
Detailed Contamination Assessment

51,134 & 146 Station
Street, Lochinvar NSW

NEW21P-0129-AD
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Executive Summary

Qualtest Laboratory NSW Pty Ltd (Qualtest) has carried out a Detailed Contamination Assessment (DCA) for McCloy Project Management Pty Ltd (McCloy) for the site located at 51, 134 and 146 Station Lane, Lochinvar, NSW (the site). Figure 1, Appendix A, shows the site location.

The site covers an area of approximately 78ha and comprises Lot 3 DP564631, Lot 4 DP634523 and part Lot 2 DP634523. The site is currently used for rural residential purposes.

Geotesta Pty Ltd (Geotesta) completed a Contamination Site Investigation (CSI) Report (ref: NE526-Rev1, dated 1 July 2021) for the site, which also included the western portion of Lot 2 DP634523 (not included in the current site). Qualtest carried out an Addendum Contamination Assessment (CA) on the site in September 2021 (ref: NEW21P-0129-AB, dated 8 September 2021). The CA (Qualtest, 2021) identified four Areas of Environmental Concern (AECs) based on the CSI (Geotesta, 2021), and additional site history and site observations. The AEC's related to: Current and former buildings across the site; Imported Fill; Former crops/ farming; and Septic Tanks. The preliminary CSM indicated that soil and surface water contamination may exist on the site, and that complete exposure pathways may currently exist to current and future site users and the environment. Based on this, Qualtest (2021) recommended a Detailed Contamination Assessment be carried out on the site.

The objectives of the assessment were to:

- Assess the presence contamination in soil, sediment and surface water within the AECs previously identified at the site by Qualtest (2021);
- Update the Conceptual Site Model (CSM) for the site based on the findings of the DCA; and
- Provide recommendations for further assessments, remediation and/or management, as required.

In order to achieve the above objective, Qualtest carried out the following scope:

- Collection of soil samples from 32 test pit locations (TP01 to TP32);
- Collection of surface soil samples from 59 locations (SS1 to SS45, SS-C1 to SS-C7, and S1 to S7);
- Collection of three surface water samples (SW1 to SW3) and three sediment samples (Sed1 to Sed3) from two of the four on-site dams in the north-western and south-eastern portions of the site and Lochinvar Creek located in the north-eastern portion of the site;
- Laboratory analysis of selected soil, sediment and surface water samples from a suite of common contaminants; and,
- Data assessment and preparation of this Detailed Contamination Assessment Report.

Based on the results of the field and laboratory investigations surface sample SS1 reported concentrations of lead above the human health and ecological criteria. SS1 was collected from an area of stored metal waste in the south eastern corner of the site. Based on the results of the soil sampling a complete exposure pathway is considered to exist for human health and the environment. The contamination identified in SS1 will require remediation/management.

Surface sample Di6 reported concentrations of zinc above the adopted ecological criteria. Di6 was located in the vicinity of the former quarry. Delineation samples (Di6-1 to Di6-8) reported concentrations below the adopted criteria, indicating that the exceedance is isolated to an area <8m². There was no evidence that the zinc concentrations were impacting vegetation growth in the vicinity of the elevated zinc concentrations. As the location of the zinc exceedance is greater than 300m from the closest surface water body the risk to surface water

on the site is considered to be low. As there is little evidence that the zinc concentrations are currently having, or have had a negative impact on the environment, remediation of the zinc is not considered necessary. It is likely that remediation of the zinc, if it were to occur, would result in a net adverse impact on the environment from the use of machinery and vehicles to excavate and transport waste, and dispose to landfill.

Chromium (total) was reported above the adopted human health criteria in a number of sampling locations. The adopted human health chromium criteria is for hexavalent chromium and the analysis was conducted for total chromium, which includes trivalent and hexavalent chromium. Additional chromium speciation testing was carried out on Com1 and SS-C1 to SS-C7. The results of the speciation testing showed concentrations of chromium hexavalent below the laboratory limit of reporting. Based on the site geology and the results of the speciation testing, Qualtest considered the chromium to be trivalent, and naturally occurring.

Elevated microbiological contamination (E. Coli and thermotolerant coliforms) were reported above the adopted criteria in the six soil samples (S2 to S7) collected from surrounding septic tanks on the site. The extent of the impact from the septic tanks has not been delineated and further assessment of the septic tanks is recommended. Effluent impacted soil would require remediation and/or management. The remediation could comprise excavation and disposal to landfill or excavation and exposure to sunlight for a period of time, followed by re-sampling and validation.

Metal concentrations including chromium, copper, nickel and zinc exceeded the aquatic ecosystem guidelines in SW1 to SW3 (Dam1, Dam4 and Lochinvar Creek). Given the history of farming in the region, and that similar concentrations were identified in each dam and the creek, these concentrations of metals in the surface water are considered to represent regional background conditions.

Based on the proposed subdivision plans, included in Figure 2, Appendix B, the existing onsite dams will be removed as part of the proposed development. Based on the results, surface water in DAM 1 and DAM 4 are suitable to be irrigated across the site provided they are irrigated in areas greater than 40m from waterways, dams and/or drainage lines. The sediments in DAM 1 and DAM 4 are also suitable (from a contamination perspective) to remain onsite. It is recommended that prior to dewatering samples are also collected from the remaining dams on the site.

Based on the results of the Detailed Contamination Assessment it is considered the site can be made suitable for the proposed residential development, with the following recommendations:

- Hazardous material survey be carried out on existing site buildings if proposed to be demolished/refurbished as part of the proposed development;
- Preparation of a Remediation Action Plan (RAP) to guide the delineation, remediation and/or management of lead contamination and microbiological contamination;
- Additional surface water sampling from dams not assessed, prior to dewatering; and
- Preparation of a Construction Environmental Management Plan (CEMP) following remediation which will include an Unexpected Finds Procedure (UFP). The CEMP will be implemented during vegetation clearing and earthworks.

Provided the recommendations made within this report are implemented, it is considered that the site could be rendered suitable, from a contamination point of view, for the proposed residential development.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013).

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Appendix A - Figures: Figure 1 - Site Location Plan

Figure 2 – Proposed Subdivision Plan

Figure 3 – Site Features Plan – North Eastern Portion

Figure 4 – Site Features Plan – South Western Portion

Figure 5A – Previous Geotesta (2021) Sample Location Plan (2019)

Figure 5B – Previous Geotesta (2021) Sample Location Plan (2021)

Figure 5C – Previous Qualtest (2021) Sample Location Plan

Figure 6A – Sampling Plan – Full Site

Figure 6B – Sampling Plan – Northern Portion

Figure 6C – Sampling Plan – Central

Figure 6D – Sampling Plan - Southern

Appendix B: Tables: Table 1 – Soil Analytical Results – TRH, BTEX, PAHs, Metals, Asbestos, OCPs

Table 2 – Soil Analytical Results – Asbestos Results

Table 3 – Soil Analytical Results - Microbiological

Table 4 – Previous Composite Sampling - Analytical Results (Geotesta 2021)

Table 5 – Surface Water Analytical Results

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Appendix C: Groundwater Bore Search

Appendix D: Test Pit Logs

Appendix E: Laboratory Documentation

Appendix F: Data Validation Report

1.0 Introduction

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This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)*, NEPC 2013, Canberra (referred to as ASC NEPM 2013).

1.1 Objectives

The objectives of the assessment were to:

- Assess the presence contamination in soil, sediment and surface water within the AECs previously identified at the site by Qualtest (2021);
- Update the Conceptual Site Model (CSM) for the site based on the findings of the DCA; and
- Provide recommendations for further assessments, remediation and/or management, as required.

1.2 Scope of Works

In order to achieve the above objective, Qualtest carried out the following scope:

- Collection of soil samples from 32 test pit locations (TP01 to TP32);
- Collection of surface soil samples from 59 locations (SS1 to SS45, SS-C1 to SS-C7, and S1 to S7);
- Collection of three surface water samples (SW1 to SW3) and three sediment samples (Sed1 to Sed3) from two of the four on-site dams in the north-western and south-eastern portions of the site and Lochinvar Creek located in the north-eastern portion of the site;
- Laboratory analysis of selected soil, sediment and surface water samples from a suite of common contaminants; and,
- Data assessment and preparation of this Detailed Contamination Assessment Report.

2.0 Site Description

2.1 Site Identification

General site information is provided below in Table 2.1. The site location is shown in Figure 1, Appendix A.

Table 2.1: Summary of Site Details

Site Address:	51, 134 and 146 Station Lane, Lochinvar, NSW
Approximate site area and dimensions:	Approx. 78 ha Approx. 880m wide by 980m long across the centre.
Title Identification Details:	Lot 3 DP564631, Lot 4 DP634523 and part Lot 2 DP634523 within the Maitland local government area, Parish of Gosforth, County of Northumberland.
Current Zoning	R2 – Low density residential
Current Ownership:	UPG 77 Pty Ltd
Previous and Current Landuse:	Rural Residential
Proposed Landuse:	Low density residential
Adjoining Site Uses:	Rural residential to the south and west Residential to the north. Station Lane, followed by rural residential, to the east.
Site Coordinates for approx. centre of site:	32°42'28.83 S 151°26'52.36 E

2.2 Topography and Drainage

Reference to the NSW Land and Property Information Spatial Information Exchange website (<https://six.nsw.gov.au/wps/portal/>) indicated the elevation of the site ranged between about 35m AHD in the north-eastern corner of the site to about 50m in the central and southern portions of the site.

During the site walkover, the northern portion of the site was observed to generally slope down to Lochinvar Creek located in the north western corner of the site. The central and southern portions of the site were observed to slope down to the west and east, from a ridge located in the centre of the site, towards Lochinvar Creek located offsite to the west and along the eastern boundary of the site.

Rain falling on the site would be expected to infiltrate into the site surface. Excess surface water is expected to follow the site topography and flow into onsite dams and towards Lochinvar Creek located in the eastern and northern western portion of the site and offsite to the west. Lochinvar Creek is expected to discharge to the Hunter River, located approximately 1.7km north west of the site.

2.3 Regional Geology

Reference to the 1:100,000 Hunter Coalfield Regional Geology Sheet indicates the site to be underlain by the Dalwood Group, which is characterised by Rhyolite, acidic to basic volcanics and volcanics to pyroclastics, with some Silty Sandstone, Sandstone, Siltstone, and Conglomerate rock types.

2.4 Hydrogeology

Groundwater beneath the site is anticipated to be present in a semi-confined aquifer in residual soils/ weathered rock material and located greater than 5m below ground surface (bgs).

Groundwater flow direction is anticipated to follow the surface topography and flow towards the north west of the site and discharge into the Hunter River, located approximately 1.7km north west of the site.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

A search of the NSW Department of Primary Industries (Office of Water) registered groundwater bores located within a 500m radius of the site was undertaken. The search revealed that there were no registered bores located within this radius. A copy of the search is provided in Appendix C.

2.5 Acid Sulfate Soils

Reference to the Acid Sulfate Soil online database from State of NSW and Department of Planning, Industry and Environment, 2021 (espade.environment.nsw.gov.au) the site is located in an area of 'no known occurrence' of acid sulfate soils.

3.0 Previous Reports

3.1 Geotesta (2021) – Contamination Site Investigation

Geotesta carried out a Contamination Site investigation (CSI) on the site in June 2021 (ref: NE526-Rev1, dated 1 July 2021) which also included the western portion of Lot 2 DP634523 (not included in the current site). Relevant information available from the CSI (Geotesta, 2021) is summarised below.

Geotesta carried out a Contamination Site Investigation (CSI) on three lots: Lot 3 DP564631, Lot 4 DP634523 and Lot 2 DP634523, which covered an area of about 102ha.

The objectives of the CSI were:

".... to comply with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998 and gain a better understanding of the environmental risks associated with the site for human health and/or the environment as a result of previous and current land use. The general objective to be adhered is recommending the suitability of the site for residential development in relation to the management of contamination."

In order to achieve the above objectives, Geotesta carried out the following scope:

- *"Performing a desktop assessment of the available information on the site history from aerial photographs, historical titles search, Geological and hydrogeological review;*
- *Searching records on previous notices issued by OEH and Maitland City Council,*
- *Inspecting the site to identify the areas of environmental concerns;*
- *Undertaking soil samplings across the site, including collection of composite samples;*
- *Planning a range of laboratory environmental tests;*
- *Preparing a report summarising above."*

A summary of Geotesta (2021) site history review is summarised below:

"The results of the site history and walkover inspection indicate that the site has been used for residential and agricultural purposes since at least 1958...the site is considered to have the environmental concerns of:

- *In the areas of possible dwellings/sheds, fibrous cement sheeting (containing asbestos) may have been used during construction and sheds may currently (or have previously) stored fuel, oils, asbestos sheeting, pesticides, zinc treated (galvanised) metals, and/or lead based paints.*
- *Contaminants from unknown contents of stockpiles and general refuse may have spilled or leaked onto underlying soil.*
- *Areas of possible cropping/grass may have introduced heavy metals or pesticides to the soil.*
- *Contaminants may have washed into and accumulated in dams.*
- *Fill from unknown sources may contain contaminants which may have spilled or leaked onto underlying soil."*

Geotesta (2021) concluded the following:

- *"Concentrations of Organochlorine Pesticides/Organophosphorus Pesticides, TRH, PAH and BTEX are below the site assessment criteria. No asbestos was detected in soil samples. Arsenic concentrations above the site assessment criteria were detected in BH101 (not on the current site). Additional sampling during the data gap assessment will be required near BH101 to delineate the vertical and horizontal extent of identified Arsenic soil contamination. If the concentration of Arsenic still exceeds the site assessment criteria, a remedial action plan will be required to address the concentration exceedance.*
- *Additional sampling is required after demolition of the existing buildings and sheds to address the data gap due to limited access to the dwelling and sheds at the time of investigation.*
- *Based on the scope of works undertaken in this investigation, the site is considered suitable for the land use and proposed development provided that the limited hotspot is cleared of any Arsenic contamination." Qualtest notes that the identified arsenic contamination was not located on the current site.*

The previous Geotesta (2021) soil laboratory data is included in Tables 1 and 4, Appendix B, and the sampling locations are included on Figure 5A and 5B, Appendix B. The surface water laboratory data has not been included, as the location of the samples is not known, and therefore the data has limited value.

3.2 Qualtest (2021) – Addendum Preliminary Contamination Assessment

Qualtest completed an Addendum Preliminary Contamination Assessment (PCA)) on the site in September 2021 (ref: NEW21P-0129-AB dated 8 September 2021). Relevant information available from the Addendum PCA (Qualtest, 2021) is summarised below.

The objectives of the PCA were to provide an assessment of the likelihood for contamination to be present on the site from past uses and activities, and provide recommendations on the need for further assessment, management and/or remediation (if required).

In order to achieve the above objectives, Qualtest carried out the following scope:

- Assess current site conditions;
- Assess whether the findings of the Geotesta (2021) CSI report are appropriate; and
- Provide recommendations on the need for further assessment, if required.

In order to achieve the above objective, Qualtest carried out the following scope of work:

- Review of Geotesta CSI (2021) report;
- Site walkover;
- Collection of delineation soil samples from surrounding previously identified contamination; at Geotesta sample location Di6;
- Laboratory analysis of soil samples for zinc; and,
- Data assessment and preparation of an Addendum Contamination Assessment Report.

The site history review based on Geotesta (2021) and Qualtest PCA showed the site was used for agricultural landuse from the early 1900's until the 1990's when it was used for rural residential purposes. Based on anecdotal evidence (Geotesta, 2021) a former quarry was also previously located in the central portion of the site. The quarry is currently backfilled.

During the site walkover a number of small stockpiles of material of unknown origin or quality, concrete slabs (potentially from former buildings) and areas of fill (potential ACM, tiles, concrete, burnt plastics) were observed on the site surface surrounding the residential dwellings, particularly in Area 2 -Lot 4 DP634523. Septic tanks and soak aways were also observed.

Four Areas of Environmental Concern (AECs) were identified based on the site history and site observations:

- AEC1 – Current and former buildings across the site - Weathering of potentially hazardous materials (asbestos, lead paint, galvanised metals), potential use of pesticides, storage of vehicles, building materials, burnt plastics, potential ACM on ground surface;
- AEC 2 - Imported Fill - Potential storage and use of contaminated imported fill including backfill of Quarry;
- AEC 3 – Former crops/ farming - Potential for pesticide herbicide and other farming related contamination; and
- AEC 4 - Septic Tanks - Septic tank soak aways and adsorption trenches, potential leaks of effluent.

Geotesta (2021) carried out preliminary soil and surface water sampling (no soil sampling was completed from AEC1, AEC4 and only limited surface sampling from AEC3). Two surface water samples were also collected, however the location of these samples was not known.

As a number of errors were identified in the assessment criteria adopted by Geotesta (2021), therefore Qualtest carried out assessment of the Geotesta data to appropriate criteria, and

developed a Preliminary Conceptual Site Model (CSM). The preliminary CSM indicated that soil and surface water contamination may exist on the site, and that complete exposure pathways may currently exist to current and future site users and the environment.

Qualtest completed delineation sampling around previously identified zinc concentrations exceeding the adopted ecological criteria (Di6). The results of the delineation sampling showed concentrations below the adopted criteria.

Based on the results of the Qualtest review and delineation sampling the following was recommended:

- AEC 1 – Current and Former Buildings - No soil sampling has been completed to date. Qualtest recommended a soil assessment in accordance with NSW EPA (1995) Sampling Design Guidelines. A hazardous materials survey is also recommended on existing site buildings prior to demolition.
- AEC 2 – Imported Fill – Six surface soil samples were previously carried out by Geotesta in the vicinity of the former quarry (Di4 to Di9). Elevated zinc (above adopted ecological criteria) was identified at Di6, however delineation sampling showed area of elevated zinc was <8m² and not considered to pose a risk the environment. However, due to the limited soil sampling completed additional sampling and analysis of stockpiles/fill mounds and fill within the former quarry was recommended to sufficiently characterise the area.
- AEC 3 – Former Crops/Farming – 14 discrete soils samples (S1 to S8, BH102 to BH107) and 16 composite soil samples (Com 1 to Com 6 (June 2021) and Com 1 to Com 10 (August 2019)) were carried out across the site by Geotesta. Chromium (total) was reported above the adopted criteria in a number of sampling locations. The adopted chromium criteria is for hexavalent chromium and the analysis was conducted for total chromium, which includes trivalent and hexavalent chromium. Additional testing of COM1 by Geotesta was conducted for hexavalent chromium and was below the adopted criteria (Com1 - <5mg/kg). Based on the site geology Qualtest considered the chromium to be naturally occurring, however due to the small number of samples assessed for chromium speciation and no collection of background samples, it was recommended that additional chromium speciation/background samples be collected. With the exception of additional chromium speciation/background sampling no additional assessment was considered to be required for AEC3.
- AEC 4 – No sampling completed to date. Qualtest recommended a soil assessment in accordance with NSW EPA (1995) Sampling Design Guidelines.
- Surface Water - Concentrations of metals (chromium, copper, lead, nickel and zinc) were reported above the adopted aquatic ecosystem criteria in surface water samples W1 and W2. With the exception of copper in surface water sample W1, the surface water samples were reported below the stock watering and irrigation guidelines. The elevated metals were likely indicative of regional back ground levels. It is noted that the location of W1 and W2 is not known and additional surface water/sediment sampling was recommended (from onsite dams) prior to any dewatering and/or excavation of sediments (if proposed).

The previous Qualtest (2021) soil laboratory data is included in Table 1, Appendix B, and the sampling locations are included on Figure 5C, Appendix B.

3.3 Areas of Environmental Concern

Table 3.1 (below) shows the areas of environmental concern (AECs) and associated Chemicals of Potential Concern (COPCs) identified for the site.

Table 3.1 – Areas of Environmental Concern and Chemicals of Potential Concern

AEC	Potentially Contaminating Activity	Potential COCs	Likelihood of Contamination
1. Current and former buildings across the site	Weathering of potentially hazardous materials (asbestos, lead paint, galvanised metals) Potential use of pesticides Storage of vehicles, burnt plastics, building materials, potential ACM on ground surface	TRH, BTEX, PAH, Metals, OCPs/OPPs, Asbestos	Medium to high
2. Imported Fill	Potential storage and use of contaminated imported fill including backfill of Quarry	TRH, BTEX, PAH, Metals, Asbestos	Low to medium
3. Former crops/ farming	Potential for pesticide herbicide and other farming related contamination	TRH, BTEX, PAH, OCPs, OPPs, herbicides, metals, asbestos	Low to medium
4. Septic Tanks	Septic tank soak aways and adsorption trenches, potential leaks of effluent	Microbiological, heavy metals	Low to medium

4.0 Data Quality Objectives

4.1 Step 1 – State the Problem

There is a potential for contaminated soil and surface water from past uses to exist on site at concentrations above the residential land use criteria that could require remediation and or management.

Four AECs have been identified for the site:

1. Current and former buildings across the site - Weathering of potentially hazardous materials (asbestos, lead paint, galvanised metals), potential use of pesticide, storage of vehicles, burnt plastics, building materials, potential ACM on ground surface;
2. Imported fill - Potential storage and use of contaminated imported fill including backfill of Quarry;
3. Former crops/ farming - Potential for pesticide herbicide and other farming related contamination; and
4. Septic Tanks - Septic tank soak aways and adsorption trenches, potential leaks of effluent.

4.2 Step 2 – Identify the Decisions

The decisions to be made based on the previous assessments (site history review, site observations and limited sampling) are:

- Is the site characterisation sufficient to provide adequate confidence in the above decisions?
- Are the concentrations of COPCs above the adopted landuse criteria?
- Do potential risks associated with contamination exist, and if so, what are they?
- Will the site require remediation, and if so, what level and type of remediation will be required to make the site suitable for the proposed land use, from a contamination perspective?

4.3 Step 3 – Identify the Inputs to the Decisions

Inputs into the decision are:

- Have samples been collected in the required areas of the site (the identified AECs)?
- Have samples been collected at the required frequencies and adequately represent the conditions on site?
- Is the data set adequate to perform statistical analysis, if required (i.e. calculate 95% UCL)?
- Have the samples been analysed for the COPCs identified?
- Have concentrations exceeding the adopted criteria been reported in the samples?
- If concentrations exceeding adopted criteria have been reported, will these areas require remediation and/or management?

The informational inputs into the decision are:

- Field observations;
- Laboratory results (concentrations of contaminants in soil, surface water and sediment);
- QA/QC documentation and data;
- Adopted assessment criteria (see Section 6); and,
- Relevant NSW EPA endorsed Guidelines.

The media to be sampled and analysed is:

- Soil;
- Sediment; and
- Surface water.

4.4 Step 4 – Define the Study Boundaries

The study boundary is defined laterally as the site boundary, comprising Lot 3 DP564631, Lot 4 DP634523 and part Lot 2 DP634523, within the Maitland City local government area, Parish of Gosforth, County of Northumberland. The site is located at 51, 134 and 146 Station Lane, Lochinvar, NSW and covers an area of approximately 78 ha in size (refer to Figure 1, Appendix A). Vertically, the study boundary will be defined by the depth of soil contamination and/or depth to groundwater. It is anticipated the vertical boundary would be a maximum of 5.0m bgs.

Temporally, information and data from the previous PCA (Qualtest, 2021) including historical aerial photographs (dating back to 1976), have been referred to. Therefore, the temporal boundaries are from 1976 to 2022.

The site boundaries are shown on Figures 1, Appendix A.

4.5 Step 5 – Develop a Decision Rule

Chemicals of Potential Concern (COPCs) are identified in Section 3.1, above. The COPCs and the associated assessment criteria are listed in Section 6 below.

The decision rules can be defined as: -

- If the laboratory quality assurance/ quality control data are within the acceptable ranges, the data will be considered suitable for use;
- If the COPCs are reported above the adopted criteria and/or at elevated levels (where no criteria are available) then it will be considered whether further assessment, remediation and/or management measures are required; and
- Where concentrations are below the assessment criteria, then no further assessment, remediation and/or management of that contaminant, in that area, in that media, is required. This is provided samples have been collected at the required frequencies (as per NSW EPA guidelines) and adequately represent the conditions on site, if not, additional sampling may be required.

