	Oct 05, 2016		Soil	S16-Oc15458	X	X
2	S22/0.0-0.15	Oct 05, 2016		Soil	S16-Oc15459	X	X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
% Clay	%	< 1			1	Pass	
Conductivity (1:5 aqueous extract at 25°C)	uS/cm	< 5			5	Pass	
Total Organic Carbon	%	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Iron	mg/kg	< 20			20	Pass	
Method Blank							
Ion Exchange Properties							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
% Clay	%	110			70-130	Pass	
Total Organic Carbon	%	99			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Iron	%	91			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
% Clay	S16-Se23761	NCP	%	28	28	3.0	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C)	S16-Oc15381	NCP	uS/cm	100	110	4.0	30%	Pass	
Total Organic Carbon	S16-Oc15461	NCP	%	3.6	3.4	4.0	30%	Pass	
% Moisture	S16-Oc15458	CP	%	13	12	12	30%	Pass	

Comments

Sample Integrity

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

Authorised By

Nibha Vaidya	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Jonathon Angell	Senior Analyst-Inorganic (QLD)
Ryan Hamilton	Senior Analyst-Inorganic (NSW)

Glenn Jackson
National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

579965

Esther Yew

From: Nibha Vaidya
Sent: Friday, 14 October 2016 10:45 AM
To: !AU04_CAU001_EnviroSampleNSW
Subject: Geologix - Additional Analysis

Additional R21 suite (% Fe/ CEC/ pH(CaCl2)/ TOC/ % Clay Content) for the following samples please. Analysis on the discrete samples.

Report	Samples
518931	S4 0.2-0.3
	S23 0.0-0.15
518936	S4 0.0-.15
	S22 0-.15
518939	S4 0-0.15
	S21 0-0.15

Cheers!

Kind Regards,

esther
14/10/16
10:45am

Nibha Vaidya
Analytical Services Manager

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Unit F3, Parkview Building
16 Mars Road
LANE COVE WEST NSW 2066
AUSTRALIA
Phone : +61 2 9900 8415
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Email : NibhaVaidya@eurofins.com
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NATA # 1261 Site # 18217

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

Sample Receipt Advice

Company name:	**Geo-Logix P/L**
Contact name:	-INVOICES cc'd
Project name:	ADDITIONAL: AUSTRAL PHASE 2
Project ID:	1601114B
COC number:	Not provided
Turn around time:	5 Day
Date/Time received:	Oct 14, 2016 10:45 AM
Eurofins | mgt reference:	**519965**

Sample information

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

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

☒ COC has been completed correctly.

☒ Attempt to chill was evident.

☒ Appropriately preserved sample containers have been used.

☒ All samples were received in good condition.

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

☒ Appropriate sample containers have been used.

☒ Some samples have been subcontracted.

N/A Custody Seals intact (if used).

Notes

Additional from report 518936

Contact notes

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

Nibha Vaidya on Phone : +61 (2) 9900 8400 or by e.mail: NibhaVaidya@eurofins.com

Results will be delivered electronically via e.mail to -INVOICES cc'd - accounts@geo-logix.com.au.

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Site # 1254 & 14271

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NATA # 1261 Site # 18217

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

Company Name:	Geo-Logix P/L	**Order No.:**	PO1547	**Received:**	Oct 14, 2016 10:45 AM
Address:	Bld Q2 Level 3, 2309/4 Daydream St Warriewood NSW 2102	**Report #:**	519965	**Due:**	Oct 21, 2016
		Phone:	02 9979 1722	**Priority:**	5 Day
		Fax:	02 9979 1222	**Contact Name:**	-INVOICES cc'd
Project Name:	ADDITIONAL: AUSTRAL PHASE 2				
Project ID:	1601114B				

Eurofins | mgt Analytical Services Manager : Nibha Vaidya

Sample Detail						Moisture Set	NEPM Screen for Soil Classification
Melbourne Laboratory - NATA Site # 1254 & 14271							X
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							X
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	S4/0.0-0.15	Oct 05, 2016		Soil	S16-Oc15458	X	X
2	S22/0.0-0.15	Oct 05, 2016		Soil	S16-Oc15459	X	X
Test Counts						2	2

ATTACHMENT G

Normal UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:43:24 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic

General Statistics

Total Number of Observations	12	Number of Distinct Observations	9
Number of Detects	8	Number of Non-Detects	4
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	5.3	Minimum Non-Detect	2
Maximum Detect	17	Maximum Non-Detect	2
Variance Detects	18.25	Percent Non-Detects	33.33%
Mean Detects	8.475	SD Detects	4.272
Median Detects	6.7	CV Detects	0.504
Skewness Detects	1.499	Kurtosis Detects	1.264
Mean of Logged Detects	2.046	SD of Logged Detects	0.434