4.6 Step 6 – Specify Acceptable Limits on Decision Errors

There are two types of errors:

- Type 1 – finding that the site is contaminated, when it is not;
- Type 2 – finding that the site is uncontaminated, when it is.

To reduce the potential for errors, the following will be applied:

- Appropriate field sampling methodologies and collection of field data (including sampling frequency);
- Robust QA/QC assessment of field procedures and laboratory data;
- Appropriate sampling and analytical density;
- Use of statistics (i.e. 95% UCL) to assess arithmetic average of COPCs. Use of statistics will also take into account:
 - No sample should report a concentration more than 250% of the adopted criteria; and,
 - The standard deviation of a sample population should not exceed 50% of the adopted criteria.

4.7 Step 7 – Optimise the Design for Obtaining Data

The methodologies presented in this report are designed to meet the nominated DQOs.

Optimisation of the data collection process will be achieved by:

- Working closely with the analytical laboratories and sampling equipment suppliers so that appropriate procedures and processes are developed and implemented prior to and during the field work and that sampling, handling, and transport to, and processing by, the analytical laboratories is appropriate.

- Conduct sampling in accordance with industry best practice and Standard Operating Procedures (SOPs) for the type of sampling being conducted.

5.0 Field and Laboratory Investigations

5.1 Sampling Plan

The site is about 78ha in area. The NSW EPA (1995) Sampling Design Guidelines recommends a minimum of 840 sample locations to characterise a site of 78ha. Based on the site history assessment, four AEC's were identified. As the majority of the site consists of vacant grass land, a reduced scope targeting the AECs identified has been adopted. 91 soil sampling locations, three surface water sampling locations and three sediment sampling locations were carried out across the site.

As part of the DCA the following sampling activities were completed:

- Collection of soil samples from 32 test pit locations (TP01 to TP32);
- Collection of surface soil samples from 59 locations (SS1 to SS45, SS-C1 to SS-C7 and S1 to S7); and
- Collection of three surface water samples (SW1 to SW3) and three sediment samples (Sed1 to Sed3) from two on-site dams in the north-western and south-eastern portions of the site and Lochinvar Creek located in the north-eastern portion of the site.

The location of the samples in relation to the identified AECs is shown in Table 5.1 below.

Table 5.1 AECs and Sampling Locations

AEC	Potential COCs	Samples Collected	COCs analysed
1. Current and former buildings across the site	TRH, BTEX, PAH, Metals, OCPs/OPPs, Asbestos	SS1 to SS45, TP04 to TP07, TP16 to TP21, TP27	TRH, BTEX, PAH, Metals, Asbestos
2. Imported Fill	TRH, BTEX, PAH, Metals, Asbestos	TP08 to TP13, TP15, TP22 to TP26, TP30 to TP32	TRH, BTEX, PAH, Metals, Asbestos
3. Former crops/ farming	TRH, BTEX, PAH, OCPs, OPPs, herbicides, metals, asbestos	SS-C1 to SS-C7	Chromium (speciation)*
4. Septic Tanks	Microbiological, heavy metals	TP01 to TP03, TP14, TP28 and TP29, S1 to S7	Metals, microbiological

* Note for AEC 3, previous assessment of the potential COCs was carried out by Geotesta (2021). Chromium speciation was required to assess whether the chromium identified by Geotesta was hexavalent or trivalent.

The sampling locations are shown on Figure 6A to 6D, Appendix A.

5.2 Soil Sampling

5.2.1 Test pits

The test pits were excavated using a 2.7-tonne excavator equipped with a 450mm toothed bucket. The test pits were excavated at least 0.5m into natural soils, or a maximum of 2.0m bgs. Samples were collected at about 0.5m intervals in fill materials and the top of natural (residual/weathered rock) soils. Samples were collected directly from the excavator bucket. A clean pair of nitrile gloves were used when handling each sample.

Asbestos samples from the surface of the test pits were collected using the gravimetric method, comprising collection of a 10L sample, screening through a 6.7mm sieve, and weighing of potential ACM fragments (where present). A 500ml sample was also collected for assessment of asbestos fines (AF) and fibrous asbestos (FA).

The soil samples were placed into 250mL laboratory supplied glass jars and zip locked bags for laboratory analysis. Each soil sample was placed directly into an ice-chilled esky and remained chilled during fieldwork and transportation to the laboratory.

Headspace screening for volatiles contaminants using a Photo-ionisation Detector (PID) was carried out during test pitting.

5.2.2 Surface Soil Sampling

Surface samples were collected between 0.0-0.1m bgs, using hand tools. A clean pair of nitrile gloves were used when handling each sample. The hand tools were decontaminated between sampling locations using a phosphate free detergent and potable water.

Asbestos samples were collected using the gravimetric method, comprising collection of a 10L sample, screening through a 6.7mm sieve, and weighing of potential ACM fragments (where present). A 500ml sample was also collected for assessment of asbestos fines (AF) and fibrous asbestos (FA).

The soil samples were placed into laboratory supplied containers: glass jars for chemical analysis and zip-lock bags for asbestos ID analysis. Each soil sample was placed directly into an ice-chilled esky and remained chilled during fieldwork and transportation to the laboratory.

5.3 Surface Water/Sediment Sampling

Three sediment samples and three surface water samples were collected from two of the four on-site dams; Dam 1 in the north western (Sed1/SW1) and Dam 4 south eastern portion of the site (Sed3/SW3) and Lochinvar Creek (Sed2/SW2) located in the north-eastern portion of the site.

Sediment samples were collected by hand from the floor of the dams and Lochinvar Creek, and surface water samples were collected directly into laboratory supplied jars and bottles. Each sample was placed directly into an ice-chilled esky and remained chilled during transportation to the laboratory.

Field water quality readings for pH, electrical conductivity (EC), dissolved oxygen (DO), redox potential and temperature, were taken using a handheld water quality meter at each sample location.

5.4 Laboratory analysis

The samples were dispatched to the NATA-accredited Eurofins MGT laboratory under chain of custody conditions.

100 soil/sediment primary samples were selected for analysis as part of this DCA based on field observations. The soil samples were analysed for the following:

- Total Recoverable Hydrocarbons (TRH) – 23 primary samples;
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) – 23 primary samples;
- Polycyclic Aromatic Hydrocarbons (PAHs) – 23 primary samples;
- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) – 91 primary samples;
- pH and Cation Exchange Capacity (CEC) – 1 primary samples;
- Microbiological – 6 primary samples;
- Chromium (speciation) – 7 primary samples; and
- Asbestos (%w/w) – 44 primary soil samples.

Four duplicate and four triplicate samples were also analysed for heavy metals, TRHs, PAHs, and BTEX for quality control purposes.

Three surface water samples were selected for analysis as part of this DCA. The surface samples were analysed for the following:

- Total Recoverable Hydrocarbons (TRH) – 3 primary samples;
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) – 3 primary samples;
- Polycyclic Aromatic Hydrocarbons (PAHs) – 3 primary samples; and
- Metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc and mercury) – 3 primary samples.

One duplicate and one triplicate surface water sample were also analysed for heavy metals, TRHs, PAHs, BTEX for quality control purposes.

6.0 Investigation Criteria

6.1 Health and Ecological Levels (Soil)

The health and ecological investigation levels for soil, presented in the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)*, NEPC 2013, Canberra (referred to as ASC NEPM 2013) are generally used in NSW when selecting investigation levels for chemical contaminants in soil.

The purpose of the ASC NEPM (2013) is to '*establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, environmental auditors, landowners, developers and industry*'.

ASC NEPM (2013) provides health and ecological investigation and screening levels for different exposure scenarios based on a proposed land use. Health and ecological investigation and screening levels are applicable to the first stage (Tier 1) of site assessment and are used to assist in the iterative development of a Conceptual Site Model (CSM). They are adopted as concentrations of a contaminant above which either further appropriate investigation and/or evaluation will be required, or development of an appropriate management strategy (including remediation).

Health Investigation Levels (HILs) and Health Screening levels (HSLs) are applicable for assessing human health risk via relevant exposure pathways.

The HILs were developed for a broad range of metals and organic substances. These are generic to all soil types.

The HSLs have been developed for selected petroleum compounds and fractions and are applicable to assessing human health risk via inhalation and direct contact with soil and groundwater. The HSLs depend on specific soil physicochemical properties, building configurations, land use scenarios and the depth that groundwater is encountered.

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) are applicable for assessing risk to terrestrial ecosystems under residential, open space and commercial/industrial land use scenarios. They apply to the top 2m of soil, which corresponds to the root zone and habitation zone of many species.

The EILs are associated with selected metals and organic compounds. The EILs are site specific and are determined by calculating an Ambient Background Concentration (ABC) and an Added Contaminant Limit (ACL) for the site, which are added together to get the EIL. In the absence of ambient background concentration data, a generic ACL, based on the soils pH, Cation Exchange Capacity (CEC) and clay content, has been adopted.

The ESLs are associated with petroleum compounds and fractions and are dependent on specific soil physical properties (i.e. coarse and fine-grained soil).

It is noted the ESLs for benzo(a)pyrene (ASC NEPM, 2013) were adopted from Canadian Soil Quality Guidelines (SQGs) presented in Environment Canada (2004), and were noted to have a low-reliability. The ESLs for benzo(a)pyrene in ASC NEPM (2013) were based on a review of Canadian SQGs by Dr Michael Warne, who completed the review in February 2010. Since the completion of Warne (2010) (which are included in the publication of ASC NEPM, 2013), the Canadian SQGs for benzo(a)pyrene were revised later in 2010 (CCME 2010a,b). Therefore, CRC Care Technical Note 39 assesses the benzo(a)pyrene ESL derivation, and derives a higher reliability ESL for benzo(a)pyrene in the Australian setting. The ESLs for benzo(a)pyrene derived by CRC Care (2017) are 33mg/kg for residential and open space land uses, and 172mg/kg for commercial/industrial land uses. These have been considered where benzo(a)pyrene concentrations exceed the ESL, but do not exceed the HIL, to mitigate against unwarranted remediation that is driven by low-reliability ESLs.

Based on the proposed site use the investigation and screening levels for residential land use have been adopted, and are shown in Table 6.3, below and Table 1, Appendix B.

The Geotesta (2021) assessment included composite sampling. For composite sampling the HILs and HSLs have been divided by the number of subsamples in the composite (i.e 3) to provide modified criteria. The adopted modified criteria for composite samples are shown in Table 4, Appendix B.

6.2 Asbestos Materials in Soil

The assessment of known and suspected asbestos contamination in soil is based on:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra; and*
- *WA DoH 2021 Guidelines for the Assessment, Remediation and Management of Asbestos Contaminated Sites in Western Australia, WA Department of Health and Department of Environment and Conservation.*

Schedule B1, Section 4 NEPM (2013) provides guidance on the assessment of both friable and non-friable forms of asbestos in soil. This guidance is based on the WA DoH (2009, updated 2021) Guidelines that presented risk-based screening levels for asbestos in soil under various land use scenarios.

For the purpose of assessing asbestos impacts in soil, three groups are recognised:

- *Asbestos Containing Material (ACM)* - which is in sound condition although possibly broken or fragmented and the asbestos is bound in a matrix. This is restricted to material that cannot pass through a 7mm x 7mm sieve;
- *Fibrous asbestos (FA)* - friable asbestos material, such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products;
- *Asbestos fines (AF)* - includes free fibres of asbestos, small fibre bundles and also ACM fragments that pass through a 7mm x 7mm sieve.

The HSLs for residential land use have been adopted. Where asbestos sampling and analysis has been carried out on a presence/absence basis, then a criteria of "detected" will be adopted.

The adopted health screening levels for asbestos in soil, are shown in Table 6.4, below.

6.3 Microbiological Contamination

To assess microbiological contamination in soil, investigation levels were adopted from the following reference:

- NSW EPA (2000) *Environmental Guidelines: Use and Disposal of Biosolids Products* (referred to here as the Biosolids Guidelines).

The NSW EPA (2000) Biosolids Guidelines provide stabilisation grade microbiological standards for *E. coli* and faecal coliforms. These standards relate to the minimum requirements for stabilisation of biosolid products, and can be used to assess if further treatment of Biosolids is required. For assessment purposes, these standards have been adopted for this assessment.

The soil investigation levels for microbiological contamination are presented in Table 6.4, below.

6.4 Adopted Soil Criteria

The adopted assessment criteria (for residential land use) are listed in Table 6.4 below.

Table 6.4: Adopted Soil Assessment Criteria for Human Health and Environment

COC	HIL / HSL A (mg/kg) ^{1,2}	EIL / ESL A ³ (mg/kg)
TRH C6-C10 less BTEX (F1)	45	-
TRH >C10-C16 less Naphthalene (F2)	110	-
TRH >C6 - C10	-	180
TRH >C10 - C16	-	120
TRH >C16 - C34	-	1300
TRH >C34 - C40	-	5600
Benzo(a)pyrene (CRC Care)	-	33

COC	HIL / HSL A (mg/kg) ^{1,2}	EIL / ESL A ³ (mg/kg)
Carcinogenic PAH as B(a)p TEQ	3	-
Total PAHs	300	-
Arsenic	100	100
Cadmium	20	-
Chromium	100 (CrVI)	730 [^] (Cr III)
Copper	6,000	210 [^]
Lead	300	1,100
Nickel	400	220 [^]
Mercury	40	-
Zinc	7,400	570 [^]
Naphthalene	3	170
Benzene	0.5	65
Toluene	160	105
Ethylbenzene	55	125
Total Xylene	40	45
Asbestos – bonded and FA/AF	No visible asbestos for surface soils	-
Asbestos – FA and AF (Friable asbestos)	0.001%	-
Asbestos – bonded	0.01%	-
Faecal Coliforms	1000 ^{**}	-
E. Coli	100 ^{**}	-

Notes:

[^] Based on an average pH of 6.9, CEC of 14meq/100g and clay content of 60% and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, new suburbs with low traffic, 50% percentile.

^{**} NSW EPA (2000) Environmental Guidelines: Use and Disposal of Biosolids Products.

NL – Not limiting

1 – ASC NEPM (2013) - Health Investigation Levels- HILA

2 - ASC NEPM - Soil Health Screening Levels for Vapour Intrusion, Residential, SAND 0m to <1m

3 - ASC NEPM (2013) - Ecological Investigation and Screening Levels, Urban Residential/Public Open Space, fine

4 – Benzo(a)pyrene ESL derived by CRC CARE (2017)

6.4 Surface Water Investigation Levels

For assessing surface water quality, it is first necessary to assess the beneficial uses of surface water for the site and down gradient of the investigation area being assessed. Potential beneficial uses are considered to include:

- Aquatic ecosystems - discharge to surface water bodies with the nearest water bodies being Lochinvar Creek, located in the eastern and northern western portion of the site and offsite to the west. Lochinvar Creek is expected to discharge to the Hunter River, located approximately 1.7km north west of the site. Lochinvar Creek sustains freshwater ecosystems;
- Stock watering – Use of onsite Dams and Lochinvar Creek to water stock (cattle); and
- Irrigation – Potential for onsite dams and Lochinvar Creek to be used for irrigation purposes, down gradient of the site.

Given the above, the potential beneficial use of surface water is considered to be sustaining aquatic ecosystems, stock watering and irrigation.

The applicable guidelines are:

- ANZECC (2000) Australian and New Zealand Guidelines on Fresh and Marine Water Quality (Primary Industries – Stock Watering and Irrigation);
- ANZECC (2018) Australian and New Zealand Guidelines on Fresh and Marine Water Quality; and
- National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (ASC NEPM, 2013).

The trigger values for freshwater species presented in the ANZECC (2018) and ANZG (2018) (and ASC NEPM, 2013) are considered applicable for the protection of aquatic ecosystems of the receiving waters as Lochinvar Creek is a freshwater ecosystem.

ASC NEPM (2013) has adopted the trigger values for the protection of 95% of aquatic ecosystems, except where contaminants are potentially bio-accumulative in which case the trigger values for protection of 99% of species are used

6.5 Adopted Surface Water

The adopted surface water assessment criteria are listed in Table 6.5 below.

Table 6.5 – Adopted Surface Water Assessment Criteria

COC	Aquatic Ecosystem ¹ (mg/L)	Stockwatering ² (mg/L)	Irrigation ^{3##} (mg/L)
Arsenic	0.013	0.5	20
Cadmium	0.0002	0.01	0.05
Chromium	0.001	1	1
Copper	0.0014	0.4	5
Lead	0.0034	0.1	5
Mercury	0.00006	0.002	0.002

COC	Aquatic Ecosystem ¹ (mg/L)	Stockwatering ² (mg/L)	Irrigation ^{3##} (mg/L)
Nickel	0.011	1	2
Zinc	0.008	20	5
Benzene	0.95	-	-
Toluene	0.180**	-	-
Ethylbenzene	0.080**	-	-
Xylenes	0.075**a	-	-
Anthracene	0.0001**	-	-
Benzo(a)pyrene	0.0001**	-	-
Naphthalene	0.016	-	-

Notes:

**Low reliability value - ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

a. Conservatively assumes xylene is p-xylene.

Based on short-term trigger values (STV) - Short term use, up to 20 years

1. ANZECC (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

2. ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Table 4.3.2

3. ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Tables 4.2.10 and 4.2.11

7.0 Quality Assurance/Quality Control

Sampling activities were undertaken in accordance with normal, industry accepted practices and standards. The assessment of field and laboratory quality assurance / quality control (QA / QC) procedures is provided below, and a data validation report is presented in Appendix F.

In order to assess field quality assurance / quality control (QA/QC) procedures, the following quality control samples were collected and analysed:

QC Sample	Type	Laboratory	Analysis
D1.16.3.22	Duplicate of TP16 0.0-0.1	Eurofins	TRH, BTEX, PAH, Metals
T1.16.3.22	Triplicate of TP16 0.0-0.1	ALS	TRH, BTEX, PAH, Metals
D.17.3.22	Duplicate of TP22 0.0-0.1	Eurofins	TRH, BTEX, PAH, Metals
T.17.3.22	Triplicate of TP22 0.0-0.1	ALS	TRH, BTEX, PAH, Metals
D1.17.3.22	Duplicate of TP19 0.0-0.1	Eurofins	TRH, BTEX, PAH, Metals,

QC Sample	Type	Laboratory	Analysis
T1.17.3.22	Triplicate of TP19 0.0-0.1	ALS	TRH, BTEX, PAH, Metals,
D1.18.3.22	Duplicate of SS41	Eurofins	TRH, BTEX, PAH, Metals
T1.18.3.22	Triplicate of SS41	ALS	TRH, BTEX, PAH, Metals
WD.22.3.22	Duplicate of SW1	Eurofins	TRH, BTEX, PAH, Metals
WT.22.3.22	Triplicate of SW1	ALS	TRH, BTEX, PAH, Metals
WB.16.3.22	Wash Blank	Eurofins	Metals
TB.16.3.22	Trip Blank	Eurofins	BTEX

Primary and intra lab duplicate samples were analysed by the NATA-accredited Eurofins mgt laboratory.

Soil

Table 6, Appendix B, presents the relative percentage differences (RPDs) between the primary and duplicate samples. A review of the Qualtest QA / QC results indicates that RPDs were within the acceptable range with the exception of:

- Chromium in soil duplicate pairs TP22 0.0-0.1/D.17.3.22/T17.3.22, T19 0.0-0.1/D1.17.3.22/T1.17.3.22 SS1 and SS41/D1.18.3.22/T1.18.3.22 - RPDs ranging from 131% to 173%;
- Copper in soil duplicate pair SS41/D1.18.3.22 - RPD of 140%;
- Nickel in soil duplicate pairs TP19 0.0-0.1/D1.17.3.22 and SS41/D1.18.3.22/T1.18.3.22 – RPDs ranging from 133 to 164%; and
- Zinc in soil duplicate pairs TP19 0.0-0.1/D1.17.3.22/T1.17.3.22 and SS41/D1.18.3.22/T1.18.3.22 – RPDs ranging from 130% to 169%.

The RPD exceedances are considered to be due to the heterogeneous nature of the distribution of contaminants. The sample with the highest concentration has been adopted, and therefore the RPDs are not considered to affect the outcome of the assessment. It is noted that low concentrations can exaggerate the percentage differences with respect to small total concentrations, therefore where results for primary and duplicate sample were less than 10 times the LOR, the RPDs have been disregarded.

The results of the wash blank and trip blank sample are presented in Table 6, Appendix B. The results showed concentrations below the laboratory report limit for metals (wash blank) and BTEX (trip blank). This indicates that cross contamination of metals did not occur during surface soil sampling, or loss of volatiles during transport to the laboratory.

The laboratory internal QA/QC reports indicated that the appropriate laboratory QA / QC procedures and rates were undertaken for contamination studies, and that:

- Laboratory blank samples were free of contamination;
- Matrix spike recoveries were within the control limits;
- Laboratory duplicate RPDs were recorded within the control limits except for a range of metals (31-150%) and TRH C15-C28 the laboratory quoted code Q15 which states "The RPD

reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report." And Q02 which states *"The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause"*. Based on this the laboratory RPDs are not considered to affect the data; and

- Surrogates and laboratory control samples were within the laboratories acceptable range.

Based on the above, and the data validation report in Appendix F, it is considered that the field and laboratory methods for soil sampling are appropriate and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling.

Water

Table 6, Appendix B, presents the relative percentage differences (RPDs) between the primary and duplicate samples. A review of the Qualtest QA / QC results indicates that RPDs were within the acceptable range. It is noted that low concentrations can exaggerate the percentage differences with respect to small total concentrations, therefore where results for primary and duplicate sample were less than 10 times the LOR, the RPDs have been disregarded.

The laboratory internal QA/QC reports indicated that the appropriate laboratory QA / QC procedures and rates were undertaken for contamination studies, and that:

- Laboratory blank samples were free of contamination;
- Matrix spike recoveries were within the control limits;
- Laboratory duplicate RPDs were recorded within the control limits except of zinc (160%) the laboratory quoted code Q15 which states *"The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report."* Based on this the laboratory RPDs are not considered to affect the data; and,
- Surrogates and laboratory control samples were within the laboratories acceptable range.

Based on the above, and the data validation report in Appendix F, it is considered that the field and laboratory methods for soil sampling are appropriate and that the data obtained is usable and considered to reasonably represent the concentrations at the sampling points at the time of sampling.

8.0 Results

8.1 Subsurface Conditions

The soils observed during field works are summarised below in Table 8.1.1. The test pit logs are presented in Appendix D.

Table 8.1.1 – Summary of Geotechnical Units and Soil Types

Unit	Soil Type	Description
1	FILL	FILL: Sandy GRAVEL - fine to medium grained, sub-angular to angular, fine to medium grained sand, brown to grey-brown, with some blue-grey, rootlets. FILL: CLAY - medium to high plasticity, brown to dark brown, trace fine grained sand, with some sub-angular and angular gravel, root affected. FILL: Gravelly CLAY - medium plasticity, brown to dark brown, fine grained, sub-angular and angular gravel, root affected. FILL: GRAVEL - fine to medium grained, sub-angular to angular gravel, blue-grey to grey, with some fine to medium grained sand. FILL: SAND - fine to coarse grained, brown to pale brown, with some fibre glass from base of filled in pool. FILL: Silty CLAY - low to medium plasticity, brown to dark brown, with some fine to medium grained, sub-rounded gravel, root affected. FILL: Clayey GRAVEL - coarse to cobble sized rock, dark brown, fines of low to medium plasticity, with some fine to coarse grained sand. FILL: Sandy CLAY - low to medium plasticity, fine grained sand brown.
2	Topsoil	TOPSOIL: CLAY - medium plasticity, dark brown, trace fine grained, sub-rounded gravel, trace fine grained sand, root affected. TOPSOIL: Sandy CLAY – medium to high plasticity, fine-grained sand, dark brown, root affected.
3	Residual	CLAY - medium to high plasticity, dark brown, trace fine grained sand, some fine grained, sub-rounded to rounded gravel. Gravelly CLAY - medium to high plasticity, brown, fine to coarse grained, sub-angular to angular gravel. Sandy GRAVEL - fine to medium grained, angular brown, fine to coarse grained, with some fines of low plasticity, with some extremely to highly weathered rock. Clayey SAND - fine to medium grained, brown, fines of low plasticity. Sandy CLAY - medium plasticity, brown, fine to medium grained. Clayey GRAVEL - fine to coarse grained, sub-angular to angular, with some sub-rounded, fine of low to medium plasticity, pale, brown, brown to orange-brown
4	Weathered Rock	Extremely Weathered Andesite with soil properties: breaks down into Sandy CLAY - low plasticity, brown and grey brown, fine to coarse grained sand, with some fine to medium grained, angular gravel. Highly To Moderately Weathered Sandstone - brown to white and orange-brown, fine grained

Anthropogenic materials including small to trace amounts of fibreglass, glass, steel, coal chitter and plastic were observed in TP15, TP18, TP21 and TP27. Small to trace amounts of steel, wire, nails, glass, concrete, tiles and brick were also observed in surface samples SS12, SS15 to SS17, SS22, SS34, SS37, SS40 and SS42.

No groundwater inflows or water levels were encountered in the test pits during the limited time that they remained open on the day of the field investigations.

It should be noted that groundwater conditions can vary due to rainfall and other influences including regional groundwater flow, temperature, permeability, recharge areas, surface condition, and subsoil drainage.

Table 8.1.2 contains a summary of the distribution of the above geotechnical units at the test pit locations.

Table 8.1.2 – Summary of Geotechnical Units Encountered at Test Locations

Location	Unit 1 Fill	Unit 2 Topsoil	Unit 3 Residual	Unit 4 Weathered Rock
	Depth in metres (m)			
TP01	-	0.00 – 0.15	0.15 – 1.10	1.10 – 1.60
TP02	-	0.00 – 0.10	0.10 – 0.90	0.90 – 1.00
TP03	-	0.00 – 0.10	0.10 – 0.60	-
TP04	-	0.00 – 0.10	0.10 – 0.60	-
TP05	0.00 – 0.15	-	0.15 – 0.70	-
TP06	0.00 – 0.05	-	0.05 – 0.60	-
TP07	-	0.00 – 0.10	0.10 – 0.60	-
TP08	0.00 – 0.10	-	0.10 – 0.60	-
TP09	0.00 – 1.35	-	1.35 – 1.80	-
TP10	0.00 – 1.80	-	1.80 – 2.00	-
TP11	0.00 – 0.30	-	0.30 – 0.80	-
TP12	0.00 – 0.20	-	0.20 – 0.70	-
TP13	0.00 – 0.10	-	0.10 – 0.60	-
TP14	-	0.00 – 0.05	0.05 – 0.60	-
TP15	0.00 – 0.20	-	0.20 – 1.80	1.80 – 2.00
TP16	0.00 – 0.10	-	0.10 – 0.60	-
TP17	0.00 – 0.20	-	0.20 – 0.70	-
TP18	-	0.00 – 0.10	0.10 – 0.60	-
TP19	-	0.00 – 0.10	0.10 – 0.60	-
TP20	-	-	0.00 – 0.60	-
TP21	-	0.00 – 0.10	0.10 – 0.60	-
TP22	0.00 – 1.10	-		1.10 – 1.20
TP23	0.00 – 0.40	-		0.40 – 0.41
TP24	0.00 – 0.90	-	0.90 – 1.40	-
TP25	0.00 – 0.70	-	0.70 – 0.87	0.87 – 0.90
TP26	0.00 – 0.45	-		0.45 – 0.50
TP27	0.00 – 0.20	-	0.20 – 0.70	-

Location	Unit 1 Fill	Unit 2 Topsoil	Unit 3 Residual	Unit 4 Weathered Rock
	Depth in metres (m)			
TP28	0.00 – 0.30	-	0.30 – 0.80	-
TP29	-	0.00 – 0.10	0.10 – 0.60	-
TP30	0.00 – 0.75	-	0.75 – 1.30	-
TP31	0.00 – 0.75	-	0.75 – 1.30	-
TP32	0.00 – 1.90	-	1.90 – 2.00	-

8.2 Surface Water Field Parameters

The surface water quality parameters are summarised in Table 8.2 below.

Table 8.2 – Summary of Surface Water Quality Parameters

Sample Location	SW1 (Onsite dam, north- western portion of site)	SW2 (Lochinvar Creek, north-eastern portion of site)	SW3 (Onsite dam, south-eastern portion of site)
Dissolved Oxygen (mg/L)	2.30	2.25	2.25
Redox potential (mV)	254.0	247.8	208.6
Electrical conductivity (µS/cm)	114.9	89.3	100.2
pH	6.98	7.19	7.36
Temperature (°C)	23.9	23.8	24.2
Comments	Clear, slight brown tinge, No odour	Clear, slight brown tinge, No odour, slight flow	Clear, slight brown tinge, no odour

8.3 Laboratory Results

8.3.1 Soil and Sediment

Soil and sediment analytical results, including analytical results from the previous assessments (Geotesta, 2021 and Qualtest 2021) are summarised in Tables 1 to Table 4, Appendix B. The laboratory analytical reports are also included in Appendix E.

The laboratory results were compared to the investigation levels described in Sections 6. The analytical results indicated that concentrations of contaminants were reported below the adopted criteria with the exception of:

- Concentrations of copper were reported above the adopted ecological criteria (210mg/kg) in Di6 (220mg/kg);

- Concentrations of chromium (total) were reported above the adopted human health criteria of 100mg/kg (for hexavalent chromium) in samples S1 (120mg/kg), BH104 (130mg/kg), SS9 (110mg/kg), SS10 (130mg/kg), SS17 (150mg/kg), SS19 (160mg/kg), SS20 (130mg/kg), SS23 (150mg/kg), SS24 (120mg/kg), SS25 (150mg/kg), SS26 (110mg/kg), SS29 (140mg/kg), SS31 (140mg/kg), SS41 (150mg/kg), SS-C4 (170mg/kg), Sed3 (110mg/kg), TP01 0.0-0.1 (110mg/kg), TP01 0.9-1.0 (110mg/kg), TP02 0.0-0.1 (140mg/kg), TP09 0.0-0.1 (120mg/kg), TP09 0.9-1.0 (130 mg/kg), TP10 1.4-1.5 (130mg/kg), TP11 0.0-0.1 (140 mg/kg), TP14 0.0-0.05 (150mg/kg) and TP19 0.0-0.1 (150mg/kg). It is noted that the additional chromium speciation testing indicates the chromium on site is trivalent chromium, not hexavalent;
- Concentrations of chromium (total) were reported above the modified human health guideline of 33 mg/kg (for hexavalent chromium) in composite samples Com 6 June 2021 (71 mg/kg), Com 1 Aug 2019 (96mg/kg), Com 3 Aug 2019 (120mg/kg), Com 5 Aug 2019 (170mg/kg), Com 8 Aug 2019 (97mg/kg), and Com 14 Aug 2019 (110mg/kg). It is noted that the additional chromium speciation testing indicates the chromium on site is trivalent chromium, not hexavalent;
- Concentrations of lead were reported above the adopted human health and ecological criteria of 300mg/kg and 1100mg/kg (respectively) in sample SS1 (2000mg/kg);
- Concentrations of nickel were reported above the modified ecological criteria of 73 mg/kg in composite sample Com5 Aug 2019 (100mg/kg);
- Concentrations of zinc were reported above the adopted ecological criteria of 570mg/kg in Di6 (3,800 mg/kg) and SS12 (800mg/kg);
- Concentrations of E. Coli were reported above the adopted criteria of 100MPN/g in S2 (9800MPN/g), S3 (1300MPN/g), S4 (>24000MPN/g), S5 (9200MPN/g), S6 (>24000 MPN/g) and S7 (120MPN/g); and
- Concentrations of thermotolerant coliforms were reported above the adopted criteria of 1000MPN/g in S2 (>24000MPN/g), S3 (>24000MPN/g), S4 (>24000MPN/g), S5 (>24000MPN/g), S6 (>24000MPN/g) and S7 (24000PN/g).

95% Upper Confidence Limit Calculations

For concentrations of copper, nickel and zinc exceeding the adopted ecological investigation levels in surface soils, the 95% Upper Confidence Limits (UCLs) of the average concentrations for the sample results were calculated using ProUCL in accordance with the procedures discussed in NEPM (2013) Schedule B2 Section 13 and NSW EPA (1995) Sampling Design Guidelines.

NEPM (2013) Schedule B1, Section 3.2.1 states that:

- *"At the very least, the maximum and 95%UCL of the arithmetic mean contaminant concentration should be compared to the relevant Tier 1 screening criteria"*
- *"The implications of localised elevated values (hotspots) should also be considered. The results should also meet the following criteria:*
 - *The standard deviation of the results should be less than 50% of the relevant investigation or screening level, and*
 - *No single value should exceed 250% of the relevant investigation or screening level."*

It is noted that the zinc exceedance at Di6 (3800mg/kg) and lead exceedance at SS1 (2000 mg/kg) were considered hotspots (concentrations greater 250% of adopted criteria) and were not included in the UCL calculation.

Calculation sheets for data statistics, including average, standard deviation and 95%UCL of the average, are attached in Appendix E. ProUCL calculates the UCL comparing a number of different methods, including normal distribution, lognormal distribution, gamma distribution and nonparametric. ProUCL then recommends an appropriate method for the data set. It is no

The 95% UCL calculations showed:

Parameter	Zinc - EIL	Nickel (composite samples) - EIL	Copper - EIL
No. of samples	87	12	88
Average	77.67	40	25.33
Standard Deviation	110.8	24.94	27.09
95% UCL	124.4	56.54	28.02
EIL (mg/kg)	570	73 (modified EIL)	210

8.3.2 Surface water

Surface water analytical results are summarised in Table 5, Appendix B. The laboratory analytical reports are also included in Appendix E. As Qualtest could not determine the location of the previous surface water results (Geotesta, 2021), the previous results have not been included in this assessment.

The surface water analytical results were compared to the investigation levels described in Section 6.5. The analytical results indicated that concentrations of contaminants were reported below the adopted criteria with the exception of:

- Concentrations of chromium were reported above the adopted aquatic ecosystem criteria (0.001mg/L) in SW1 (0.003mg/L), SW2 (0.007mg/L) and SW3 (0.0031mg/L);
- Concentrations of copper were reported above the adopted aquatic ecosystem criteria (0.0014mg/L) in SW1 (0.01mg/L), SW2 (0.007mg/L) and SW3 (0.002mg/L);
- Concentrations of nickel were reported above the adopted aquatic ecosystem criteria (0.011mg/L) in SW1 (0.017mg/L), SW2 (0.021mg/L) and SW3 (0.012mg/L); and
- Concentrations of zinc were reported above the adopted aquatic ecosystem criteria (0.008mg/L) in SW2 (0.12mg/L) and SW3 (0.009mg/L).

9.0 Conceptual Site Model

Based on the results of the contamination assessment carried out on the site, a Conceptual Site Model (CSM) has been developed. Refer to Table 9.0, below.

Table 9.0 – Updated Conceptual Site Model Following Assessment

AEC	COPC	Likelihood of Contamination	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling completed	Potential & Complete Exposure Pathways
1. Current and former buildings across the site - Weathering of potentially hazardous materials (asbestos, lead paint, galvanised metals) - Potential use of pesticides - Storage of vehicles, burnt plastics, building materials, potential ACM on ground surface.	TRH, BTEX, PAH, Metals, OCPs/OPPs, Asbestos	Medium to high	- Top-down leaks/spills, flakes/fibres onto soil. - Leaching of soil contaminants to surface water and groundwater	- Soil - Surface water - Sediment - Groundwater	- Current site visitors - Future construction workers & site users - Soil biota/plants and transitory wildlife - Onsite surface water – dams, Lochinvar Creek located in the north western corner and eastern portion of the site - Groundwater dependent ecosystems	- Direct dermal contact with contaminated soil, surface water, sediment and/or groundwater - Ingestion of contaminated soil surface water, sediment and/or groundwater - Inhalation of asbestos fibres, or contaminated soil (as dust) - Leaching of soil contaminants to surface water and/or groundwater - Surface water and groundwater discharge from onsite to Lochinvar Creek and the Hunter River Located 1.7km north west of the site.	SS1 to SS45, TP04 to TP07, TP16 to TP21, TP27	- Lead contamination was identified in surface soil SS1 exceeding the ecological and human health guidelines. Complete exposure pathway for current and future site users, future construction workers and ecological receptors (if not remediated/ managed). - Potentially complete exposure pathway for soil contaminants to leach to onsite and offsite surface water (if not remediated/managed). - Likely incomplete exposure pathway to groundwater due to expected depth of groundwater >5.0m bgs in clayey soils - It is recommended that a Hazardous material survey be carried out on site buildings if they are proposed to be demolished/refurbished as part of the proposed development.
2. Imported Fill Potential storage and use of contaminated imported fill including backfill of Quarry	TRH, BTEX, PAH, Metals, Asbestos	Low to medium	- Top-down leaks/spills, flakes/fibres onto soil. - Leaching of soil contaminants to surface water and groundwater	- Fill soils - Underlying soils - Surface water - Sediment - Groundwater	- Current site visitors - Future construction workers & site users - Soil biota/plants and transitory wildlife - Onsite surface water – dams, Lochinvar Creek located in the north western corner and eastern portion of the site - Groundwater dependent ecosystems	- Direct dermal contact with contaminated soil, surface water, sediment and/or groundwater - Ingestion of contaminated soil surface water, sediment and/or groundwater - Inhalation of asbestos fibres, or contaminated soil (as dust) - Leaching of soil contaminants to surface water and/or groundwater - Surface water and groundwater discharge from onsite to Lochinvar Creek and the Hunter River Located 1.7km north west of the site.	Di4 to Di9 – Surface sampling carried out in the Vicinity of former quarry (Geotesta, 2021) Di6-1 to Di6-8 – Delineation of Di6 (Qualtest 2021) TP08 to TP13, TP15, TP22 to TP26, TP30 to TP32	- Zinc contamination was identified in Di6 exceeding the ecological guidelines. Delineation sampling of Di6 reported concentrations below the adopted criteria. Likely incomplete exposure pathway for ecological receptors due to localised nature (<8m2) and no evidence of plant distress (refer to Section 10.2 below). - Incomplete exposure pathway for current and future site users and future construction workers. - Likely incomplete exposure pathway for soil contaminants to leach to onsite and offsite surface water due to location of zinc contamination (>300m from onsite surface water bodies). - Incomplete exposure pathway to groundwater due to expected depth of groundwater >5.0m bgs in clayey soils

AEC	COPC	Likelihood of Contamination	Mechanism of Contamination	Potentially Affected Media	Human & Ecological Receptors	Potential mechanisms of exposure	Sampling completed	Potential & Complete Exposure Pathways
3 Former crops/ farming Potential for pesticide herbicide and other farming related contamination	TRH, BTEX, PAH, OCPs, OPPs, herbicides, metals, asbestos	Low to medium	- Top-down leaks/spills, flakes/fibres onto soil. - Leaching of soil contaminants to surface water and groundwater	- Soils - Groundwater - Surface water - Sediments	- Current site visitors - Future construction workers & site users - Soil biota/plants and transitory wildlife - Onsite surface water – dams, Lochinvar Creek located in the north western corner and eastern portion of the site - Groundwater dependent ecosystems	- Direct dermal contact with contaminated soil - Ingestion of contaminated soil - Inhalation of contaminated soil (as dust) - Leaching of soil contaminants to surface water and/or groundwater - Surface water and groundwater discharge from onsite to Lochinvar Creek and the Hunter River Located 1.7km north west of the site.	S1 to S8, BH102 to BH107, Com 1 to Com 6 (June 2021) and Com 1 to Com 10, Di6-1 to Di6-8 (Geotesta, 2021) SS-C1 to SS-C7	- Chromium (total) was reported above the adopted human health criteria in a number of sampling locations. Chromium speciation was carried out on 9 samples and hexavalent chromium was reported <LOR. Incomplete exposure pathway for human health receptors due to speciation results (refer to Section 10.2 below). - Incomplete exposure pathway for ecological receptors. - Incomplete exposure pathway for soil contaminants to leach to onsite and offsite surface water - Incomplete exposure pathway to groundwater due to expected depth of groundwater >5.0m bgs in clayey soils
4. Septic Tanks Septic tank soak aways and adsorption trenches, potential leaks of effluent	Microbiological, heavy metals	Low to Medium	- Subsurface leaks from tank - Subsurface & surface leaks from pipes and/or trenches	- Soil - Surface water - Sediment - Groundwater	- Current site visitors - Future construction workers & site users - Soil biota/plants and transitory wildlife - Onsite surface water – dams, Lochinvar Creek located in the north western corner and eastern portion of the site - Groundwater dependent ecosystems	- Direct dermal contact with contaminated soil, surface water and/or groundwater - Ingestion of contaminated soil, surface water and/or groundwater - Leaching of soil contaminants to surface water and/or groundwater - Surface water and groundwater discharge from onsite to Lochinvar Creek and the Hunter River Located 1.7km north west of the site	TP01 to TP03, TP14, TP28 and TP29, S1 to S7	- Concentrations of E.Coli and thermotolerant coliforms were reported above the adopted criteria - Complete exposure pathway for human health receptors (if not remediated/managed). - Potentially complete exposure pathway for ecological receptors (if not remediated/managed). - Potentially complete exposure pathway for soil contaminants to leach to onsite and offsite surface water (if not remediated/managed). - Incomplete exposure pathway to groundwater due to expected depth of groundwater >5.0m bgs in clayey soils

10.0 Discussion

10.1 Lead Contamination

Surface sample SS1 reported concentrations of lead above the human health and ecological criteria. SS1 was collected from an area of stored metal waste in the south eastern corner of the site. Based on the results of the soil sampling a complete exposure pathway is considered to exist for human health and the environment. The contamination identified in SS1 will require remediation/management.

10.2 Zinc Contamination

Surface sample Di6 reported concentrations of zinc above the adopted ecological criteria. Di6 was located in the vicinity of the former quarry. Delineation samples (Di6-1 to Di6-8) reported concentrations below the adopted criteria, indicating that the exceedance is isolated to an area <8m². There was no evidence that the zinc concentrations were impacting vegetation growth in the vicinity of the elevated zinc concentrations. As the location of the zinc exceedance is greater than 300m from the closest surface water body the risk to surface water on the site is considered to be low.

As there is little evidence that the zinc concentrations are currently having, or have had a negative impact on the environment, remediation of the zinc is not considered necessary. It is likely that remediation of the zinc, if it were to occur, would result in a net adverse impact on the environment from the use of machinery and vehicles to excavate and transport waste, and dispose to landfill.

10.3 Chromium Contamination

Chromium (total) was reported above the adopted human health criteria in a number of sampling locations. The adopted human health chromium criteria is for hexavalent chromium and the analysis was conducted for total chromium, which includes trivalent and hexavalent chromium. Additional chromium speciation testing was carried out on Com1 and SS-C1 to SS-C7. The results of the speciation testing showed concentrations of chromium hexavalent below the laboratory limit of reporting. Based on the site geology and the results of the speciation testing, Qualtest considered the chromium to be trivalent, and naturally occurring.

10.4 Microbiological Contamination

Elevated microbiological contamination (E. Coli and thermotolerant coliforms) were reported above the adopted criteria in the six soil samples (S2 to S7) collected from surrounding septic tanks on the site. The extent of the impact from the septic tanks has not been delineated and further assessment of the septic tanks is recommended.

Effluent impacted soil would require remediation and/or management. The remediation could comprise excavation and disposal to landfill or excavation and exposure to sunlight for a period of time, followed by re-sampling and validation.

10.5 Surface water

Metal concentrations including chromium, copper, nickel and zinc exceeded the aquatic ecosystem guidelines in SW1 to SW3 (Dam1, Dam4 and Lochinvar Creek). Given the history of farming in the region, and that similar concentrations were identified in each dam and the creek, these concentrations of metals in the surface water are considered to represent regional background conditions.

Based on the proposed subdivision plans, included in Figure 2, Appendix B, the existing onsite dams will be removed as part of the proposed development. Based on the results, surface water in DAM 1 and DAM 4 are suitable to be irrigated across the site provided they are irrigated in areas greater than 40m from waterways, dams and/or drainage lines. The sediments in DAM 1 and DAM 4 are also suitable (from a contamination perspective) to remain onsite. It is recommended that prior to dewatering samples are also collected from the remaining dams on the site.

11.0 Conclusions and Recommendations

Based on the results of the Detailed Contamination Assessment it is considered the site can be made suitable for the proposed residential development, with the following recommendations:

- Hazardous material survey be carried out on existing site buildings if proposed to be demolished/refurbished as part of the proposed development;
- Preparation of a Remediation Action Plan (RAP) to guide the delineation, remediation and/or management of lead contamination and microbiological contamination;
- Additional surface water sampling from dams not assessed, prior to dewatering; and
- Preparation of a Construction Environmental Management Plan (CEMP) following remediation which will include an Unexpected Finds Procedure (UFP). The CEMP will be implemented during vegetation clearing and earthworks.

Provided the recommendations made within this report are implemented, it is considered that the site could be rendered suitable, from a contamination point of view, for the proposed residential development.

This report was prepared in general accordance with the relevant sections of the NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), NEPC 2013, Canberra (referred to as ASC NEPM 2013).

12.0 Limitations

This report has been prepared by Qualtest for McCloy Project Management Pty Ltd based on the objectives and scope of work list in Sections 1.1 and 1.2. No warranty, expressed or implied, is made as to the information and professional advice included in this report. Anyone using this document does so at their own risk and should satisfy themselves concerning its applicability and, where necessary, should seek expert advice in relation to their particular situation.

The opinions, conclusions and recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. Qualtest has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

In preparing this report Qualtest has relied on information contained in searches of government websites and has not independently verified or checked the data contained on these websites.

In preparing this report, current guidelines for assessment and management of contaminated land were followed. The conclusions reached in this report are dependent on the limitations inherent in all subsurface investigations where horizontal and vertical variation in contaminant concentrations can occur. No subsurface assessment can accurately predict the contaminant concentration at all points.

Site conditions may change after the date of this Report. Qualtest does not accept responsibility arising from, or in connection with, any change to the site conditions.

13.0 References

Geotesta (2021) Contamination Site Investigation, ref:NE526-Rev1, dated 1 July 2021

NSW Department of Primary Industries (Office of Water) Registered Groundwater Bore Map, accessed from <http://allwaterdata.water.nsw.gov.au/water.stm>, accessed on 29 March 2022.

NSW Land and Property Information, Spatial Information eXchange (SIX) Maps - Topographic Map, accessed from <https://maps.six.nsw.gov.au/>, accessed on 29 March 2022.

State of NSW and Department of Planning, Industry and Environment, 2021, Acid Sulfate Soil online database (<https://espade.environment.nsw.gov.au>

NSW EPA (1995) Sampling Design Guidelines

NSW EPA (2020) Guidelines for Consultants Reporting on Contaminated Land.

NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013), Canberra (ASC NEPM 2013).

NSW ePlanning Spatial Viewer Portal (<https://www.planningportal.nsw.gov.au/spatialviewer/>), accessed on 29 March 2022

WA DoH (2009) Guidelines of the assessment and management of asbestos contaminated sites in Western Australia, WA Department of Health and Department of Environment and Conservation

Qualtest (2021) Preliminary Contamination Assessment, 51, 134 & 146 Station Lane, Lochinvar, NSW ref: NEW21P-0129-AB, dated 8 September 2021.