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.774	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.304	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	6.317	Standard Error of Mean	1.379
SD	4.468	95% KM (BCA) UCL	8.667
95% KM (t) UCL	8.793	95% KM (Percentile Bootstrap) UCL	8.567
95% KM (z) UCL	8.585	95% KM Bootstrap t UCL	9.656
90% KM Chebyshev UCL	10.45	95% KM Chebyshev UCL	12.33
97.5% KM Chebyshev UCL	14.93	99% KM Chebyshev UCL	20.04

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.983	Mean in Log Scale	1.364
SD in Original Scale	5.016	SD in Log Scale	1.065
95% t UCL (Assumes normality)	8.584	95% H-Stat UCL	18.28

DL/2 is not a recommended method, provided for comparisons and historical reasons

Suggested UCL to Use

95% KM (t) UCL	8.793	95% KM (Percentile Bootstrap) UCL	8.567

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Normal UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:46:14 PM
From File	WorkSheet_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Chromium

General Statistics

Total Number of Observations	12	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	13	Mean	28.17
Maximum	49	Median	23
SD	12.49	SD of logged Data	0.452
Coefficient of Variation	0.443	Skewness	0.417

Normal GOF Test

Shapiro Wilk Test Statistic	0.876	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.244	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	34.64	95% Adjusted-CLT UCL (Chen-1995)	34.56
		95% Modified-t UCL (Johnson-1978)	34.71

Suggested UCL to Use

95% Student's-t UCL	34.64

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:47:49 PM
From File	WorkSheet_b.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Copper

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	11	Mean	24.92
Maximum	58	Median	20.5
SD	13.51	Std. Error of Mean	3.901
Coefficient of Variation	0.542	Skewness	1.527

Normal GOF Test

Shapiro Wilk Test Statistic	0.858	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.189	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	31.92	95% Adjusted-CLT UCL (Chen-1995)	33.17
		95% Modified-t UCL (Johnson-1978)	32.21

Gamma GOF Test

A-D Test Statistic	0.312	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.153	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.548	k star (bias corrected MLE)	3.467
Theta hat (MLE)	5.478	Theta star (bias corrected MLE)	7.188
nu hat (MLE)	109.2	nu star (bias corrected)	83.2
MLE Mean (bias corrected)	24.92	MLE Sd (bias corrected)	13.38
		Approximate Chi Square Value (0.05)	63.18
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	60.52

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	32.81	95% Adjusted Gamma UCL (use when n<50)	34.25

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.971	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.127	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data appear Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	2.398				Mean of logged Data		3.102
60					Maximum of Logged Data	4.06				SD of logged Data		0.483
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	34.04				90% Chebyshev (MVUE) UCL		35.31
64					95% Chebyshev (MVUE) UCL	40.1				97.5% Chebyshev (MVUE) UCL		46.75
65					99% Chebyshev (MVUE) UCL	59.82						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data appear to follow a Discernible Distribution at 5% Significance Level											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	31.33				95% Jackknife UCL		31.92
72					95% Standard Bootstrap UCL	31.2				95% Bootstrap-t UCL		36.65
73					95% Hall's Bootstrap UCL	56.99				95% Percentile Bootstrap UCL		31.75
74					95% BCA Bootstrap UCL	32.92						
75					90% Chebyshev(Mean, Sd) UCL	36.62				95% Chebyshev(Mean, Sd) UCL		41.92
76					97.5% Chebyshev(Mean, Sd) UCL	49.28				99% Chebyshev(Mean, Sd) UCL		63.73
77												
78	Suggested UCL to Use											
79					95% Student's-t UCL	31.92						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:48:46 PM
From File	WorkSheet_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Lead

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	25	Mean	40.75
Maximum	69	Median	34
SD	14.33	Std. Error of Mean	4.138
Coefficient of Variation	0.352	Skewness	0.975

Normal GOF Test

Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	48.18	95% Adjusted-CLT UCL (Chen-1995)	48.8
		95% Modified-t UCL (Johnson-1978)	48.38

Gamma GOF Test

A-D Test Statistic	0.533	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.73	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.255	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.245	Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	9.84	k star (bias corrected MLE)	7.435
Theta hat (MLE)	4.141	Theta star (bias corrected MLE)	5.481
nu hat (MLE)	236.2	nu star (bias corrected)	178.4
MLE Mean (bias corrected)	40.75	MLE Sd (bias corrected)	14.94
		Approximate Chi Square Value (0.05)	148.6
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	144.4

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	48.95	95% Adjusted Gamma UCL (use when n<50)	50.36