APPENDIX A:

Figures



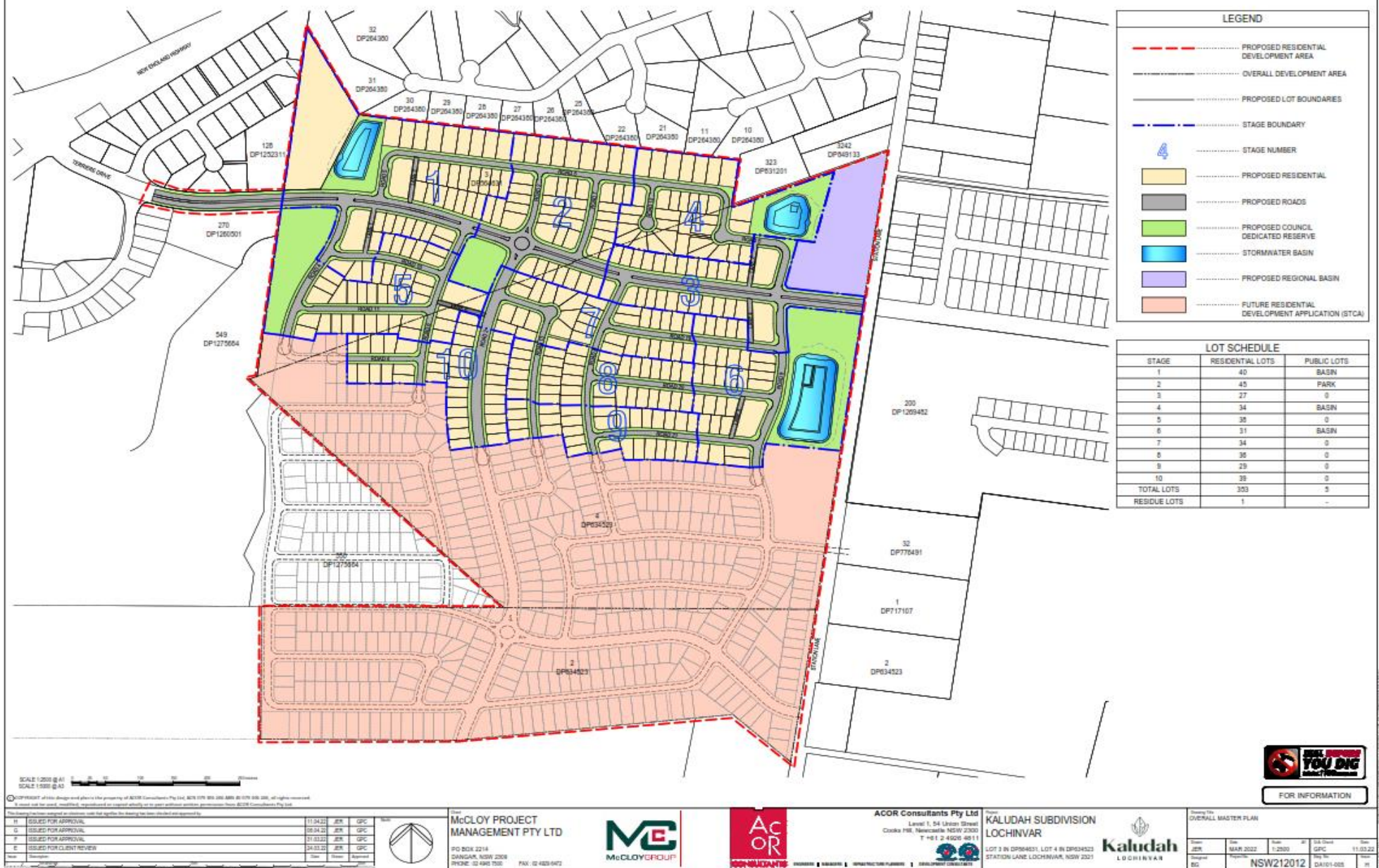
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 Site Boundary

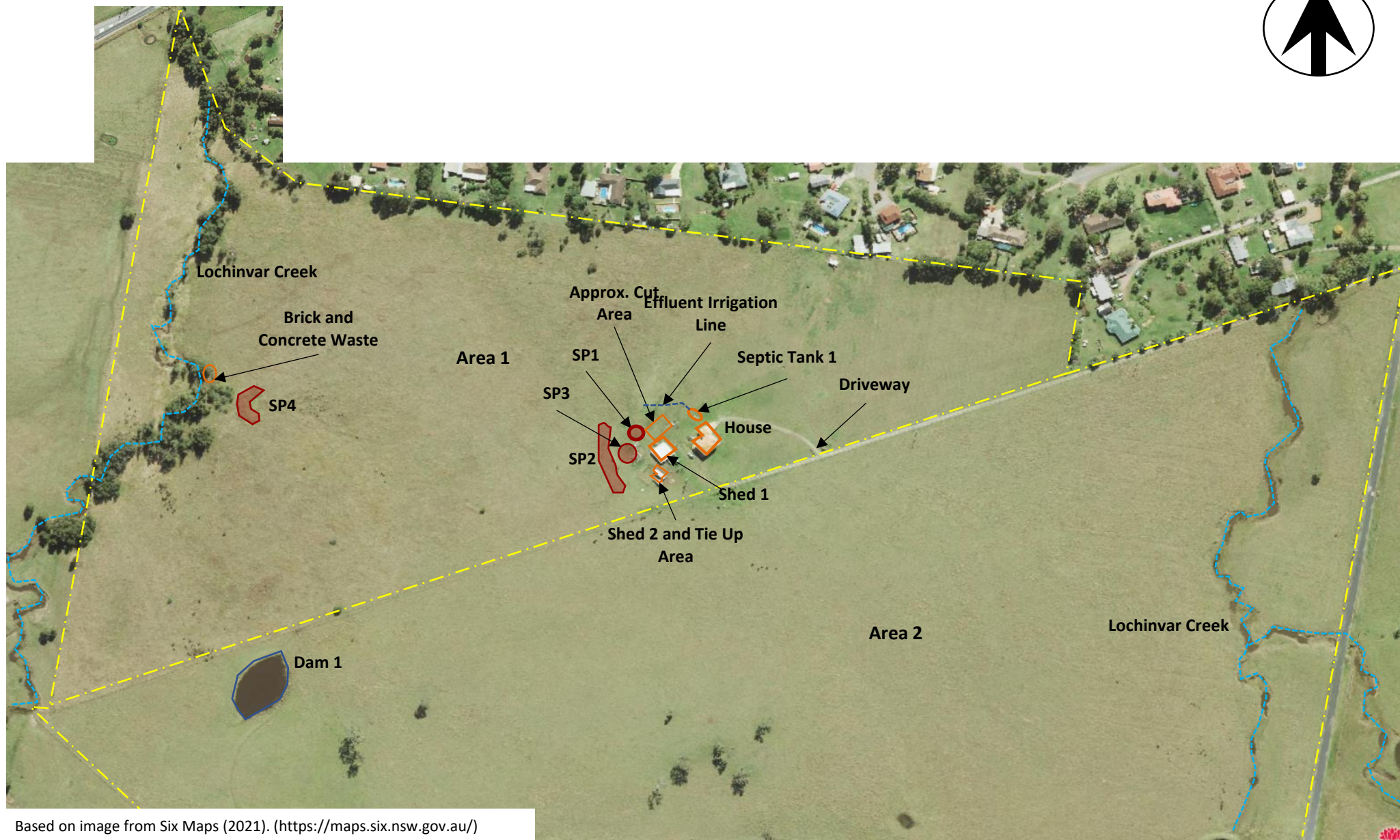
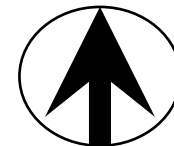
Image obtained from Nearmaps (<https://www.nearmap.com/au/en>) 4 April 2022



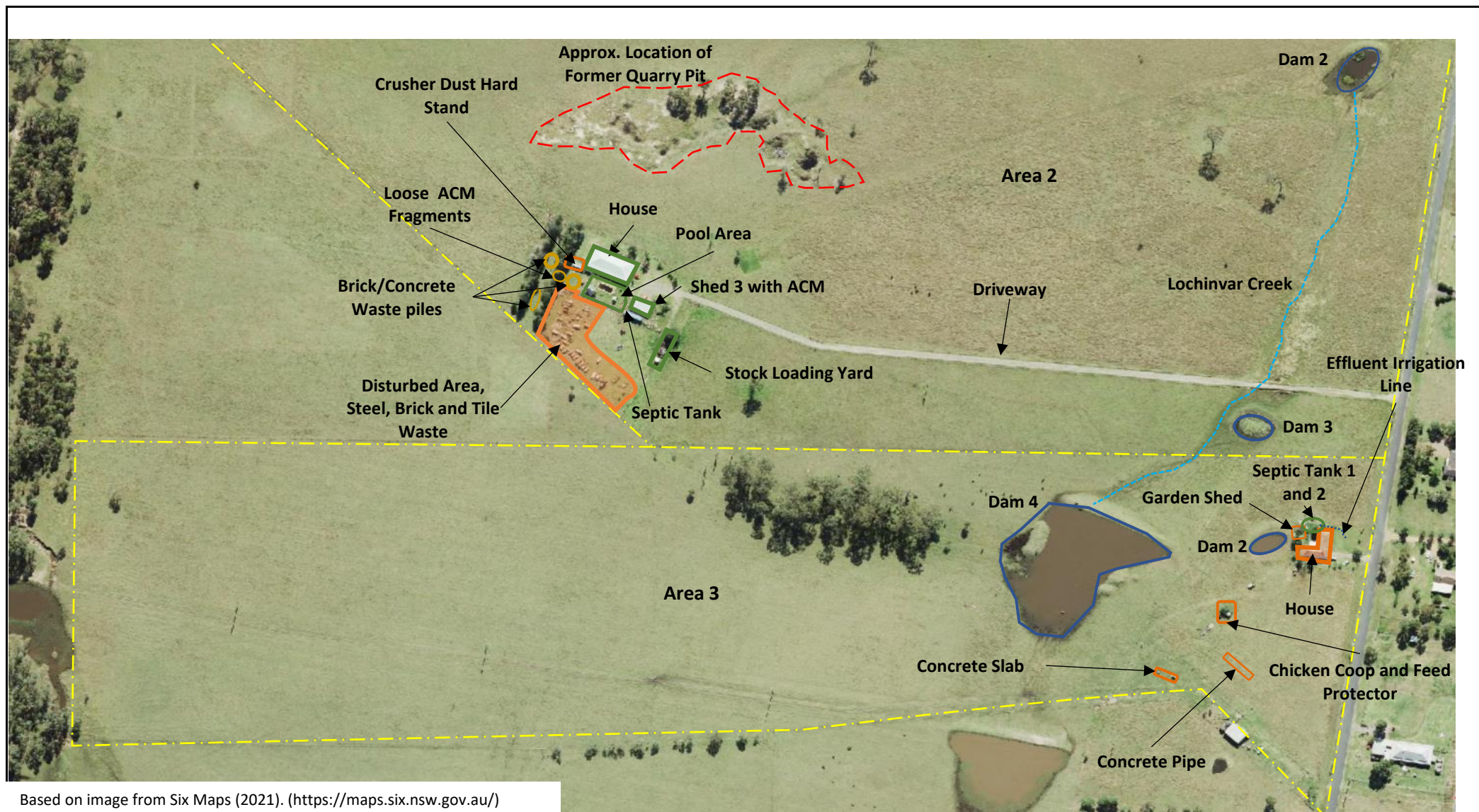
Client:	MCCLOYS PROJECT MANAGEMENT PTY LTD	Drawing No:	FIGURE 1
Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AD
Location:	51,134 & 146 STATION LANE, LOCHINVAR	Scale:	N.T.S.
Title:	SITE LOCATION PLAN	Date:	4/04/2022



Client:	MCCLOYS PROJECT MANAGEMENT PTY LTD	Drawing No:	FIGURE 2
Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AD
Location:	51,134 & 146 STATION LANE, LOCHINVAR	Scale:	N.T.S.
Title:	PROPOSED SUBDIVISION PLAN	Date:	4/04/2022



Based on image from Six Maps (2021). (<https://maps.six.nsw.gov.au/>)



Based on image from Six Maps (2021). (<https://maps.six.nsw.gov.au/>)

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--- Approximate Site Boundary (Current Assessment)

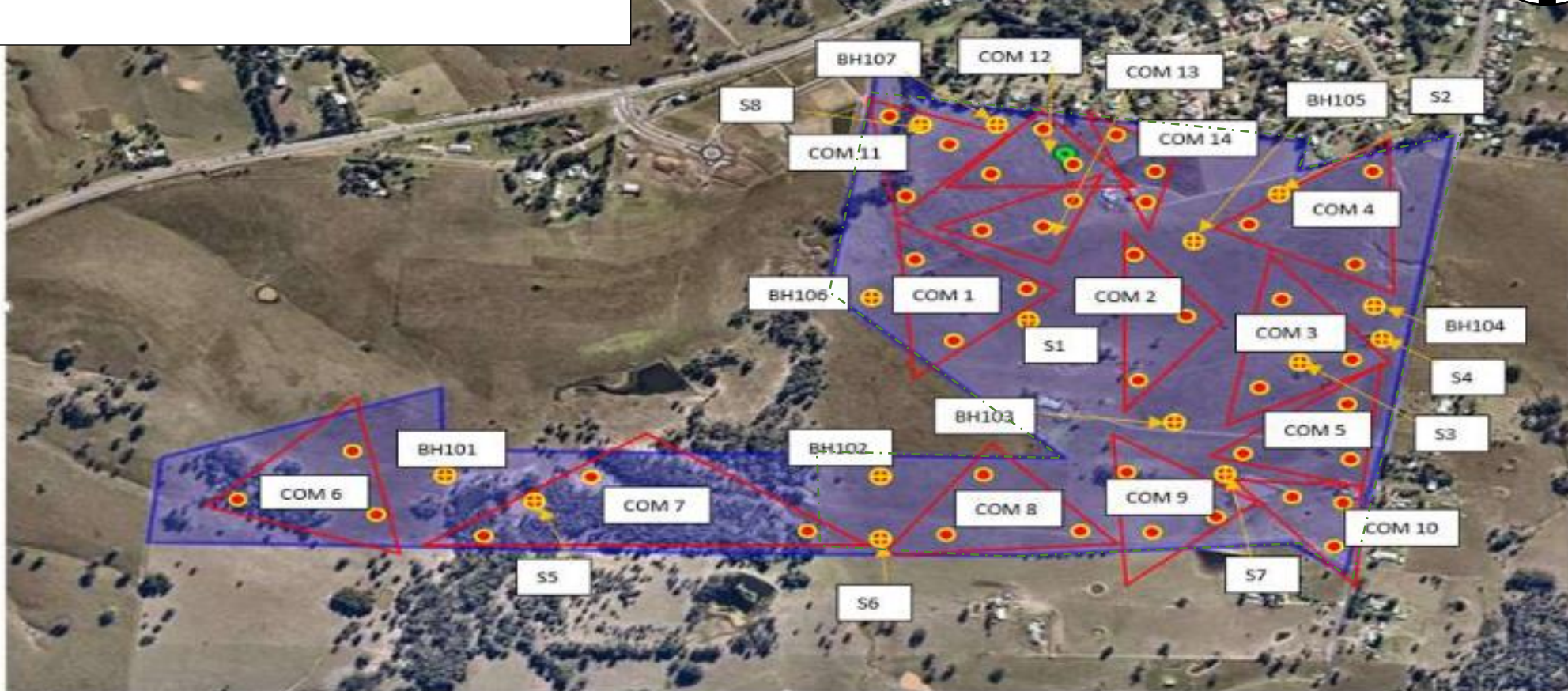
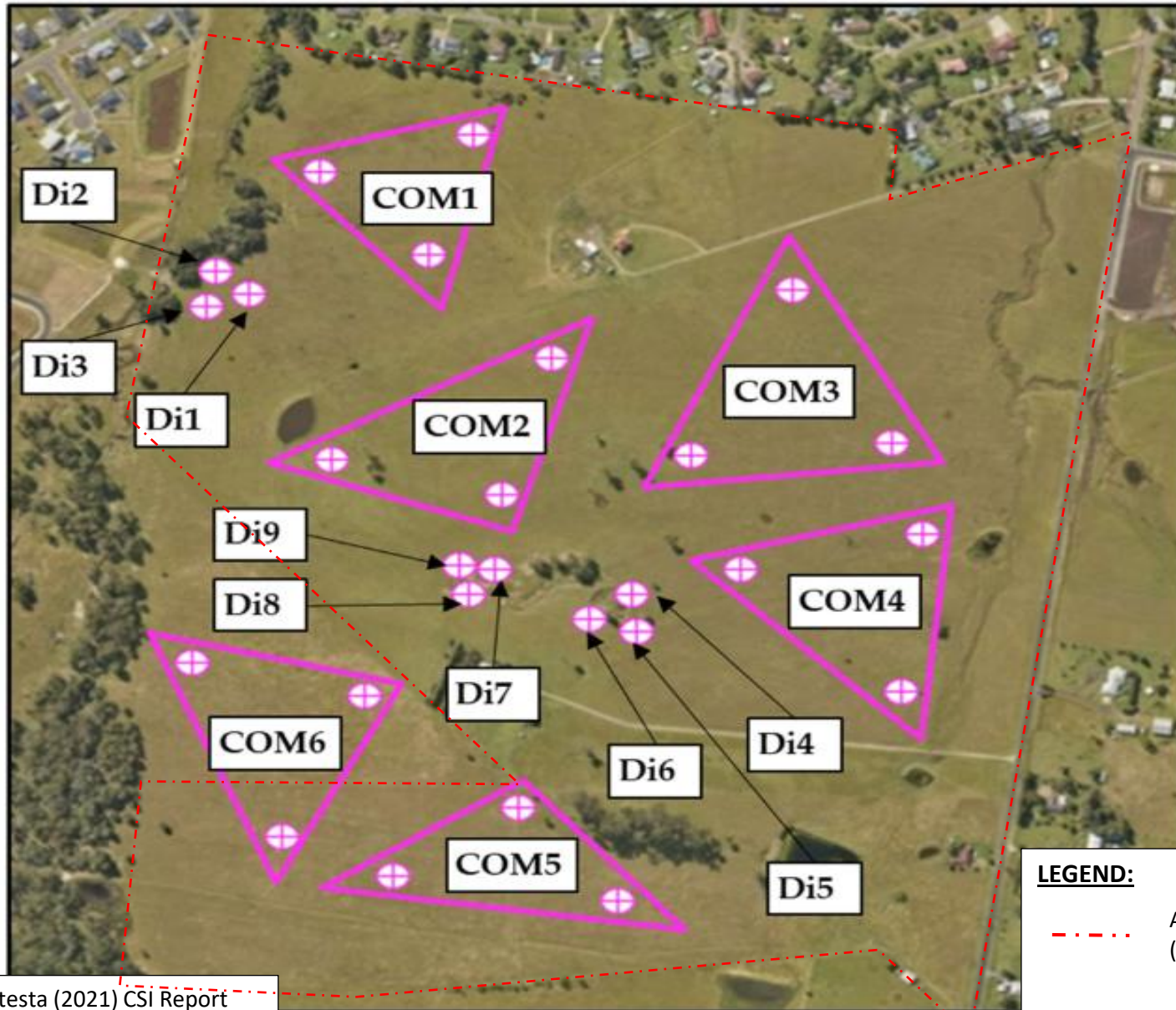


Figure 3: Soil Samples Location (19/09/2019)

Extract from Geotesta (2021) CSI Report



LEGEND:

--- Approximate Site Boundary
(Current Assessment)

Extract from Geotesta (2021) CSI Report

Figure 4: Soil Samples Location (10/06/2021)

Client:	MCCLOY PROJECT MANAGEMENT	Drawing No:	FIGURE 5B
Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AB
Location:	51, 134 & 146 STATION LANE, LOCHINVAR	Scale:	NTS
Title:	GEOTESTA (2021) SAMPLE LOCATION PLAN (2021)	Date:	13 April 2022



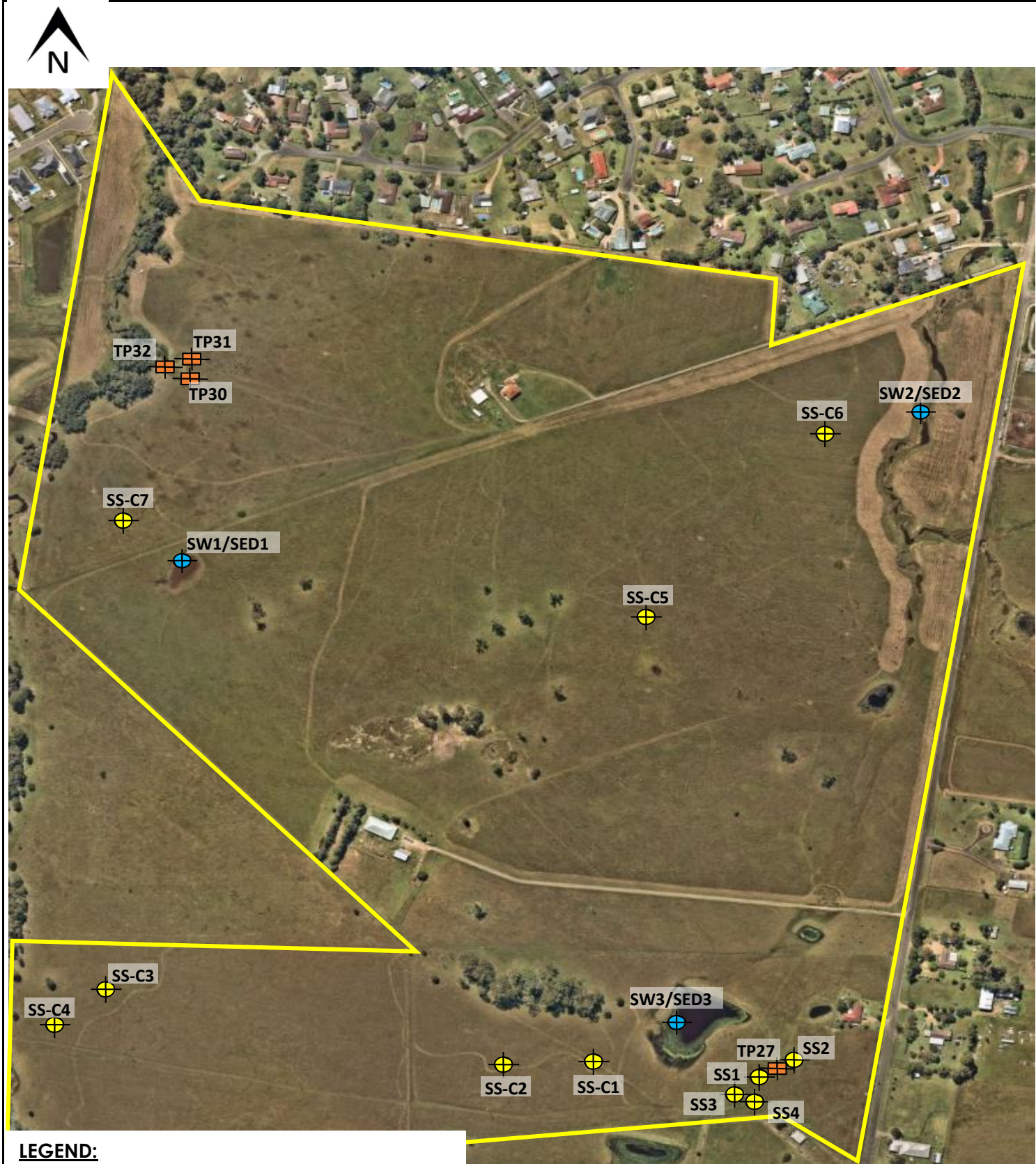
LEGEND:



Approximate Delineation Locations



Approximate Geotesta (2021) Sampling Location



LEGEND:

-  Site Boundary
-  Approx. Location Surface Water & Sediment Samples
-  Approx. Location Surface Samples
-  Approx. Location Test Pits

	Client:	MCCLOYS PROJECT MANAGEMENT PTY LTD	Drawing No:	FIGURE 6A
	Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AD
	Location:	51,134 & 146 STATION LANE, LOCHINVAR	Scale:	AS SHOWN
	Title:	SAMPLING PLAN - FULL SITE	Date:	4/04/2022



LEGEND:

-  Approx. Location Surface Samples
-  Approx. Location Test Pits

Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 31 March 2022



Client:	MCCLOY'S PROJECT MANAGEMENT PTY LTD	Drawing No:	FIGURE 6B
Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AD
Location:	51,134 & 146 STATION LANE, LOCHINVAR	Scale:	N.T.S.
Title:	SAMPLING PLAN - NORTHERN PORTION	Date:	4/04/2022



LEGEND:

- Site Boundary
- ⊗ Approx. Location Surface Samples
- ⊗ Approx. Location Test Pits

Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 31 March 2022

Client:	MCCLOYS PROJECT MANAGEMENT PTY LTD	Drawing No:	FIGURE 6C
Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AD
Location:	51,134 & 146 STATION LANE, LOCHINVAR	Scale:	N.T.S.
Title:	SAMPLING PLAN - CENTRAL	Date:	4/04/2022

LEGEND:

-  Site Boundary
-  Approx. Location Surface Samples
-  Approx. Location Test Pits



Image obtained from Sixmaps (<https://maps.six.nsw.gov.au/>) 31 March 2022

Client:	MCCLOYS PROJECT MANAGEMENT PTY LTD	Drawing No:	FIGURE 6D
Project:	DETAILED CONTAMINATION ASSESSMENT	Project No:	NEW21P-0129-AD
Location:	51,134 & 146 STATION LANE, LOCHINVAR	Scale:	N.T.S.
Title:	SAMPLING PLAN - SOUTHERN	Date:	4/04/2022

APPENDIX B:

Tables



					Field ID	TP27 0.0-0.1	TP28 0.0-0.1	TP29 0.0-0.1	TP30 0.0-0.1	TP31 0.0-0.1	TP32 0.0-0.1	TP32 1.0-1.1
					Date	16/03/2022	16/03/2022	16/03/2022	18/03/2022	18/03/2022	18/03/2022	18/03/2022
Analytes		Units	LOR	HIL/HSL A ¹	EIL/ESL A ²							
pH & CEC	pH (1:5 Aqueous extract)	pH units	0.1			-	-	-	-	-	-	-
	Cation Exchange Capacity	meq/100g	0.05			-	-	-	-	-	-	-
Metals	Arsenic	mg/kg	2	100	100	< 2	2.5	< 2	< 2	< 2	< 2	< 2
	Cadmium	mg/kg	0.4	20		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
	Chromium (Total)	mg/kg	5	100^	730*^^	5.2	16	9.8	18	12	5.8	15
	Chromium (hexavalent)	mg/kg	1	100		-	-	-	-	-	-	-
	Chromium (trivalent)	mg/kg	1		730*	-	-	-	-	-	-	-
	Copper	mg/kg	5	6000	210*	< 5	5.1	< 5	< 5	< 5	< 5	< 5
	Lead	mg/kg	5	300	1100	6.1	< 5	< 5	< 5	< 5	< 5	< 5
	Mercury	mg/kg	5	40		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel	mg/kg	5	400	220*	< 5	13	< 5	7.8	< 5	< 5	8.3
	Zinc	mg/kg	5	7400	570*	31	8.6	< 5	9.9	9.5	6.9	5.4
PAHs	Acenaphthene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Acenaphthylene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Anthracene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Benz(a)anthracene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Benzo(a)pyrene	mg/kg	0.5		33**	< 0.5	-	-	-	-	< 0.5	-
	Benzo(a)pyrene TEQ (medium bound)	mg/kg	0.6	3		0.6	-	-	-	-	0.6	-
	Benzo(b&j)fluoranthene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Benzo(g,h,i)perylene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Benzo(k)fluoranthene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Chrysene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Dibenz(a,h)anthracene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Fluoranthene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Fluorene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Naphthalene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Phenanthrene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Pyrene	mg/kg	0.5			< 0.5	-	-	-	-	< 0.5	-
	Total PAH	mg/kg	0.5	300		< 0.5	-	-	-	-	< 0.5	-
BTEX	Benzene	mg/kg	0.1	0.5	65	< 0.1	-	-	-	-	< 0.1	-
	Toluene	mg/kg	0.1	160	105	< 0.1	-	-	-	-	< 0.1	-
	Ethylbenzene	mg/kg	0.1	55	125	< 0.1	-	-	-	-	< 0.1	-
	Xylenes - Total	mg/kg	0.3	40	45	< 0.3	-	-	-	-	< 0.3	-
TRH	Naphthalene	mg/kg	0.5	3	170	< 0.5	-	-	-	-	< 0.5	-
	TRH C6-C10	mg/kg	20		180	< 20	-	-	-	-	< 20	-
	TRH C6-C10 less BTEX (F1)	mg/kg	20	45		< 20	-	-	-	-	< 20	-
	TRH >C10-C16	mg/kg	50		120	< 50	-	-	-	-	< 50	-
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	110		< 50	-	-	-	-	< 50	-
	TRH >C16-C34	mg/kg	100		1300	< 100	-	-	-	-	< 100	-
	TRH >C34-C40	mg/kg	100		5600	< 100	-	-	-	-	< 100	-
OCPs	DDT+DDE+DDD	mg/kg	0.1	240		-	-	-	-	-	-	-
	Aldrin & Dieldrin	mg/kg	0.1	6		-	-	-	-	-	-	-
	Total Chlordane	mg/kg	0.1	50		-	-	-	-	-	-	-
	Total Endosulfan	mg/kg	0.1	270		-	-	-	-	-	-	-
	Endrin	mg/kg	0.1	10		-	-	-	-	-	-	-
	Heptachlor	mg/kg	0.1	6		-	-	-	-	-	-	-
	HCB	mg/kg	0.1	10		-	-	-	-	-	-	-
	Methoxychlor	mg/kg	0.1	300		-	-	-	-	-	-	-
	Total OCP		0.1			-	-	-	-	-	-	-
OPP	Chlorpyriphos	mg/kg	0.1	160		-	-	-	-	-	-	-
	Total OPP		0.1			-	-	-	-	-	-	-
Asbestos	Asbestos (AS)	mg/kg	-	Detect		-	-	-	-	-	-	-

Notes

* Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, new suburbs with low traffic , 50% percentile.

^ Guidelines for Hexavalent Chromium (VI)

^^ Guidelines for Trivalent Chromium (III)

` Result based on duplicate/triplicate result

ND Not detected

NL Not limiting

Result Concentration exceeds adopted HIL/HSL A

Result Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation Levels and Health Screening Levels for Vapour Intrusion,

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, residential, fine

Table 2: Asbestos Results
Station Lane, Lochinvar, NSW



Sample ID	Sample Date	ACM weight (g)	ACM weight (kg)	Soil density (kg/L)	Soil Volume (L)	Asbestos Content (%)	%w/w ACM in Soil	HSL-A - ACM	%w/w FA/AF in Soil	HSL-A - FA/AF
SS1	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS3	22/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS4	22/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS5	22/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS6	22/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS7	22/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS8	22/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS9	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS10	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS11	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS12	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS13	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS14	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS15	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS16	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS17	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS18	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS19	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS20	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS21	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS22	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS23	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS24	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS25	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS26	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS27	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS28	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS29	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS30	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS31	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS32	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS33	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS34	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS35	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS36	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS37	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS38	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS39	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS40	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS41	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS42	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
SS43	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS44	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
SS45	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP4 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP5 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP6 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP7 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP8 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP9 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP10 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP11 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP12 0.0-0.2	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP13 0.0-0.2	18/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP15 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP16 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP17 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP18 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP19 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP20 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP21 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP22 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP23 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP24 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP25 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP26 0.0-0.2	17/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP27 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP28 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP29 0.0-0.2	16/03/2022	0	0	1.8	10	15	0.000	0.01	-	-
TP30 0.0-0.2	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP31 0.0-0.2	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001
TP32 0.0-0.2	18/03/2022	0	0	1.8	10	15	0.000	0.01	ND	0.001

Notes:
%w/w asbestos in soil calculated using: % asbestos content x bonded ACM (kg) / soil volume (L) x soil density (kg/L)
ND = Not Detected
Result Exceeds adopted criteria
Criteria from ASC NEPM (2013) Table 7 - Health Screening Level (HSL) for Asbestos, Residential Land Use

Table 3: Soil Analytical Results - Microbiological
Station Lane, Lochinvar, NSW



				Field ID	S2	S3	S4	S5	S6	S7
				Date	22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022	22/03/2022
Analytes		Units	LOR	Biosolids ¹						
Micro	E.coli	MPN per g soil	0.1	<100	9800	1300	>24000	9200	>24000	120
	Thermotolerant Coliforms	MPN per g soil	0.05	<1000	>24000	>24000	>24000	>24000	>24000	24000

Notes

Result	Concentrations exceeds Microbiological/Pathogen adopted criteria
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¹ NSW EPA (2000) Use and Disposal of Biosolids Products, Table 3.4 Initial Process Verification Standards, Table 3.5 Stabilisation Grade A Microbiological Standards

Table 4 - Previous Composite Sampling - Analytical Results (Geotesta 2021)
Station Lane, Lochinvar, NSW



					Sample ID	COM1	COM2	COM3	COM4	COM5	COM6	COM1	COM2	COM3	COM4	COM5	COM8	COM9	COM10	COM11	COM12	COM13	COM14
					Date	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	10/06/2021	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019	2/08/2019
		Units	LOR	HIL/HSL A ^{1**}	EIL/ESL A ^{2**}																		
pH	pH	pH units	1			-	-	-	-	-	-	-	-	-	5.7	-	-	-	-	-	-	-	-
Metals	Arsenic	mg/kg	2	33	33	3.7	17	2.6	5.3	7.3	26	13	-	5.1	-	7.1	29	-	-	9.2	-	-	6.5
	Cadmium	mg/kg	0.4	6		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	-	< 0.4	-	< 0.4	< 0.4	-	-	< 0.4	-	-	< 0.4
	Chromium (total)	mg/kg	5	33	243*^^	91	52	37	60	70	71	96	-	120	-	170	97	-	-	22	-	-	110
	Chromium (hexavalent)	mg/kg	5			-	-	-	-	-	-	<5	-	-	-	-	-	-	-	-	-	-	
	Copper	mg/kg	5	2000	70*	33	25	14	14	22	42	52	-	36	-	52	40	-	-	7.6	-	-	44
	Lead	mg/kg	5	100	366	17	9.8	9.2	8.7	< 5	17	13	-	8.8	-	7.8	7.2	-	-	14	-	-	19
	Mercury	mg/kg	0.1	13		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	< 0.1	-	< 0.1	< 0.1	-	-	< 0.1	-	-	< 0.1
	Nickel	mg/kg	5	133	73*	47	29	24	18	32	36	44	-	57	-	100	69	-	-	9.4	-	-	58
	Zinc	mg/kg	5	2466	190*	50	25	35	18	63	140	32	-	25	-	41	21	-	-	30	-	-	71
TRH	TRH C6 - C10	mg/kg	20		60	-	-	-	-	-	-	-	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-
	TRH >C10-C16	mg/kg	50		40	-	-	-	-	-	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-
	F1 ((C6-C10)- BTEX)	mg/kg	20	15		-	-	-	-	-	-	-	< 20	-	-	< 20	-	-	< 20	-	-	< 20	-
	F2 (>C10-C16 less Naphthalene)	mg/kg	50	36		-	-	-	-	-	-	-	< 50	-	-	< 50	-	-	< 50	-	-	< 50	-
	F3 (>C16-C34)	mg/kg	100		100	-	-	-	-	-	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-
	F4 (>C34-C40)	mg/kg	100		933	-	-	-	-	-	-	-	< 100	-	-	< 100	-	-	< 100	-	-	< 100	-
BTEXN	Benzene	mg/kg	0.5	0.1	16	-	-	-	-	-	-	-	-	< 0.1	-	-	-	-	-	< 0.1	-	-	< 0.1
	Toluene	mg/kg	0.5	53	28	-	-	-	-	-	-	-	-	< 0.1	-	-	-	-	-	< 0.1	-	-	< 0.1
	Ethylbenzene	mg/kg	0.5	18	23	-	-	-	-	-	-	-	-	< 0.1	-	-	-	-	-	< 0.1	-	-	< 0.1
	Total Xylenes	mg/kg	1.5	13	35	-	-	-	-	-	-	-	-	< 0.3	-	-	-	-	-	< 0.3	-	-	< 0.3
	Naphthalene	mg/kg	0.5	1		-	-	-	-	-	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-
PAHs	Benzo(a)pyrene TEQ	mg/kg	0.6	1		-	-	-	-	-	-	0.6	-	-	0.6	-	-	0.6	-	-	0.6	-	-
	Benzo(a)pyrene (BaP)	mg/kg	0.5		0.23	-	-	-	-	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-
	Total PAHs	mg/kg	0.5	100		-	-	-	-	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-	< 0.5	-	-
OCPs	DDT+DDE+DDD	mg/kg	0.1	80		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	< 0.05	-	-	-	< 0.05	-	-	< 0.05	-	< 0.05
	Aldrin & Dieldrin	mg/kg	0.1	2		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	< 0.05	-	-	-	< 0.05	-	-	< 0.05	-	< 0.05
	Total Chlordane	mg/kg	0.1	16		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	-	-	< 0.1	-	-	-	< 0.05	-	-	< 0.05	-	< 0.1
	Total Endosulfan	mg/kg	0.1	90		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	< 0.05	-	-	-	< 0.1	-	-	< 0.1	-	< 0.05
	Endrin	mg/kg	0.1	3.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	< 0.05	-	-	-	< 0.05	-	-	< 0.05	-	< 0.05
	Heptachlor	mg/kg	0.1	2		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	< 0.05	-	-	-	< 0.05	-	-	< 0.05	-	< 0.05
	HCB	mg/kg	0.1	3.3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	< 0.05	-	-	-	< 0.05	-	-	< 0.05	-	< 0.05
	Methoxychlor	mg/kg	0.1	100		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	-	-	< 0.2	-	-	-	< 0.05	-	-	< 0.05	-	< 0.2
	Total OCP		0.1			< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	-	-	< 0.2	-	-	-	< 0.2	-	-	< 0.2	-	< 0.2
OPP	Chlorpyrifos	mg/kg	0.1	53		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	-	-	< 0.2	-	-	-	< 0.2	-	-	< 0.2	-	< 0.2
	Total OPP		0.1			<2.2	<2.2	<2.2	<2.2	<2.2	<2.2	-	-	<2.2	-	-	-	< 0.2	-	-	< 0.2	-	<2.2
Asbestos	Asbestos (AS)	mg/kg	-	Detect		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND

Notes

EIL based on an average pH of 6.75, an CEC of 14mg/kg, and Clay content 60%,

* and using Ambient Background Concentration obtained from Olszowy et al (1995) using urban soils, new suburbs with low traffic , 50% percentile.

^ Guidelines for Hexavalent Chromium (VI)

^^ Guidelines for Trivalent Chromium (III)

** Guideline value divided by 3 due to composite sampling

ND Not detected

NL Not limiting

Result Concentration exceeds adopted HIL/HSL A

Result Concentration exceeds the adopted EIL/ESL A

1 ASC NEPM (2013) Health Investigation Levels and Health Screening Levels for Vapour Intrusion, Residential, clay 0m to <1m

2 NEPC (2013) Soil Ecological Investigation & Screening Levels, residential, fine

Table 5: Surface Water Analytical Results
Station Lane, Lochinvar, NSW



						Field ID	SW1	SW2	SW3
						Date	22/03/2022	22/03/2022	22/03/2022
Analytes		Units	EQL	Aquatic Ecosystem ¹	Stockwatering ²	Irrigation ^{3##}			
Metals	Arsenic	mg/L	5	0.013	0.5	20	0.005	0.004	0.003
	Cadmium	mg/L	0.1	0.0002	0.01	0.05	< 0.0002	< 0.0002	< 0.0002
	Chromium	mg/L	0.05	0.001	1	1	0.003	0.007	0.003
	Copper	mg/L	0.5	0.0014	0.4	5	0.01	0.007	0.002
	Lead	mg/L	0.001	0.0034	0.1	5	< 0.001	0.002	< 0.001
	Mercury	mg/L	0.001	0.00006	0.002	0.002	< 0.0001	< 0.0001	< 0.0001
	Nickel	mg/L	0.001	0.011	1	2	0.017	0.021	0.012
	Zinc	mg/L	0.005	0.008	20	5	< 0.005	0.12	0.009
BTEX	Benzene	mg/L	0.001	0.95			< 0.001	< 0.001	< 0.001
	Toluene	mg/L	0.001	0.180**			< 0.001	< 0.001	< 0.001
	Ethylbenzene	mg/L	0.001	0.080**			< 0.001	< 0.001	0.007
	Xylenes	mg/L	0.003	0.075**a			< 0.003	< 0.003	< 0.003
TRH	TRH C6-C9	mg/L	0.02				< 0.02	< 0.02	< 0.02
	TRH C10-C14	mg/L	0.05				< 0.05	< 0.05	< 0.05
	TRH C15-C28	mg/L	0.1				< 0.1	< 0.1	< 0.1
	TRH C29-C36	mg/L	0.1				< 0.1	< 0.1	< 0.1
	TRH C10-36 (Total)	mg/L	0.1				< 0.1	< 0.1	< 0.1
	Naphthalene	mg/L	0.01				< 0.01	< 0.01	< 0.01
	TRH C6-C10	mg/L	0.02				< 0.02	< 0.02	< 0.02
	TRH C6-C10 less BTEX (F1)	mg/L	0.02				< 0.02	< 0.02	< 0.02
	TRH >C10-C16	mg/L	0.05				< 0.05	< 0.05	< 0.05
	TRH >C10-C16 less Naphthalene (F2)	mg/L	0.05				< 0.05	< 0.05	< 0.05
	TRH >C16-C34	mg/L	0.1				< 0.1	< 0.1	< 0.1
	TRH >C34-C40	mg/L	0.1				< 0.1	< 0.1	< 0.1
PAHs	Acenaphthene	mg/L	0.001				< 0.001	< 0.001	< 0.001
	Acenaphthylene	mg/L	0.001				< 0.001	< 0.001	< 0.001
	Anthracene	mg/L	0.001	0.00001**			< 0.001	< 0.001	< 0.001
	Benz(a)anthracene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Benzo(a)pyrene	mg/L	0.001	0.0001**			< 0.005	< 0.001	< 0.001
	Benzo(b&j)fluoranthene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Benzo(g.h.i)perylene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Benzo(k)fluoranthene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Chrysene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Dibenz(a.h)anthracene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Fluoranthene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Fluorene	mg/L	0.001				< 0.001	< 0.001	< 0.001
	Indeno(1.2.3-cd)pyrene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Naphthalene	mg/L	0.001	0.016			< 0.001	< 0.001	< 0.001
	Phenanthrene	mg/L	0.001				< 0.001	< 0.001	< 0.001
	Pyrene	mg/L	0.001				< 0.005	< 0.001	< 0.001
	Total PAH	mg/L	0.001				< 0.005	< 0.001	< 0.001

Notes:

	Concentration exceeds the Protection of 95-99% of species in Freshwater trigger values
	Concentration exceeds the Stockwatering trigger values
	Concentration exceeds the Irrigation trigger values

Italics LOR exceeds adopted criteria

** Low reliability value - ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality.

a. Conservatively assumes xylene is p-xylene.

Based on short-term trigger values (STV) - Short term use, up to 20 years

1 ANZECC (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

2 ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Table 4.3.2

3 ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Tables 4.2.10 and 4.2.11

Table 6 - Quality Control Results
Station Lane, Lochinvar, NSW

		Sample ID	TP16 0.0-0.1	D1.16.3.22	RPD %	TP16 0.0-0.1	T1.16.3.22	RPD %	TP22 0.0-0.1	D.17.3.22	RPD %	TP22 0.0-0.1	T.17.3.22	RPD %	TP19 0.0-0.1	D1.17.3.22	RPD %	
		Date	16/03/2022	16/03/2022		16/03/2022	16/03/2022		17/03/2022	17/03/2022		17/03/2022	17/03/2022		17/03/2022	17/03/2022		
		Type	Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		Primary	Triplicate		Primary	Duplicate		
Analytes		Soil Units	LOR															
Metals	Arsenic	mg/kg	2	5.6	6.3	12	5.6	6	7	< 2	3.5	55	< 2	<5	0	4.3	46	166
	Cadmium	mg/kg	0.4	< 0.4	< 0.4	0	< 0.4	<1	0	< 0.4	< 0.4	0	< 0.4	<1	0	< 0.4	< 0.4	0
	Chromium	mg/kg	5	15	13	14	15	19	24	9.9	88	160	9.9	52	136	11	150	173
	Copper	mg/kg	5	7.7	< 5	43	7.7	11	35	< 5	17	109	< 5	16	105	5.3	47	159
	Lead	mg/kg	5	11	11	0	11	10	10	< 5	7.1	35	< 5	7	33	< 5	30	143
	Mercury	mg/kg	5	< 0.1	< 0.1	0	< 0.1	<0.1	0	< 0.1	0.8	156	< 0.1	0.1	0	< 0.1	< 0.1	0
	Nickel	mg/kg	5	10	8	22	10	19	62	5.3	38	151	5.3	38	151	5.2	52	164
	Zinc	mg/kg	5	120	92	26	120	156	26	< 5	50	164	< 5	28	139	16	190	169
PAHs	Acenaphthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Acenaphthylene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Anthracene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Benz(a)anthracene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Benzo(a)pyrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Benzo(a)pyrene TEQ (medium bound)	mg/kg	0.6	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Benzo(b&j)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Chrysene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Fluoranthene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Fluorene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Indeno(1.2.3-cd)pyrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Phenanthrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Pyrene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
	Total PAH	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0
BTEX	Benzene	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	<0.2	0	< 0.1	< 0.1	0	< 0.1	<0.2	0	< 0.1	< 0.1	0
	Toluene	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	<0.5	0	< 0.1	< 0.1	0	< 0.1	<0.5	0	< 0.1	< 0.1	0
	Ethylbenzene	mg/kg	0.1	< 0.1	< 0.1	0	< 0.1	<0.5	0	< 0.1	< 0.1	0	< 0.1	<0.5	0	< 0.1	< 0.1	0
	Xylenes - Total	mg/kg	0.3	< 0.3	< 0.3	0	< 0.3	<0.5	0	< 0.3	< 0.3	0	< 0.3	<0.5	0	< 0.3	< 0.3	0
TRH	Naphthalene	mg/kg	0.5	< 0.5	< 0.5	0	< 0.5	<1	0	< 0.5	< 0.5	0	< 0.5	<1	0	< 0.5	< 0.5	0
	TRH C6-C10	mg/kg	20	< 20	< 20	0	< 20	<10	0	< 20	< 20	0	< 20	<10	0	< 20	< 20	0
	TRH C6-C10 less BTEX (F1)	mg/kg	20	< 20	< 20	0	< 20	<10	0	< 20	< 20	0	< 20	<10	0	< 20	< 20	0
	TRH >C10-C16	mg/kg	50	< 50	< 50	0	< 50	<50	0	< 50	< 50	0	< 50	<50	0	< 50	< 50	0
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	< 50	< 50	0	< 50	<50	0	< 50	< 50	0	< 50	<50	0	< 50	< 50	0
	TRH >C16-C34	mg/kg	100	< 100	< 100	0	< 100	<100	0	< 100	< 100	0	< 100	<100	0	< 100	< 100	0
	TRH >C34-C40	mg/kg	100	< 100	< 100	0	< 100	<100	0	< 100	< 100	0	< 100	<100	0	< 100	< 100	0

*RPDs have only been considered where a concentration is greater than 10 times the EQL.