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.237	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data appear Lognormal at 5% Significance Level											
57												
58	Lognormal Statistics											
59					Minimum of Logged Data	3.219				Mean of logged Data		3.656
60					Maximum of Logged Data	4.234				SD of logged Data		0.328
61												
62	Assuming Lognormal Distribution											
63					95% H-UCL	49.56				90% Chebyshev (MVUE) UCL		52.34
64					95% Chebyshev (MVUE) UCL	57.64				97.5% Chebyshev (MVUE) UCL		64.99
65					99% Chebyshev (MVUE) UCL	79.42						
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data appear to follow a Discernible Distribution at 5% Significance Level											
69												
70	Nonparametric Distribution Free UCLs											
71					95% CLT UCL	47.56				95% Jackknife UCL		48.18
72					95% Standard Bootstrap UCL	47.25				95% Bootstrap-t UCL		50.44
73					95% Hall's Bootstrap UCL	49.11				95% Percentile Bootstrap UCL		47.42
74					95% BCA Bootstrap UCL	48						
75					90% Chebyshev(Mean, Sd) UCL	53.16				95% Chebyshev(Mean, Sd) UCL		58.79
76					97.5% Chebyshev(Mean, Sd) UCL	66.59				99% Chebyshev(Mean, Sd) UCL		81.92
77												
78	Suggested UCL to Use											
79					95% Student's-t UCL	48.18						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:55:39 PM
From File	WorkSheet_d.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Mercury

General Statistics

Total Number of Observations	12	Number of Distinct Observations	3
Number of Detects	2	Number of Non-Detects	10
Number of Distinct Detects	2	Number of Distinct Non-Detects	1
Minimum Detect	0.09	Minimum Non-Detect	0.05
Maximum Detect	0.15	Maximum Non-Detect	0.05
Variance Detects	0.0018	Percent Non-Detects	83.33%
Mean Detects	0.12	SD Detects	0.0424
Median Detects	0.12	CV Detects	0.354
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	-2.153	SD of Logged Detects	0.361

Warning: Data set has only 2 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0617	Standard Error of Mean	0.0118
SD	0.0288	95% KM (BCA) UCL	N/A
95% KM (t) UCL	0.0828	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	0.081	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	0.097	95% KM Chebyshev UCL	0.113
97.5% KM Chebyshev UCL	0.135	99% KM Chebyshev UCL	0.179

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	15.66	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.00766	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	62.64	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.579	nu hat (KM)	109.9
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (109.89, α)	86.69	Adjusted Chi Square Value (109.89, β)	83.55
95% Gamma Approximate KM-UCL (use when n>=50)	0.0782	95% Gamma Adjusted KM-UCL (use when n<50)	0.0811

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

	A	B	C	D	E	F	G	H	I	J	K	L
56												
57	Lognormal ROS Statistics Using Imputed Non-Detects											
58					Mean in Original Scale	0.0338				Mean in Log Scale		-4.061
59					SD in Original Scale	0.044				SD in Log Scale		1.231
60			95% t UCL (assumes normality of ROS data)			0.0566				95% Percentile Bootstrap UCL		0.0563
61					95% BCA Bootstrap UCL	0.0628				95% Bootstrap t UCL		0.0948
62					95% H-UCL (Log ROS)	0.128						
63												
64	DL/2 Statistics											
65			DL/2 Normal						DL/2 Log-Transformed			
66					Mean in Original Scale	0.0408				Mean in Log Scale		-3.433
67					SD in Original Scale	0.0391				SD in Log Scale		0.608
68			95% t UCL (Assumes normality)			0.0611				95% H-Stat UCL		0.059
69	DL/2 is not a recommended method, provided for comparisons and historical reasons											
70												
71	Nonparametric Distribution Free UCL Statistics											
72	Data do not follow a Discernible Distribution at 5% Significance Level											
73												
74	Suggested UCL to Use											
75					95% KM (t) UCL	0.0828				95% KM (% Bootstrap) UCL		N/A
76	Warning: One or more Recommended UCL(s) not available!											
77												
78	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
79	Recommendations are based upon data size, data distribution, and skewness.											
80	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
81	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
82												

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:56:57 PM
From File	WorkSheet_e.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Nickel

General Statistics

Total Number of Observations	12	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	5.6	Mean	8.425
Maximum	14	Median	7.95
SD	2.814	Std. Error of Mean	0.812
Coefficient of Variation	0.334	Skewness	0.952

Normal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.194	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	9.884	95% Adjusted-CLT UCL (Chen-1995)	10
		95% Modified-t UCL (Johnson-1978)	9.921