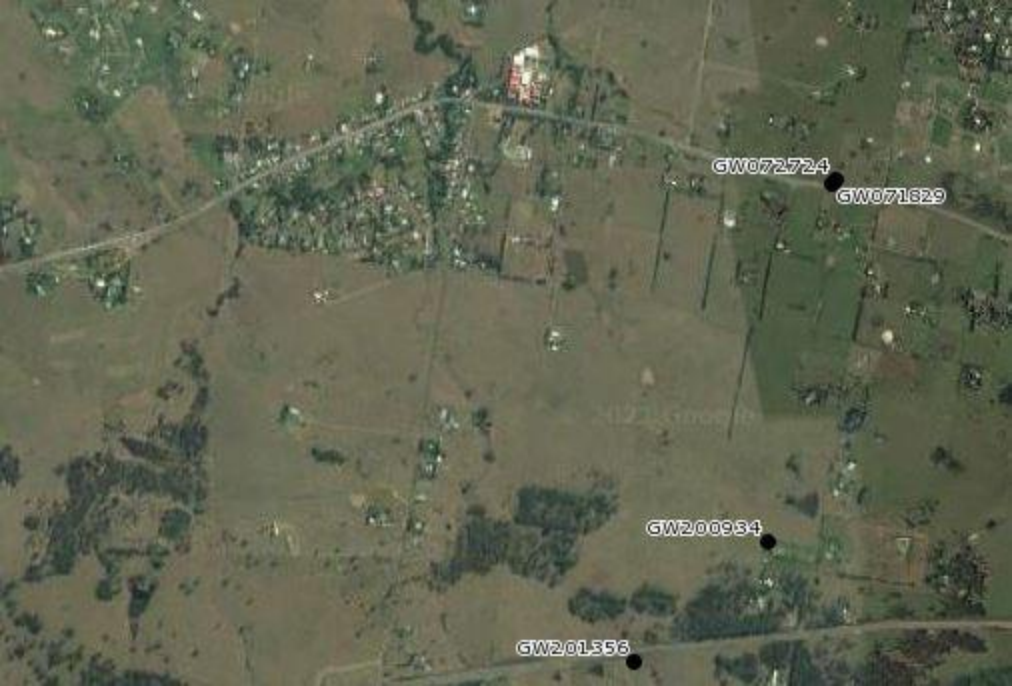
**High RPDs are in bold (Acceptable RPD range is 30% (>10 x EQL))

Table 6 - Quality Control Results
Station Lane, Lochinvar, NSW

TP19 0.0-0.1	T1.17.3.22	RPD %	SS41	D1.18.3.22	RPD %	SS41	T1.18.3.22	RPD %			SW1	WD.22.3.22	RPD %	SW1	TD.22.3.22	RPD %	WB.16.3.22	TB.16.3.22
17/03/2022	17/03/2022		18/03/2022	18/03/2022		18/03/2022	18/03/2022				22/03/2022	22/03/22		22/03/2022	22/03/2022		16/03/2022	16/03/2022
Primary	Triplicate		Primary	Duplicate		Primary	Triplicate				Primary	Duplicate		Primary	Triplicate		Wash Blank	Trip Blank
									Water Units	Water LOR								
4.3	31	151	< 2	4.9	84	< 2	5	86	mg/L	0.001	0.005	0.005	0	0.005	0.006	18	< 0.001	-
< 0.4	<1	0	< 0.4	< 0.4	0	< 0.4	<1	0	mg/L	0.0002	< 0.0002	< 0.0002	0	< 0.0002	<0.0001	0	< 0.0002	-
11	88	156	20	150	153	20	96	131	mg/L	0.001	0.003	0.003	0	0.003	0.012	120	< 0.001	-
5.3	42	155	11	62	140	11	48	125	mg/L	0.001	0.01	0.01	0	0.01	0.009	11	< 0.001	-
< 5	15	100	< 5	12	82	< 5	11	75	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	<0.001	0	< 0.001	-
< 0.1	<0.1	0	< 0.1	< 0.1	0	< 0.1	<0.1	0	mg/L	0.0001	< 0.0001	< 0.0001	0	< 0.0001	<0.0001	0	< 0.0001	-
5.2	42	156	12	72	143	12	60	133	mg/L	0.001	0.017	0.017	0	0.017	0.017	0	< 0.001	-
16	97	143	38	200	136	38	178	130	mg/L	0.005	< 0.005	0.007	33	< 0.005	0.008	46	< 0.005	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	-	-	-	-	0	-	-	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.5	< 0.5	0	< 0.5	< 0.5	0	< 0.5	< 0.5	0	mg/L	0.001	< 0.005	< 0.001	0	< 0.005	< 0.005	0	-	-
< 0.1	<0.2	0	< 0.1	< 0.1	0	< 0.1	<0.2	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	< 0.001	0	-	< 0.001
< 0.1	<0.5	0	< 0.1	< 0.1	0	< 0.1	<0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	<0.002	0	-	< 0.001
< 0.1	<0.5	0	< 0.1	< 0.1	0	< 0.1	<0.5	0	mg/L	0.001	< 0.001	< 0.001	0	< 0.001	<0.002	0	-	< 0.001
< 0.3	<0.5	0	< 0.3	< 0.3	0	< 0.3	<0.5	0	mg/L	0.003	< 0.003	< 0.003	0	< 0.003	<0.002	0	-	< 0.003
< 0.5	<1	0	< 0.5	< 0.5	0	< 0.5	<1	0	mg/L	0.01	< 0.01	< 0.01	0	< 0.01	-	0	-	-
< 20	<10	0	< 20	< 20	0	< 20	<10	0	mg/L	0.02	< 0.02	< 0.02	0	< 0.02	<0.02	0	-	-
< 20	<10	0	< 20	< 20	0	< 20	<10	0	mg/L	0.02	< 0.02	< 0.02	0	< 0.02	<0.02	0	-	-
< 50	<50	0	< 50	< 50	0	< 50	<50	0	mg/L	0.05	< 0.05	< 0.05	0	< 0.05	<0.1	0	-	-
< 50	<50	0	< 50	< 50	0	< 50	<50	0	mg/L	0.05	< 0.05	< 0.05	0	< 0.05	<0.1	0	-	-
< 100	<100	0	< 100	< 100	0	< 100	<100	0	mg/L	0.1	< 0.1	< 0.1	0	< 0.1	<0.1	0	-	-
< 100	<100	0	< 100	< 100	0	< 100	<100	0	mg/L	0.1	< 0.1	< 0.1	0	< 0.1	<0.1	0	-	-

APPENDIX C:

Groundwater Bore Search



GW072724

GW071629

GW200934

GW201356

APPENDIX D:

Test Pit Logs

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP01
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information				Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type		Result
E		E				CI	TOPSOIL: CLAY - medium plasticity, dark brown, trace fine grained, sub-rounded gravel, trace fine grained sand, root affected.					TOPSOIL - TOPSOIL
		0.20m				CH	CLAY - medium to high plasticity, dark brown, trace fine grained sand.					RESIDUAL SOIL
		0.40m										
		E										
		0.50m										
		0.90m										
		E										
		1.00m										
						</						

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400	
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP02
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.10m				CI	0.10m TOPSOIL: CLAY - medium plasticity, dark brown, trace fine grained, sub-rounded gravel, trace fine grained sand, root affected.	M > w _p				TOPSOIL
					CH	CLAY - medium to high plasticity, dark brown, trace fine grained sand.	RESIDUAL SOIL					
		0.40m										
		E 0.50m		0.5								
						SC	0.65m 0.75m Clayey SAND - fine to medium grained, brown, fines of low plasticity.					
						CI	0.90m Sandy CLAY - medium plasticity, brown, fine to medium grained.					
		0.90m										
		E 1.00m		1.0			1.00m Extremely Weathered Andesite with soil properties: breaks down into Sandy CLAY - low plasticity, brown and grey brown, fine to coarse grained sand, with some fine to medium grained, angular gravel.					EXTREMELY WEATHERED ROCK
							Hole Terminated at 1.00 m Limit Of Required Investigation					
				1.5								
				2.0								

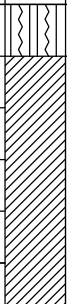
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400	
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)		L	Loose	Density Index 15 - 35%	
				MD	Medium Dense	Density Index 35 - 65%	
				D	Dense	Density Index 65 - 85%	
				VD	Very Dense	Density Index 85 - 100%	

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP03
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CH	CLAY - medium to high plasticity, brown to dark brown, root affected.	M > w _p				TOPSOIL
		0.20m E 0.30m				CH	CLAY - medium to high plasticity, brown to dark brown. Brown to grey brown.					RESIDUAL SOIL
							Hole Terminated at 0.60 m Limit Of Required Investigation					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		VD Very Dense	Density Index 35 - 65%
							Density Index 65 - 85%
							Density Index 85 - 100%

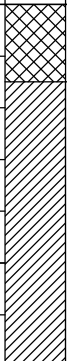
EQUIPMENT TYPE:		2.7 TONNE EXCAVATOR		SURFACE RL:									
TEST PIT LENGTH:		2.0 m		WIDTH: 0.5 m									
				DATUM:									
Drilling and Sampling				Material description and profile information				Field Test		Structure and additional observations			
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY		Test Type	Result	
E		E			0.10m 0.50m 0.60m	CI	Sandy CLAY - medium plasticity, dark brown, fine grained, root affected.	M > W _P				TOPSOIL	
		0.20m				CLAY - medium to high plasticity, dark brown.	RESIDUAL SOIL						
		E			CH								
		0.30m		0.5			Gravelly CLAY - medium to high plasticity, dark brown, fine to medium grained, sub-rounded to sub-angular gravel.						
							Hole Terminated at 0.60 m Limit Of Required Investigation						
				1.0									
				1.5									
				2.0									
LEGEND:				Notes, Samples and Tests				Consistency		UCS (kPa)		Moisture Condition	
Water				U ₅₀ 50mm Diameter tube sample				VS Very Soft		<25		D Dry	
Water Level (Date and time shown)				CBR Bulk sample for CBR testing				S Soft		25 - 50		M Moist	
Water Inflow				E Environmental sample (Glass jar, sealed and chilled on site)				F Firm		50 - 100		W Wet	
Water Outflow				ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)				St Stiff		100 - 200		W _p Plastic Limit	
Strata Changes				B Bulk Sample				VSt Very Stiff		200 - 400		W _L Liquid Limit	
Gradational or transitional strata				Field Tests				H Hard		>400			
Definitive or distinct strata change				PID Photoionisation detector reading (ppm)				Fb Friable					
				DCP(x-y) Dynamic penetrometer test (test depth interval shown)				V Very Loose		Density Index <15%			
				HP Hand Penetromter test (UCS kPa)				L Loose		Density Index 15 - 35%			
								MD Medium Dense		Density Index 35 - 65%			
								D Dense		Density Index 65 - 85%			
								VD Verv Dense		Density Index 85 - 100%			

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP05
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m				GP	FILL: Sandy GRAVEL - fine to medium grained, sub-angular to angular, fine to medium grained sand, brown to grey-brown, with some blue-grey, rootlets.	D	M > w _p			FILL - ROADBASE
		E 0.30m				CH	CLAY - medium to high plasticity, dark brown to dark grey-brown.					RESIDUAL SOIL
				0.5								
				1.0								
				1.5								
				2.0								
							Hole Terminated at 0.70 m Limit Of Required Investigation					

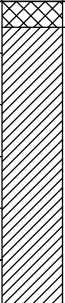
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	w _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	w _L Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400	
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		VD Very Dense	Density Index 35 - 65%
							Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP06
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 18/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		0.10m E 0.20m E		0.5		GP 0.05m CH 0.5m to 0.60m	FILL: Sandy GRAVEL - fine grained, grey to grey-brown, fine to medium grained sand. CLAY - medium to high plasticity, brown to orange-brown, with some fine grained, sub-rounded to rounded gravel.	M	M > W _p			FILL - CRUSHER DUST RESIDUAL SOIL
				1.0			Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.5								
				2.0								

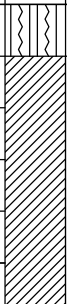
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
 Gradational or transitional strata		Field Tests		H	Hard	>400		
 Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V	Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)				L	Loose	Density Index 15 - 35%
						MD	Medium Dense	Density Index 35 - 65%
						D	Dense	Density Index 65 - 85%
						VD	Very Dense	Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP07
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E		0.20m		CH	TOPSOIL: CLAY - medium to high plasticity, dark brown.	M > w _p				TOPSOIL
		E				0.30m	CH					CLAY - medium to high plasticity, brown, trace fine grained sand.
							Hole Terminated at 0.60 m Limit Of Required Investigation					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400		
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V	Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)				L	Loose	Density Index 15 - 35%
						MD	Medium Dense	Density Index 35 - 65%
						D	Dense	Density Index 65 - 85%
						VD	Very Dense	Density Index 85 - 100%

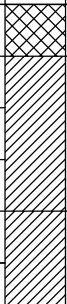
ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP08
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CH	FILL-TOPSOIL: CLAY - medium to high plasticity, dark brown, trace fine grained sand, root affected, with some bricks at the surface.	M > w _p				FILL - TOPSOIL
		0.20m				CH	CLAY - medium to high plasticity, brown to grey-brown.					RESIDUAL SOIL
		E										
		0.30m		0.5	CH	CLAY - medium to high plasticity, brown with some fine to medium grained, sub-rounded gravel.						
				0.60m			Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

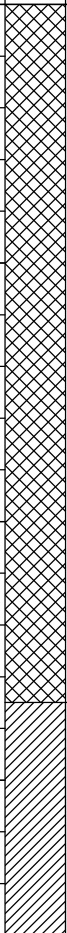
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25		D	Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50		M	Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100		W	Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200		W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400		W _L	Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400			
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable				
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V	Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)		L		L	Loose	Density Index 15 - 35%	
				MD		MD	Medium Dense	Density Index 35 - 65%	
				D		D	Dense	Density Index 65 - 85%	
				VD		VD	Very Dense	Density Index 85 - 100%	

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP09
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations						
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result							
E		E 0.20m				CH	FILL: CLAY - medium to high plasticity, dark brown, with some fine grained sand and some fine to medium grained, sub-rounded to sub-angular gravel, root affected to 0.2m.	M > w _p				FILL						
		0.40m																
		E 0.50m																
				0.5														
		0.90m																
		E 1.00m																
				1.0														
		1.40m																
		E 1.50m																
				1.5														
							CLAY - medium to high plasticity, brown to dark brown and dark grey-brown.					RESIDUAL SOIL						
							1.80m											
							Hole Terminated at 1.80 m Limit Of Required Investigation											
				2.0														

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400	
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		V	Very Loose		Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L	Loose		Density Index 15 - 35%
				MD	Medium Dense		Density Index 35 - 65%
				D	Dense		Density Index 65 - 85%
				VD	Very Dense		Density Index 85 - 100%



ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT

LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO:

TP10

PAGE:

1 OF 1

JOB NO:

NEW21P-0129

LOGGED BY:

BS

DATE:

16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR

TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:

DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E			CI	FILL: Gravelly CLAY - medium plasticity, brown to dark brown, fine grained, sub-angular and angular gravel, root affected.	M > w _p				FILL	
		0.20m			0.20m	FILL: CLAY - medium to high plasticity, brown to dark brown with some sub-angular to angular gravel, with some fine to medium grained sand.						
		0.40m										
		E										
		0.50m			0.5	CH						Animal bone.
		0.90m			1.0							
		E										
		1.00m										
		1.40m			1.5							
		E										
1.50m												
				1.80m	GC	Clayey GRAVEL - fine to medium grained, sub-angular to angular, fines of low to medium plasticity, brown to orange-brown.	M			RESIDUAL SOIL		
				2.0			Hole Terminated at 2.00 m Limit Of Required Investigation					

LEGEND:

Water

-  Water Level
 (Date and time shown)
 Water Inflow
 Water Outflow

Strata Changes

- Strata Changes**
- — Gradational or transitional strata
 - — Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|--|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample
(Glass jar, sealed and chilled on site) |
| ASS | Acid Sulfate Soil Sample
(Plastic bag, air expelled, chilled) |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

[illegible]

- | | | |
|-----|------------|-----------|
| VS | Very Soft | <25 |
| S | Soft | 25 - 50 |
| F | Firm | 50 - 100 |
| St | Stiff | 100 - 200 |
| VSt | Very Stiff | 200 - 400 |
| H | Hard | >400 |
| Fb | Friable | |

UCS (kPa)

- <25
25 - 50
50 - 100
100 - 200
200 - 400
>400

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_l | Liquid Limit |

Density

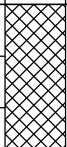
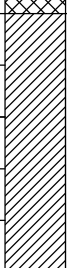
- | | | | |
|-----------------------|----|--------------|-------------------------|
| <u>Density</u> | V | Very Loose | Density Index <15% |
| | L | Loose | Density Index 15 - 35% |
| | MD | Medium Dense | Density Index 35 - 65% |
| | D | Dense | Density Index 65 - 85% |
| | VD | Very Dense | Density Index 85 - 100% |

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP11
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m				CH	FILL: CLAY - medium to high plasticity, brown.	M > w _p				FILL
		0.40m				CLAY - medium plasticity, dark brown to dark grey-brown.	RESIDUAL SOIL					
		E 0.50m		0.5		CI	medium to high plasticity, brown.					
				1.0			Hole Terminated at 0.80 m Limit Of Required Investigation					
				1.5								
				2.0								

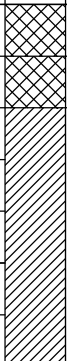
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP12
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 18/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				GP	FILL: GRAVEL - fine to medium grained, sub-angular to angular gravel, blue-grey to grey, with some fine to medium grained sand.	D				FILL
		0.20m				GP	FILL: Sandy GRAVEL- fine grained, sub-angular to angular, grey-brown to brown, fine to medium grained, some fines of low plasticity.	M				FILL - CRUSHER DUST
		E				CH	CLAY - medium to high plasticity, dark brown.	M > w _p				RESIDUAL SOIL
							Hole Terminated at 0.70 m Limit Of Required Investigation					

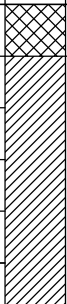
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense			Density Index 35 - 65%
				VD Very Dense			Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP13
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 18/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		0.10m E		0.5		GP	FILL: Sandy GRAVEL- fine grained, sub-angular to angular, grey-brown to brown, fine to medium grained, some fines of low plasticity. / CLAY - medium to high plasticity, dark brown.	D - M				FILL - CRUSHER DUST
		0.20m E				CH		M > w _p				RESIDUAL SOIL
				1.0			Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.5								
				2.0								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
 Gradational or transitional strata		Field Tests		H	Hard	>400	
 Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%
					MD	Medium Dense	Density Index 35 - 65%
					D	Dense	Density Index 65 - 85%
					VD	Very Dense	Density Index 85 - 100%

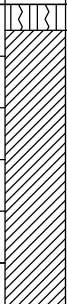
ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP14
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m		0.5		CH	0.05m TOPSOIL: CLAY - medium to high plasticity, brown to dark brown.	M > w _p				TOPSOIL
		E 0.30m				CH	CLAY - medium to high plasticity, brown, trace fine grained, sub-rounded gravel.					RESIDUAL SOIL
							Hole Terminated at 0.60 m Limit Of Required Investigation					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400		
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V	Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L		L	Loose	Density Index 15 - 35%
				MD		MD	Medium Dense	Density Index 35 - 65%
				D		D	Dense	Density Index 65 - 85%
				VD		VD	Very Dense	Density Index 85 - 100%



ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT

LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO:

TP15

PAGE:

1 OF 1

JOB NO:

NEW21P-0129

LOGGED BY:

BS

DATE:

16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR

SURFACE RL:

TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CH	FILL: CLAY - medium to high plasticity, brown to red-brown, with some fine to medium grained sand.	M > w _p				FILL
		0.20m										
		0.40m										
		E		0.5								
		0.50m										
						CH		M > w _p				
		0.90m										
		E		1.0								
		1.00m										
		1.40m										
		E		1.5		SP	FILL: SAND - fine to coarse grained, brown to pale brown, with some fibre glass from base of filled in pool.	M				
		1.50m										
		1.90m										
		E		2.0			Extremely Weathered Andesite with soil properties: breaks down into Sandy CLAY - low to medium plasticity, brown and orange-brown, fine to coarse grained sand, with some fine grained, sub-angular gravel.	M < w _p				EXTREMELY WEATHERED ROCK
		2.00m										
							Hole Terminated at 2.00 m Limit Of Required Investigation					

LEGEND:

Water

-  Water Level
 (Date and time shown)
 Water Inflow
 Water Outflow

Strata Changes

- Strata Changes**
- — Gradational or transitional strata
 - Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|--|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample
(Glass jar, sealed and chilled on site) |
| ASS | Acid Sulfate Soil Sample
(Plastic bag, air expelled, chilled) |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

[illegible]

- | | | |
|-----|------------|-----------|
| VS | Very Soft | <25 |
| S | Soft | 25 - 50 |
| F | Firm | 50 - 100 |
| St | Stiff | 100 - 200 |
| VSt | Very Stiff | 200 - 400 |
| H | Hard | >400 |
| Fb | Friable | |

UCS (kPa)

- <25
25 - 50
50 - 100
100 - 200
200 - 400
>400

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_l | Liquid Limit |

Density

- | | | |
|----|--------------|-------------------------|
| L | Loose | Density Index 15 - 35% |
| MD | Medium Dense | Density Index 35 - 65% |
| D | Dense | Density Index 65 - 85% |
| VD | Very Dense | Density Index 85 - 100% |

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP16
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		0.10m E				GP	FILL: Sandy GRAVEL - fine to medium grained, angular, fine to medium grained, blue-grey.	D				FILL
		0.20m E				CH	CLAY - medium to high plasticity, brown to dark brown, with roots.	M > w _p				RESIDUAL SOIL
		0.30m E										
				0.5								
							0.60m					
							Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

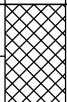
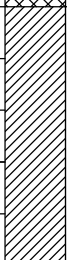
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25		D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50		M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100		W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200		W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400		W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400			
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable				
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		V	Very Loose				Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L	Loose				Density Index 15 - 35%
				MD	Medium Dense				Density Index 35 - 65%
				D	Dense				Density Index 65 - 85%
				VD	Very Dense				Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP17
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m				CL	FILL-TOPSOIL: Silty CLAY - low to medium plasticity, brown to dark brown, with some fine to medium grained, sub-rounded gravel, root affected, with some glass and brick.	M < w _p				FILL - TOPSOIL
		E 0.30m				CH	CLAY - medium to high plasticity, brown.	M > w _p				RESIDUAL SOIL
				0.5								
				0.70m			Hole Terminated at 0.70 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOY'S PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP18
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CH	0.10m TOPSOIL: CLAY - medium to high plasticity, brown to dark brown, trace fine grained sand, root affected, trace plastic at 0.05m.	M > w _p				TOPSOIL
		0.20m		CH	CLAY - medium to high plasticity, brown.	M > w _p	RESIDUAL SOIL					
		0.30m										
		E 0.40m										
			0.5			Brown to pale brown with some fine grained gravel.						
				0.60m			Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

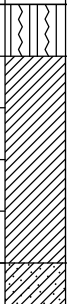
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25		D	Dry
Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50		M	Moist
Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100		W	Wet
Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200		W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400		W _L	Liquid Limit
Gradational or transitional strata		Field Tests		H	Hard	>400			
Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable				
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		V	Very Loose				Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L	Loose				Density Index 15 - 35%
				MD	Medium Dense				Density Index 35 - 65%
				D	Dense				Density Index 65 - 85%
				VD	Very Dense				Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP19
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CH	TOPSOIL: CLAY - medium to high plasticity, dark brown with some fine grained sand, root affected.	M > w _p				TOPSOIL
		0.20m			CH	CLAY - medium to high plasticity, brown.	RESIDUAL SOIL					
		E			CH							
				0.5		CL	Sandy CLAY - low to medium plasticity, brown to pale brown, fine grained sand.					
							Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

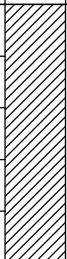
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP20
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m				CH	CLAY - medium to high plasticity, brown to grey-brown and dark brown.	M > w _p				RESIDUAL SOIL
		E 0.30m					Brown to dark brown.					
				0.5		CH	Sandy CLAY - medium to high plasticity, brown to pale brown, fine grained sand, trace fine grained, sub-rounded gravel.					
							Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

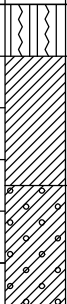
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		V	Very Loose		Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L	Loose		Density Index 15 - 35%
				MD	Medium Dense		Density Index 35 - 65%
				D	Dense		Density Index 65 - 85%
				VD	Very Dense		Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP21
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CL	0.10m TOPSOIL: Sandy CLAY - low to medium plasticity, brown to dark brown, fine grained sand, root affected, trace coal chitter.	M < w _p				TOPSOIL
		CH				CLAY - medium to high plasticity, brown to dark brown, with some fine grained, sub-rounded to rounded gravel.	M > w _p	RESIDUAL SOIL				
		CH				Gravelly CLAY - medium to high plasticity, brown to dark brown with some pale brown, fine grained, sub-rounded to rounded gravel.						
				0.5			0.60m					
				1.0			Hole Terminated at 0.60 m Limit Of Required Investigation					
				1.5								
				2.0								