Gamma GOF Test

A-D Test Statistic	0.512	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.73	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.187	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.245	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.77	k star (bias corrected MLE)	8.135
Theta hat (MLE)	0.782	Theta star (bias corrected MLE)	1.036
nu hat (MLE)	258.5	nu star (bias corrected)	195.2
MLE Mean (bias corrected)	8.425	MLE Sd (bias corrected)	2.954
		Approximate Chi Square Value (0.05)	163.9
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	159.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	10.04	95% Adjusted Gamma UCL (use when n<50)	10.31

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.907	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.17	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

56	Data appear Lognormal at 5% Significance Level										
57											
58	Lognormal Statistics										
59				Minimum of Logged Data	1.723				Mean of logged Data	2.084	
60				Maximum of Logged Data	2.639				SD of logged Data	0.315	
61											
62	Assuming Lognormal Distribution										
63				95% H-UCL	10.15				90% Chebyshev (MVUE) UCL	10.73	
64				95% Chebyshev (MVUE) UCL	11.78				97.5% Chebyshev (MVUE) UCL	13.23	
65				99% Chebyshev (MVUE) UCL	16.09						
66											
67	Nonparametric Distribution Free UCL Statistics										
68	Data appear to follow a Discernible Distribution at 5% Significance Level										
69											
70	Nonparametric Distribution Free UCLs										
71				95% CLT UCL	9.761				95% Jackknife UCL	9.884	
72				95% Standard Bootstrap UCL	9.705				95% Bootstrap-t UCL	10.42	
73				95% Hall's Bootstrap UCL	10.63				95% Percentile Bootstrap UCL	9.742	
74				95% BCA Bootstrap UCL	9.967						
75				90% Chebyshev(Mean, Sd) UCL	10.86				95% Chebyshev(Mean, Sd) UCL	11.97	
76				97.5% Chebyshev(Mean, Sd) UCL	13.5				99% Chebyshev(Mean, Sd) UCL	16.51	
77											
78	Suggested UCL to Use										
79				95% Student's-t UCL	9.884						
80											
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)										
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.										
84	For additional insight the user may want to consult a statistician.										
85											

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	24/10/2016 3:57:49 PM
From File	WorkSheet_f.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Zinc

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	19	Mean	60.5
Maximum	280	Median	38
SD	72.06	Std. Error of Mean	20.8
Coefficient of Variation	1.191	Skewness	3.005

Normal GOF Test

Shapiro Wilk Test Statistic	0.574	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.336	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	97.86	95% Adjusted-CLT UCL (Chen-1995)	114
		95% Modified-t UCL (Johnson-1978)	100.9

Gamma GOF Test

A-D Test Statistic	0.931	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.745	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.232	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.588	k star (bias corrected MLE)	1.246
Theta hat (MLE)	38.1	Theta star (bias corrected MLE)	48.54
nu hat (MLE)	38.11	nu star (bias corrected)	29.91
MLE Mean (bias corrected)	60.5	MLE Sd (bias corrected)	54.19
		Approximate Chi Square Value (0.05)	18.42
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	17.06

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	98.22	95% Adjusted Gamma UCL (use when n<50)	106.1

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.881	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.162	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

56	Data appear Lognormal at 5% Significance Level										
57											
58	Lognormal Statistics										
59				Minimum of Logged Data	2.944				Mean of logged Data	3.756	
60				Maximum of Logged Data	5.635				SD of logged Data	0.762	
61											
62	Assuming Lognormal Distribution										
63				95% H-UCL	101.8				90% Chebyshev (MVUE) UCL	93.94	
64				95% Chebyshev (MVUE) UCL	111.3				97.5% Chebyshev (MVUE) UCL	135.5	
65				99% Chebyshev (MVUE) UCL	182.9						
66											
67	Nonparametric Distribution Free UCL Statistics										
68	Data appear to follow a Discernible Distribution at 5% Significance Level										
69											
70	Nonparametric Distribution Free UCLs										
71				95% CLT UCL	94.72				95% Jackknife UCL	97.86	
72				95% Standard Bootstrap UCL	92.7				95% Bootstrap-t UCL	190.9	
73				95% Hall's Bootstrap UCL	238.3				95% Percentile Bootstrap UCL	96	
74				95% BCA Bootstrap UCL	120.4						
75				90% Chebyshev(Mean, Sd) UCL	122.9				95% Chebyshev(Mean, Sd) UCL	151.2	
76				97.5% Chebyshev(Mean, Sd) UCL	190.4				99% Chebyshev(Mean, Sd) UCL	267.5	
77											
78	Suggested UCL to Use										
79				95% Adjusted Gamma UCL	106.1						
80											
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)										
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.										
84	For additional insight the user may want to consult a statistician.										
85											

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