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D	Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M	Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W	Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L	Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400		
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable			
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V	Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L		Loose		Density Index 15 - 35%
				MD		Medium Dense		Density Index 35 - 65%
				D		Dense		Density Index 65 - 85%
				VD		Very Dense		Density Index 85 - 100%



ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT

LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO:

TP22

PAGE:

1 OF 1

JOB NO:

NEW21P-0129

LOGGED BY:

BS

DATE:

17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR

TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:

DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m				CI	FILL-TOPSOIL: Gravelly CLAY - medium plasticity, dark brown, fine to coarse grained, sub-angular to angular, with some fine grained sand, root affected.	M > w _p				FILL - TOPSOIL
		0.40m E 0.50m				CH	FILL: Gravelly CLAY - medium plasticity, dark brown, fine to coarse grained and cobble sized, sub-angular to angular gravel, with some fine grained sand.					FILL
		0.90m E 1.00m					HIGHLY to MODERATELY WEATHERED SANDSTONE					HIGHLY TO MODERATELY WEATHERED ROCK
							Hole Terminated at 1.20 m Limit Of Required Investigation					

LEGEND:

Water

-  Water Level
 (Date and time shown)
 Water Inflow
 Water Outflow

Strata Changes

- Strata Changes**
- — Gradational or transitional strata
 - Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|--|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample
(Glass jar, sealed and chilled on site) |
| ASS | Acid Sulfate Soil Sample
(Plastic bag, air expelled, chilled) |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

Consistency

- | | |
|-----|------------|
| VS | Very Soft |
| S | Soft |
| F | Firm |
| St | Stiff |
| VSt | Very Stiff |
| H | Hard |
| Fb | Friable |

UCS (kPa)

- <25
25 - 50
50 - 100
100 - 200
200 - 400
>400

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_l | Liquid Limit |

Density

- | <u>Density</u> | | | |
|----------------|--------------|---------------|-----------|
| V | Very Loose | Density Index | <15% |
| L | Loose | Density Index | 15 - 35% |
| MD | Medium Dense | Density Index | 35 - 65% |
| D | Dense | Density Index | 65 - 85% |
| VD | Very Dense | Density Index | 85 - 100% |

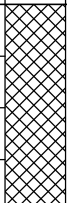
ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP23
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m				CI	FILL: Gravelly CLAY - medium plasticity, dark brown, fine to coarse grained, sub-angular to angular, with some fine grained sand, root affected.	M > w _p				FILL
				0.5			MODERATELY WEATHERED SANDSTONE - brown to white and orange-brown, fine grained. Hole Terminated at 0.41 m Limit Of Required Investigation					MODERATELY WEATHERED ROCK

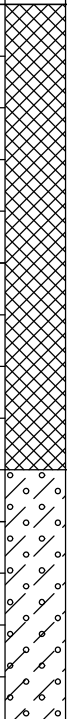
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
 Gradational or transitional strata		Field Tests		H	Hard	>400	
 Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V Very Loose	Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)			L Loose	Density Index 15 - 35%	
					MD Medium Dense	Density Index 35 - 65%	
					D Dense	Density Index 65 - 85%	
					VD Very Dense	Density Index 85 - 100%	

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP24
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result		
E		E 0.20m				CH	FILL: CLAY - medium to high plasticity, dark brown, trace fine to medium grained sand, trace fine to medium grained, sub-angular to angular gravel.	M > w _p				FILL	
		0.40m											
	E 0.50m		0.5										
	0.90m												
	E 1.00m		1.0	GC		Clayey GRAVEL - fine to coarse grained, sub-angular to sub-rounded, with some angular, pale brown and orange-brown, fines of low plasticity to medium plasticity, with some fine to coarse grained sand.							RESIDUAL SOIL
				1.40m									
				1.5			Hole Terminated at 1.40 m Limit Of Required Investigation						
				2.0									

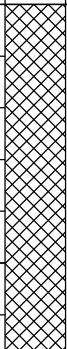
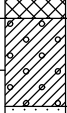
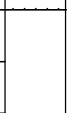
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS Very Soft		<25		D Dry	
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S Soft		25 - 50		M Moist	
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F Firm		50 - 100		W Wet	
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St Stiff		100 - 200		W _p Plastic Limit	
Strata Changes		B Bulk Sample		VSt Very Stiff		200 - 400		W _L Liquid Limit	
--- Gradational or transitional strata		Field Tests		H Hard		>400			
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb Friable					
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose		Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)		L Loose		Medium Dense		Density Index 15 - 35%	
				MD Medium Dense		Dense		Density Index 35 - 65%	
				D Dense		Very Dense		Density Index 65 - 85%	
				VD Very Dense				Density Index 85 - 100%	

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP25
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m		0.5		CI	FILL: Gravelly CLAY - medium plasticity, dark brown, fine to coarse grained, angular to sub-angular gravel, with some fine to medium grained sand, rootlets to 0.1m, mixed with some medium to cobble sized highly weathered rock.	M > w _p				FILL
		0.40m										
		E 0.50m										
		0.75m										
		E 0.85m										
						CI	Gravelly CLAY - medium plasticity, brown to pale brown and some orange-brown, fine to coarse grained, sub-angular to angular gravel, with some highly weathered rock and some fine to medium grained sand.					RESIDUAL SOIL
							MODERATELY WEATHERED SANDSTONE - brown to white and orange-brown, fine grained. Hole Terminated at 0.90 m Limit Of Required Investigation					MODERATELY WEATHERED ROCK

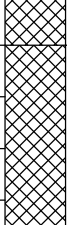
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP26
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 17/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E		0.5		CL	FILL-TOPSOIL: Gravelly CLAY - low to medium plasticity, dark brown, fine grained, sub-angular gravel, rootlets.	M < w _p				FILL - TOPSOIL
		0.20m				GC	FILL: Clayey GRAVEL - coarse to cobble sized rock, dark brown, fines of low to medium plasticity, with some fine to coarse grained sand.	M				FILL
		0.40m										
		0.50m										
				1.0								
				1.5								
				2.0								

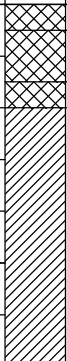
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density	V	Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)			L	Loose	Density Index 15 - 35%
					MD	Medium Dense	Density Index 35 - 65%
					D	Dense	Density Index 65 - 85%
					VD	Very Dense	Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP27
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E		0.20m		CL	0.05m FILL-TOPSOIL: Silty CLAY - low to medium plasticity, dark brown, root affected, with some glass, steel.	M > w _p				FILL - TOPSOIL
		CL				0.15m FILL: Sandy CLAY - low to medium plasticity, brown.	FILL					
		E				0.30m	GC	0.20m FILL: Clayey GRAVEL - fine grained, brown to orange-brown, fines of low to medium plasticity, with some fine to medium grained sand.	M		RESIDUAL SOIL	
							CH	Brown to pale brown.	M > w _p			
						0.70m	Hole Terminated at 0.70 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

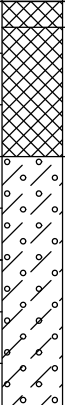
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition	
Water		U ₃₀	50mm Diameter tube sample	VS	Very Soft	<25	D	Dry
 Water Level (Date and time shown)		CBR	Bulk sample for CBR testing	S	Soft	25 - 50	M	Moist
 Water Inflow		E	Environmental sample (Glass jar, sealed and chilled on site)	F	Firm	50 - 100	W	Wet
 Water Outflow		ASS	Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)	St	Stiff	100 - 200	W _p	Plastic Limit
Strata Changes		B	Bulk Sample	VSt	Very Stiff	200 - 400	W _L	Liquid Limit
 Gradational or transitional strata		Field Tests		H	Hard	>400		
 Definitive or distinct strata change		PID	Photoionisation detector reading (ppm)	Fb	Friable			
		DCP(x-y)	Dynamic penetrometer test (test depth interval shown)	Density		V	Very Loose	Density Index <15%
		HP	Hand Penetrometer test (UCS kPa)	L	Loose	MD	Medium Dense	Density Index 15 - 35%
				D	Dense	D	Dense	Density Index 35 - 65%
				VD	Very Dense	D	Dense	Density Index 65 - 85%
						VD	Very Dense	Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP28
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CL	0.05m FILL-TOPSOIL: Sandy CLAY - low to medium plasticity, brown, fine grained sand, root affected.	M				FILL / TOPSOIL
		0.20m				GC	FILL: Clayey GRAVEL - fine to medium grained, sub-angular to angular, brown, fines of medium plasticity, with some fine to coarse grained sand.					FILL
		0.40m					0.30m Clayey GRAVEL - fine to medium grained, sub-angular to angular, brown to dark brown, fines of medium to high plasticity, trace fine grained sand.					RESIDUAL SOIL
		E				GC		M				
		0.50m					0.80m					
							Hole Terminated at 0.80 m Limit Of Required Investigation					
				1.0								
				1.5								
				2.0								

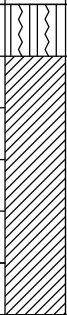
LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)	Moisture Condition
Water		U ₅₀ 50mm Diameter tube sample		VS	Very Soft	<25	D Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50	M Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100	W Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200	W _p Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400	W _L Liquid Limit
--- Gradational or transitional strata		Field Tests		H	Hard	>400	
— Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable		
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose	Density Index <15%
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense	Density Index 15 - 35%
				D Dense		D Dense	Density Index 35 - 65%
				VD Very Dense		VD Very Dense	Density Index 65 - 85%
							Density Index 85 - 100%

ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT
PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO: TP29
PAGE: 1 OF 1
JOB NO: NEW21P-0129
LOGGED BY: BS
DATE: 16/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR
TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m
SURFACE RL:
DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E 0.20m		0.5		CH	TOPSOIL: Sandy CLAY - medium to high plasticity, dark brown, fine to medium grained, root affected.	M > w _p				TOPSOIL
		E 0.30m				CH	CLAY - medium to high plasticity, brown, trace fine grained, angular gravel.					RESIDUAL SOIL
							Hole Terminated at 0.60 m Limit Of Required Investigation					

LEGEND:		Notes, Samples and Tests		Consistency		UCS (kPa)		Moisture Condition	
Water		U ₃₀ 50mm Diameter tube sample		VS	Very Soft	<25		D	Dry
 Water Level (Date and time shown)		CBR Bulk sample for CBR testing		S	Soft	25 - 50		M	Moist
 Water Inflow		E Environmental sample (Glass jar, sealed and chilled on site)		F	Firm	50 - 100		W	Wet
 Water Outflow		ASS Acid Sulfate Soil Sample (Plastic bag, air expelled, chilled)		St	Stiff	100 - 200		W _p	Plastic Limit
Strata Changes		B Bulk Sample		VSt	Very Stiff	200 - 400		W _L	Liquid Limit
 Gradational or transitional strata		Field Tests		H	Hard	>400			
 Definitive or distinct strata change		PID Photoionisation detector reading (ppm)		Fb	Friable				
		DCP(x-y) Dynamic penetrometer test (test depth interval shown)		Density		V Very Loose		Density Index <15%	
		HP Hand Penetrometer test (UCS kPa)		L Loose		MD Medium Dense		Density Index 15 - 35%	
				D Dense		VD Very Dense		Density Index 35 - 65%	
								Density Index 65 - 85%	
								Density Index 85 - 100%	



ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT

LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO:

TP30

PAGE:

1 OF 1

JOB NO:

NEW21P-0129

LOGGED BY:

BS

DATE:

18/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR

TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:

DATUM:

Drilling and Sampling					Material description and profile information						Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result		
E		E				CH	FILL-TOPSOIL: Sandy CLAY - medium to high plasticity, dark brow, fine grained sand, root affected.	M > w _p				FILL - TOPSOIL	
		0.20m				CH	FILL: Sandy CLAY - medium to high plasticity, brown, fine grained sand.					FILL	
		0.40m											
		E 0.50m											
		0.75m											
		E 0.85m				CH	CLAY - medium to high plasticity, dark brown.					RESIDUAL SOIL	
			1.30m		Hole Terminated at 1.30 m Limit Of Required Investigation								
				1.5									
				2.0									

LEGEND:

Water

-  Water Level
 (Date and time shown)
 Water Inflow
 Water Outflow

Strata Changes

- Strata Changes**
- — Gradational or transitional strata
 - Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|--|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample
(Glass jar, sealed and chilled on site) |
| ASS | Acid Sulfate Soil Sample
(Plastic bag, air expelled, chilled) |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

Consistency

- | | |
|-----|------------|
| VS | Very Soft |
| S | Soft |
| F | Firm |
| St | Stiff |
| VSt | Very Stiff |
| H | Hard |
| Fb | Friable |

UCS (kPa)

- <25
25 - 50
50 - 100
100 - 200
200 - 400
>400

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_l | Liquid Limit |

Density

- | <u>Density</u> | | | |
|----------------|--------------|---------------|-----------|
| V | Very Loose | Density Index | <15% |
| L | Loose | Density Index | 15 - 35% |
| MD | Medium Dense | Density Index | 35 - 65% |
| D | Dense | Density Index | 65 - 85% |
| VD | Very Dense | Density Index | 85 - 100% |



ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT

LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO:

TP31

PAGE:

1 OF 1

JOB NO:

NEW21P-0129

LOGGED BY:

BS

DATE:

18/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR

TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:

DATUM:

Drilling and Sampling					Material description and profile information						Field Test		Structure and additional observations	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics,colour,minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result			
E		E			CH	CH	FILL-TOPSOIL: Sandy CLAY - medium to high plasticity, dark brow, fine grained sand, root affected.	M > w _P				FILL - TOPSOIL		
		0.20m					0.15m					FILL: Sandy CLAY - medium to high plasticity, brown, fine grained sand.	FILL	
		0.40m					0.5					CH	CLAY - medium to high plasticity, dark brown.	RESIDUAL SOIL
		E												
		0.50m												
		0.80m												
E	0.90m	1.0	CH	1.30m										
				1.5			Hole Terminated at 1.30 m Limit Of Required Investigation							
				2.0										

LEGEND:

Water

-  Water Level
 (Date and time shown)
 Water Inflow
 Water Outflow

Strata Changes

- Strata Changes**
- — Gradational or transitional strata
 - Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|--|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample
(Glass jar, sealed and chilled on site) |
| ASS | Acid Sulfate Soil Sample
(Plastic bag, air expelled, chilled) |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

[illegible]

- | | |
|-----|------------|
| VS | Very Soft |
| S | Soft |
| F | Firm |
| St | Stiff |
| VSt | Very Stiff |
| H | Hard |
| Fb | Friable |

UCS (kPa)

- <25
25 - 50
50 - 100
100 - 200
200 - 400
>400

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_l | Liquid Limit |

Density

- | <u>Density</u> | | | |
|----------------|--------------|---------------|-----------|
| V | Very Loose | Density Index | <15% |
| L | Loose | Density Index | 15 - 35% |
| MD | Medium Dense | Density Index | 35 - 65% |
| D | Dense | Density Index | 65 - 85% |
| VD | Very Dense | Density Index | 85 - 100% |



ENGINEERING LOG - TEST PIT

CLIENT: MCCLOYS PROJECT MANAGEMENT

PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT

LOCATION: 51, 134 AND 146 STATION LANE, LOCHINVAR

TEST PIT NO:

TP32

PAGE:

1 OF 1

JOB NO:

NEW21P-0129

LOGGED BY:

BS

DATE:

18/3/22

EQUIPMENT TYPE: 2.7 TONNE EXCAVATOR

TEST PIT LENGTH: 2.0 m **WIDTH:** 0.5 m

SURFACE RL:

DATUM:

Drilling and Sampling					Material description and profile information					Field Test		Structure and additional observations
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/particle characteristics, colour, minor components	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	
E		E				CI	FILL-TOPSOIL: Sandy CLAY - medium plasticity, dark brown, fine grained sand, root affected.	M > w _p				FILL - TOPSOIL
		0.20m					FILL: Mix of CLAY and Sandy CLAY - medium to high plasticity, brown to dark brown, fine to medium grained sand, with some concrete, bricks, tile and wood/mulch throughout.					FILL
		0.60m		0.5								
		E										
		0.70m										
		1.00m		1.0		CH						
		E										
		1.10m										

LEGEND:

Water

-  Water Level
 (Date and time shown)
 Water Inflow
 Water Outflow

Strata Changes

- Strata Changes**
- — Gradational or transitional strata
 - Definitive or distinct strata change

Notes, Samples and Tests

- | | |
|-----------------|--|
| U ₅₀ | 50mm Diameter tube sample |
| CBR | Bulk sample for CBR testing |
| E | Environmental sample
(Glass jar, sealed and chilled on site) |
| ASS | Acid Sulfate Soil Sample
(Plastic bag, air expelled, chilled) |
| B | Bulk Sample |

Field Tests

- | | |
|----------|---|
| PID | Photoionisation detector reading (ppm) |
| DCP(x-y) | Dynamic penetrometer test (test depth interval shown) |
| HP | Hand Penetrometer test (UCS kPa) |

[illegible]

- | | |
|-----|------------|
| VS | Very Soft |
| S | Soft |
| F | Firm |
| St | Stiff |
| VSt | Very Stiff |
| H | Hard |
| Fb | Friable |

UCS (kPa)

- <25
25 - 50
50 - 100
100 - 200
200 - 400
>400

Moisture Condition

- | | |
|-------|---------------|
| D | Dry |
| M | Moist |
| W | Wet |
| W_p | Plastic Limit |
| W_l | Liquid Limit |

Density

- | | | | |
|-----------------------|----|--------------|-------------------------|
| <u>Density</u> | V | Very Loose | Density Index <15% |
| | L | Loose | Density Index 15 - 35% |
| | MD | Medium Dense | Density Index 35 - 65% |
| | D | Dense | Density Index 65 - 85% |
| | VD | Very Dense | Density Index 85 - 100% |

APPENDIX E:

Laboratory Documentation

ANALYTICAL REPORT

REPORT CODE

AR-22-NV-003797-01

REPORT DATE

26/03/2022

For the attention of

Eurofins Environment Testing Australia Pty Ltd
Analytical Reports
6 Monterey Road
Dandenong South
3175 Melbourne
AUSTRALIA

Phone +61 3 8564 5064

Email EnviroReportsau@eurofins.com



Contact for your orders:

Ruvini Herath

Submission Reference:

Merged from order
cau001-order-873498-220325.xml

Order code:

EUAUTWU-00015266

Purchase Order Number:

873498

SAMPLE CODE

726-2022-00010102

Client Reference:

22-Ma46078

Sample described as:

S2

Reception Date:

25/03/2022

Analysis Starting Date:

25/03/2022

Sampled Date & Time

22/03/2022 12:00:00

Reception temperature:

8.9 °C

Analysis Ending Date:

26/03/2022

RESULTS

LOQ

VQ239 E.coli

Analysis Starting Date: 25/03/2022 10:58

E.Coli

9800

MPN/g

1

VQ255 Thermotolerant Coliforms

Analysis Starting Date: 25/03/2022 10:58

Thermotolerant coliforms

>24000

MPN/g

1

SAMPLE CODE

726-2022-00010103

Client Reference:

22-Ma46079

Sample described as:

S3

Reception Date:

25/03/2022

Analysis Starting Date:

25/03/2022

Sampled Date & Time

22/03/2022 12:00:00

Reception temperature:

8.9 °C

Analysis Ending Date:

26/03/2022

RESULTS

LOQ

VQ239 E.coli

Analysis Starting Date: 25/03/2022 10:58

E.Coli

1300

MPN/g

1

VQ255 Thermotolerant Coliforms

Analysis Starting Date: 25/03/2022 10:58

Thermotolerant coliforms

>24000

MPN/g

1

Eurofins Food Testing Australia Pty Ltd

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Melbourne
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AUSTRALIA

Phone +61385645000

<https://www.eurofins.com.au/foc>

Accredited for compliance with ISO/IEC
17025 - Testing
NATA is a signatory to the ILAC Mutual
Recognition Arrangement for the mutual
recognition of the equivalence of testing,
medical testing, calibration, inspection,
proficiency testing scheme providers and
reference materials producers reports and
certificates.
Accreditation Number 20293



SAMPLE CODE 726-2022-00010104

Client Reference: 22-Ma46080
Sample described as: S4
Reception Date: 25/03/2022
Analysis Starting Date: 25/03/2022
Sampled Date & Time: 22/03/2022 12:00:00

Reception temperature: 8.9 °C
Analysis Ending Date: 26/03/2022

RESULTS

LOQ

VQ239 E.coli

Analysis Starting Date: 25/03/2022 10:58

E.Coli >24000 MPN/g 1

VQ255 Thermotolerant Coliforms

Analysis Starting Date: 25/03/2022 10:58

Thermotolerant coliforms >24000 MPN/g 1

SAMPLE CODE 726-2022-00010105

Client Reference: 22-Ma46081
Sample described as: S5
Reception Date: 25/03/2022
Analysis Starting Date: 25/03/2022
Sampled Date & Time: 22/03/2022 12:00:00

Reception temperature: 8.9 °C
Analysis Ending Date: 26/03/2022

RESULTS

LOQ

VQ239 E.coli

Analysis Starting Date: 25/03/2022 10:58

E.Coli 9200 MPN/g 1

VQ255 Thermotolerant Coliforms

Analysis Starting Date: 25/03/2022 10:58

Thermotolerant coliforms >24000 MPN/g 1

SAMPLE CODE 726-2022-00010106

Client Reference: 22-Ma46082
Sample described as: S6
Reception Date: 25/03/2022
Analysis Starting Date: 25/03/2022
Sampled Date & Time: 22/03/2022 12:00:00

Reception temperature: 8.9 °C
Analysis Ending Date: 26/03/2022

RESULTS

LOQ

VQ239 E.coli

Analysis Starting Date: 25/03/2022 10:58

E.Coli >24000 MPN/g 1

VQ255 Thermotolerant Coliforms

Analysis Starting Date: 25/03/2022 10:58

Thermotolerant coliforms >24000 MPN/g 1

SAMPLE CODE 726-2022-00010107

Client Reference: 22-Ma46083
Sample described as: S7
Reception Date: 25/03/2022
Analysis Starting Date: 25/03/2022
Sampled Date & Time: 22/03/2022 12:00:00

Reception temperature: 8.9 °C
Analysis Ending Date: 26/03/2022

Eurofins Food Testing Australia Pty Ltd

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RESULTS

LOQ

VQ239 **E.coli**

Analysis Starting Date: 25/03/2022 10:58

E.Coli	120	MPN/g	1
--------	-----	-------	---

VQ255 **Thermotolerant Coliforms**

Analysis Starting Date: 25/03/2022 10:58

Thermotolerant coliforms	24000	MPN/g	1
--------------------------	-------	-------	---

LIST OF METHODS

VQ239 **E.coli**: Internal Method, E-Cultural technique (MPN tubes)VQ255 **Thermotolerant Coliforms**: Internal Method, E-Cultural technique (MPN tubes)

Signature



Di Shen Scientist

EXPLANATORY NOTE

- ◆ test is not accredited
- test is subcontracted within Eurofins group and is accredited
- test is subcontracted within Eurofins group and is not accredited
- test is subcontracted outside Eurofins group and is accredited
- test is subcontracted outside Eurofins group and is not accredited

N/A means Not applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ Limit of Quantification

U Measurement Uncertainty

< Less than, ≤ Less than or equal to

> Greater than, ≥ Greater than or equal to

The tests are identified by a 5 digit code, full details can be provided on request.

Information supplied by the client. This information can have an impact on the validity of results.

Samples are tested as received and the results relate only to the sample tested.

Analysis date is reported as the start date of extraction for a method.

The results may not be reproduced except in full, without a written approval from the laboratory.

Eurofins General Terms and Conditions apply.

END OF REPORT

Eurofins Food Testing Australia Pty Ltd

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Accreditation Number 20293





☐ **Melbourne Laboratory**
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

1/1a

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.



☐ **Melbourne Laboratory**
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

2/19

Company		Qualtest		Project No		NEW21P-0129						Project Manager		Libby Betz								Sampler(s)		B.Snow							
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar						EDD Format ESdat, EQuiS etc		Excel								Handed over by									
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w) Metals Suite B1 TRH, BTEX OCPs pH and CEC Suite B7 - TRH, BTEX, PAHs, Metals Suite S26 - TRH, BTEX, PAHs, Metals																		Email for Invoice		accounts@qualtest.com.au					
Phone N°																								Email for Results		libbybetz@qualtest.com.au billysnow@qualtest.com.au emmacoleman@qualtest.com.au					
Special Directions																								Containers				Required Turnaround Time (TAT)			
																								Change container type & size if necessary.				Default will be 5 days if not ticked.			
Purchase Order																															
Quote ID N°		180622QUAN-3																													
No	Client Sample ID		Sampled Date/Time dd/mm/yyyy hh:mm	Matrix Solid (S) Water (W)																			Sample Comments / Dangerous Goods Hazard Warning								
	SS11		17/03/22	Soil	X	X																									
2	SS12		17/03/22	Soil	X	X																									
3	SS13		17/03/22	Soil		X																									
4	SS14		17/03/22	Soil	X					X																					
5	SS15		17/03/22	Soil	X					X																					
6	SS16		17/03/22	Soil	X	X																									
7	SS17		17/03/22	Soil		X																									
8	SS18		17/03/22	Soil	X					X																					
9	SS19		17/03/22	Soil		X																									
10	SS20		17/03/22	Soil		X																									
Total Counts					6	7				3											10	10									
Method of Shipment		☒ Courier (#) ☐ Hand Delivered ☐ Postal		Name				Signature				Date				Time															
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date				Time		Temperature															
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date				Time		Report No		87349													

Eurofins Environment Testing Australia Pty Ltd

Submission of samples to the laboratory will be deemed as acceptance of Eurofins | Environment Testing Standard Terms and Conditions unless agreed otherwise. A copy is available on request.



CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2068
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9800 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

3/19

Company		Qualitest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow									
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		McCloys - Lochinvar		EDD Format ESdat, EQUS etc		Excel		Handed over by													
Contact Name		Libby Betz		Analyses Where metals are requested, please specify 'Total' or 'Filtered'. SUITE code must be used to attach SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualitest.com.au	
Phone No																				Email for Results		libbybetz@qualitest.com.au billysnow@qualitest.com.au emmacoleman@qualitest.com.au	
Special Directions																				Containers		Required Turnaround Time (TAT)	
Purchase Order																				Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																					
No	Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																Sample Comments / Dangerous Goods Hazard Warning		
1	SS21		17/03/22		Soil																		
2	SS22		17/03/22		Soil																		
3	SS23		17/03/22		Soil																		
4	SS24		17/03/22		Soil																		
5	SS25		17/03/22		Soil																		
6	SS26		17/03/22		Soil																		
7	SS27		18/03/22		Soil																		
8	SS28		18/03/22		Soil																		
9	SS29		18/03/22		Soil																		
10	SS30		18/03/22		Soil																		
Total Counts							4		8								2						
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Date		Time		Time		Temperature		Report No		873498			
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Time		Temperature		Report No		873498					
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Time		Temperature		Report No		873498					



CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9800 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory
Unit 1 21 Smallwood Place Murarie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9800 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

4/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow																	
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - LochInvar		EDD Format		Excel		Handed over by																			
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualtest.com.au									
Phone No																								Email for Results		libbybetz@qualtest.com.au billysnow@qualtest.com.au emmacoleman@qualtest.com.au					
Special Directions																								Containers		Change container type & size if necessary.		Required Turnaround Time (TAT)		Default will be 5 days if not ticked.	
Purchase Order																								500mL Plastic		250mL Plastic		125mL Plastic		200mL Amber Glass	
Quote ID No		180622QUAN-3																				☐ Overnight (reporting by 9am) ♦									
																						☐ Same day ♦ ☐ 1 day ♦									
																						☐ 2 days ♦ ☐ 3 days ♦									
																						☑ 5 days (Standard)									
																						☐ Other()									
No		Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																Sample Comments / Dangerous Goods Hazard Warning									
1		SS31		18/03/22		Soil																									
2		SS32		18/03/22		Soil																									
3		SS33		18/03/22		Soil																									
4		SS34		18/03/22		Soil																									
5		SS35		18/03/22		Soil																									
6		SS36		18/03/22		Soil																									
7		SS37		18/03/22		Soil																									
8		SS38		18/03/22		Soil																									
9		SS39		18/03/22		Soil																									
10		SS40		18/03/22		Soil																									
Total Counts								4		9				1																	
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name				Signature				Date				Time															
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date				Time				Temperature															
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date				Time				Report No		873498													



CHAIN OF CUSTODY RECORD

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☐ Sydney Laboratory

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☐ Melbourne Laboratory

6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

5/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow													
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochlnvar		EDD Format		Excel		Handed over by															
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite #1 TRH, BTEX		OCFs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Chromium (Speciation)		Email for Invoice		accounts@qualtest.com.au			
Phone No																								Email for Results		libbybetz@qualtest.com.au billysnow@qualtest.com.au emmacoleman@qualtest.com.au	
Special Directions																								Containers		Required Turnaround Time (TAT)	
Purchase Order																								Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																									
No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)																								
1	SS41	18/03/22	Soil		X					X																	
2	SS42	18/03/22	Soil		X					X																	
3	SS43	18/03/22	Soil																								
4	SS44	18/03/22	Soil			X																					
5	SS46	18/03/22	Soil			X																					
6	SS-C1	22/03/22	Soil							X																	
7	SS-C2	22/03/22	Soil							X																	
8	SS-C3	22/03/22	Soil							X																	
9	SS-C4	22/03/22	Soil							X																	
10	SS-C5	22/03/22	Soil							X																	
Total Counts					2	2				2											5						
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name				Signature				Date				Time											
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date				Time				Temperature											
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date				Time				Report No											

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7/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow									
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format ESdat, EQulS etc		Excel		Handed over by											
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCFs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice accounts@qualtest.com.au		Email for Results libbybetz@qualtest.com.au emmacoleman@qualtest.com.au billysnow@qualtest.com.au	
Phone No																							
Special Directions																							
Purchase Order																							
Quote ID No		180622QUAN-3																					
No.		Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																	
1		SED2		22/03/22		Soil																	
2		SED3		22/03/22		Soil																	
3		SW1		22/03/22		WATER																	
4		SW2		22/03/22		WATER																	
5		SW3		22/03/22		WATER																	
6		WB.16.3.22		16/03/22		WATER																	
7		TB.16.3.22		16/03/22		WATER																	
8		TP1 0.0-0.1		16/03/22		Soil																	
9		TP1 0.4-0.5		16/03/22		Soil																	
10		TP1 0.9-1.0		16/03/22		Soil																	
Total Counts																							
Method of Shipment		☐ Courier (#)		☐ Hand Delivered		☐ Postal		Name		Signature		Date		Time		Temperature							
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature		Report No		87349							
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature		Report No		87349							

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☐ Perth Laboratory
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☐ Melbourne Laboratory
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03 8564 5000 EnviroSampleVic@eurofins.com

8/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow																	
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format		Excel		Handed over by																			
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualtest.com.au									
Phone No																								Email for Results		libbybetz@qualtest.com.au billysnow@qualtest.com.au emmacoleman@qualtest.com.au					
Special Directions																								Containers		Change container type & size if necessary.		Required Turnaround Time (TAT)		Default will be 5 days if not ticked.	
Purchase Order																								500mL Plastic		250mL Plastic		125mL Plastic		200mL Amber Glass	
Quote ID No		180622QUAN-3																													
No	Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																Sample Comments / Dangerous Goods Hazard Warning										
1	TP1 1.4-1.5		16/03/22		Soil																										
2	TP2 0.0-0.1		16/03/22		Soil		X																								
3	TP2 0.4-0.5		16/03/22		Soil																										
4	TP2 0.9-1.0		16/03/22		Soil																										
5	TP3 0.0-0.1		16/03/22		Soil		X																								
6	TP3 0.2-0.3		16/03/22		Soil																										
7	TP4 0.0-0.1		16/03/22		Soil		X																								
8	TP4 0.0-0.2		16/03/22		Soil		X												1												
9	TP4 0.2-0.3		16/03/22		Soil														1												
10	TP5 0.0-0.1		16/03/22		Soil		X												1												
Total Counts							1		4																						
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name				Signature				Date				Time															
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date				Time		Temperature															
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date				Time		Report No		873498													

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9/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow											
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format		Excel		Handed over by													
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualtest.com.au			
Phone No																						Email for Results		libbybetz@qualtest.com.au emmacoleman@qualtest.com.au	
Special Directions																						Containers		Required Turnaround Time (TAT)	
Purchase Order																						Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																				500mL Plastic		250mL Plastic	
No		Client Sample ID		Sampled Date/Time dd/mm/yyyy hh:mm		Matrix Solid (S) Water (W)														Sample Comments / Dangerous Goods Hazard Warning					
1		TP5 0.0-0.2		16/03/22		Soil		X												1					
2		TP5 0.2-0.3		16/03/22		Soil														1					
3		TP6 0.0-0.05		16/03/22		Soil								X						1					
4		TP6 0.0-0.2		16/03/22		Soil		X												1					
5		TP6 0.1-0.20		16/03/22		Soil														1					
6		TP7 0.0-0.1		16/03/22		Soil				X										1					
7		TP7 0.0-0.2		16/03/22		Soil														1					
8		TP7 0.2-0.3		16/03/22		Soil														1					
9		TP8 0.0-0.1		16/03/22		Soil				X										1					
10		TP8 0.0-0.2		16/03/22		Soil		X												1					
Total Counts						3		2				1						6		4					
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Time		Temperature													
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report No		87349											
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time															



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10/19

873498



CHAIN OF CUSTODY RECORD

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☐ Melbourne Laboratory

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11/19

Company		Qualitest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow													
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format		Excel		Handed over by															
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filterable". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualitest.com.au					
Phone No																								Email for Results		libbybetz@qualitest.com.au billysnow@qualitest.com.au emmamccoleman@qualitest.com.au	
Special Directions																								Containers		Required Turnaround Time (TAT)	
Purchase Order																								Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																									
No	Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																		Sample Comments / Dangerous Goods Hazard Warning				
1	TP10 1.4-1.5		16/03/22		Soil																						
2	TP10 1.9-2.0		16/03/22		Soil																						
3	TP11 0.0-0.1		16/03/22		Soil																						
4	TP11 0.0-0.2		16/03/22		Soil																						
5	TP11 0.4-0.5		16/03/22		Soil																						
6	TP12 0.0-0.1		18/03/22		Soil																						
7	TP12 0.0-0.2		18/03/22		Soil																						
8	TP12 0.2-0.3		18/03/22		Soil																						
9	TP13 0.0-0.1		18/03/22		Soil																						
10	TP13 0.0-0.2		18/03/22		Soil																						
Total Counts							2		4																		
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name				Signature				Date				Time											
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date		Time				Temperature											
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date		Time				Report No		873498									



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12/10

Company		Qualitest		Project №		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow									
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloy's - Lochinvar		EDD Format ESdat, EQuIS etc		Excel		Handed over by											
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCP's		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualitest.com.au	
Phone №		Email for Results																		libbybetz@qualitest.com.au billysnow@qualitest.com.au emmacoleman@qualitest.com.au			
Special Directions		Containers																		Required Turnaround Time (TAT)			
Purchase Order		Change container type & size if necessary.																		Default will be 5 days if not ticked.			
Quote ID №		180622QUAN-3																					
No		Client Sample ID		Sampled Date/Time dd/mm/yyyy hh:mm		Matrix Solid (S) Water (W)																	
1		TP13 0.1-0.2		18/03/22		Soil																	
2		TP14 0.0-0.05		16/03/22		Soil																	
3		TP14 0.2-0.3		16/03/22		Soil																	
4		TP15 0.0-0.1		16/03/22		Soil																	
5		TP15 0.0-0.2		16/03/22		Soil																	
6		TP15 0.4-0.5		16/03/22		Soil																	
7		TP15 0.9-1.0		16/03/22		Soil																	
8		TP15 1.4-1.5		16/03/22		Soil																	
9		TP15 1.9-2.0		16/03/22		Soil																	
10		TP16 0.0-0.1		16/03/22		Soil																	
Total Counts																							
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Time		Temperature											
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature											
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report №		873498									



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13 / 19

Company		Qualtest		Project No		NEW21P-0129						Project Manager		Libby Betz						Sampler(s)		B.Snow					
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar						EDD Format ESdat, EQuIS etc		Excel						Handed over by							
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals									
Special Directions																											
Purchase Order																											
Quote ID No		180622QUAN-3																									
No	Client Sample ID		Sampled Date/Time dd/mm/yyyy hh:mm	Matrix Solid (S) Water (W)																							
1	TP16 0.0-0.2		16/03/22	Soil																							
2	TP16 0.2-0.3		16/03/22	Soil																							
3	TP17 0.0-0.1		17/03/22	Soil																							
4	TP17 0.0-0.2		17/03/22	Soil																							
5	TP17 0.2-0.3		17/03/22	Soil																							
6	TP18 0.0-0.1		17/03/22	Soil																							
7	TP18 0.0-0.2		17/03/22	Soil																							
8	TP18 0.3-0.4		17/03/22	Soil																							
9	TP19 0.0-0.1		17/03/22	Soil																							
10	TP19 0.0-0.2		17/03/22	Soil																							
Total Counts																											
Method of Shipment																											
Laboratory Use Only																											

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15/19

Company		Qualitest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow									
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format		Excel		Handed over by											
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualitest.com.au	
Phone No																				Email for Results		libbybetz@qualitest.com.au billysnow@qualitest.com.au emmacoleman@qualitest.com.au	
Special Directions																				Containers		Required Turnaround Time (TAT)	
Purchase Order																				Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																					
No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)																				
1	TP22 0.9-1.0	17/03/22	Soil																				
2	TP23 0.0-0.1	17/03/22	Soil																				
3	TP23 0.0-0.2	17/03/22	Soil																				
4	TP24 0.0-0.1	17/03/22	Soil																				
5	TP24 0.0-0.2	17/03/22	Soil																				
6	TP24 0.4-0.5	17/03/22	Soil																				
7	TP24 0.9-1.0	17/03/22	Soil																				
8	TP25 0.0-0.1	17/03/22	Soil																				
9	TP25 0.0-0.2	17/03/22	Soil																				
10	TP25 0.4-0.5	17/03/22	Soil																				
Total Counts																							
Method of Shipment				☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Time											
Laboratory Use Only				Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature									
				Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report No									



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16/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow													
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format		Excel		Handed over by															
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCFs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualtest.com.au					
Phone No																								Email for Results		libbybetz@qualtest.com.au billysnow@qualtest.com.au emmacoleman@qualtest.com.au	
Special Directions																								Containers		Required Turnaround Time (TAT)	
Purchase Order																								Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																									
No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Soil (S) Water (W)																								
1	TP25 0.75-0.85	17/03/22	Soil																								
2	TP26 0.0-0.1	17/03/22	Soil																								
3	TP26 0.0-0.2	17/03/22	Soil																								
4	TP26 0.4-0.5	17/03/22	Soil																								
5	TP27 0.0-0.1	16/03/22	Soil																								
6	TP27 0.0-0.2	16/03/22	Soil																								
7	TP27 0.2-0.3	16/03/22	Soil																								
8	TP28 0.0-0.1	16/03/22	Soil																								
9	TP28 0.0-0.2	16/03/22	Soil																								
10	TP28 0.4-0.5	16/03/22	Soil																								
Total Counts																											
Method of Shipment				☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Date		Time		Time		Time		Time		Time					
Laboratory Use Only				Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature		Report No		873498									
				Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report No													



CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory

Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

☐ Brisbane Laboratory

Unit 1 21 Smallwood Place Murarie QLD 4172
07 3902 4600 EnviroSampleQLD@eurofins.com

☐ Perth Laboratory

Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory

6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

17/19

Company		Qualitest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow													
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - Lochinvar		EDD Format		Excel		Handed over by															
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPS		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualitest.com.au					
Phone No																								Email for Results		libbybetz@qualitest.com.au billysnow@qualitest.com.au emmacoleman@qualitest.com.au	
Special Directions																								Containers		Required Turnaround Time (TAT)	
Purchase Order																								Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																									
No	Client Sample ID	Sampled Date/Time dd/mm/yy hh:mm	Matrix Solid (S) Water (W)																								
1	TP29 0.0-0.1	16/03/22	Soil																								
2	TP29 0.0-0.2	16/03/22	Soil																								
3	TP29 0.2-0.3	16/03/22	Soil																								
4	TP30 0.0-0.1	18/03/22	Soil																								
5	TP30 0.0-0.2	18/03/22	Soil																								
6	TP30 0.4-0.5	18/03/22	Soil																								
7	TP30 0.75-0.85	18/03/22	Soil																								
8	TP31 0.0-0.1	18/03/22	Soil																								
9	TP31 0.0-0.2	18/03/22	Soil																								
10	TP31 0.4-0.5	18/03/22	Soil																								
Total Counts																											
Method of Shipment				☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Time															
Laboratory Use Only				Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature													
				Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report No													



CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing ABN 50 005 085 521

☐ Sydney Laboratory

Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
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☐ Perth Laboratory

Unit 2 91 Leach Highway Kewdale WA 6105
08 9251 9600 EnviroSampleWA@eurofins.com

☐ Melbourne Laboratory

6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

18/PA

Company		Qualitest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow													
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloy's - Lochinvar		EDD Format		Excel		Handed over by															
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attend SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCPs		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualitest.com.au					
Phone No																								Email for Results		libbybetz@qualitest.com.au billysnow@qualitest.com.au emmacoleman@qualitest.com.au	
Special Directions																								Containers		Required Turnaround Time (TAT)	
Purchase Order																								Change container type & size if necessary.		Default will be 5 days if not ticked.	
Quote ID No		180622QUAN-3																									
No		Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																					
1		TP31 0.8-0.9		18/03/22		Soil																					
2		TP32 0.0-0.1		18/03/22		Soil																					
3		TP32 0.0-0.2		18/03/22		Soil																					
4		TP32 0.6-0.7		18/03/22		Soil																					
5		TP32 1.0-1.1		18/03/22		Soil																					
6		TP32 1.5-1.6		18/03/22		Soil																					
7		TP32 1.9-2.0		18/03/22		Soil																					
8		D.16.3.22		16/03/22		Soil																					
9		D1.16.3.22		16/03/22		Soil																					
10		T1.16.3.22		16/03/22		Soil																					
Total Counts								1		1						2		1									
Method of Shipment		☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name				Signature				Date				Time											
Laboratory Use Only		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date		Time				Temperature											
		Received By		SYD BNE MEL PER ADL NTL DRW		Signature				Date		Time				Report No						873498					



CHAIN OF CUSTODY RECORD

Eurofins | Environment Testing, ABN 50 005 085 521

☐ Sydney Laboratory
Unit F3 Bld.F 16 Mars Road Lane Cove West NSW 2066
02 9900 8400 EnviroSampleNSW@eurofins.com

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☐ Perth Laboratory
Unit 2 91 Leach Highway Kewdale WA 6105
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☐ Melbourne Laboratory
6 Monterey Road Dandenong South VIC 3175
03 8564 5000 EnviroSampleVic@eurofins.com

19/19

Company		Qualtest		Project No		NEW21P-0129		Project Manager		Libby Betz		Sampler(s)		B.Snow															
Address		2 Murray Dwyer Circuit Mayfield West NSW 2304		Project Name		McCloys - LochInvar		EDD Format		Excel		Handed over by																	
Contact Name		Libby Betz		Analyses Where metals are requested, please specify "Total" or "Filtered". SUITE code must be used to attract SUITE pricing.		Asbestos (%w/w)		Metals		Suite B1 TRH, BTEX		OCP's		pH and CEC		Suite B7 - TRH, BTEX, PAHs, Metals		Suite S26 - TRH, BTEX, PAHs, Metals		Email for Invoice		accounts@qualtest.com.au							
Phone No																						Email for Results		libbybetz@qualtest.com.au billysnow@qualtest.com.au emmacoleman@qualtest.com.au					
Special Directions																						Containers		Change container type & size if necessary.		Required Turnaround Time (TAT)		Default will be 5 days if not ticked.	
Purchase Order																						500mL Plastic		250mL Plastic		125mL Plastic		200mL Amber Glass	
Quote ID No		180622QUAN-3																											
No	Client Sample ID		Sampled Date/Time dd/mm/yy hh:mm		Matrix Solid (S) Water (W)																Sample Comments / Dangerous Goods Hazard Warning								
1	D.17.3.22		17/03/22		Soil																								
2	T.17.3.22		17/03/22		Soil																SEND TO ALS								
3	D1.17.3.22		17/03/22		Soil																								
4	T1.17.3.22		17/03/22		Soil																SEND TO ALS								
5	D.18.3.22		18/03/22		Soil																								
6	T.18.3.22		18/03/22		Soil																								
7	D1.18.3.22		18/03/22		Soil																								
8	T1.18.3.22		18/03/22		Soil																SEND TO ALS								
9	WD.22.3.22		22/03/22		Soil																								
10	WT.22.3.22		22/03/22		Soil																SEND TO ALS								
Total Counts																													
Method of Shipment					☐ Courier (#) ☐ Hand Delivered ☐ Postal		Name		Signature		Date		Date		Time														
Laboratory Use Only					Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Temperature														
					Received By		SYD BNE MEL PER ADL NTL DRW		Signature		Date		Time		Report No		873498												

From: Billy Snow <BillySnow@qualtest.com.au>
Sent: Wednesday, 23 March 2022 12:05 PM
To: #AU08_EnviroSampleNTL <EnviroSampleNTL@eurofins.com>
Cc: Libby Betz <LibbyBetz@qualtest.com.au>
Subject: RE: McCloys Lochinar Job

Hi Quinn,

Those micro samples can be disregarded.

All the micro jars that were in the eskys yesterday with the date 16.3.22 will be out of holding time now and we won't be getting them tested. I was suppose to take them out of the eskys but I forgot sorry.

Kind Regards,

Billy Snow
Environmental Scientist



Mob: 0432 563 250
Tel: 02 4968 4468
Web: www.qualtest.com.au
2 Murray Dwyer Circuit, Mayfield West, NSW, 2304
Billysnow@qualtest.com.au

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From: #AU08_EnviroSampleNTL <EnviroSampleNTL@eurofins.com>
Sent: Wednesday, 23 March 2022 11:39 AM
To: Billy Snow <BillySnow@qualtest.com.au>
Cc: Libby Betz <LibbyBetz@qualtest.com.au>
Subject: McCloys Lochinar Job

Hi Billy,

Just a question about the big Lochinvar job from yesterday;

I've attached a photo of a couple of the micro jars, they don't have a TP number on them, only a depth;

The 0.0-0.1 looks like it could be TP31? Because that one is missing.
Not sure of the other one.

Would you mind taking a look?

Cheers ☺

Kind Regards,

Quinn Raw
Sample Receipt Officer
(she/they)

Eurofins Environment Testing Australia Pty Ltd
Unit 7, 7 Friesian Close
Sandgate, NSW Australia, 2304
Mobile: +61 459 786 036

E-mail: QuinnRaw@eurofins.com

Website: www.eurofins.com

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2210663	Page	: 1 of 8
Client	: QUALTEST LABORATORY(NSW) PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: LIBBY BETZ	Telephone	: +61-2-8784 8555
Project	: NEW21P-0129 McCloys - Lochinvar	Date Samples Received	: 25-Mar-2022
Site	: ----	Issue Date	: 01-Apr-2022
Sampler	: B.Snow	No. of samples received	: 5
Order number	: ----	No. of samples analysed	: 5

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



Outliers : Frequency of Quality Control Samples

Matrix: **SOIL**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
Moisture Content	1	12	8.33	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	12	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	12	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for **VOC in soils** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) T1.16.3.22	16-Mar-2022	----	----	----	28-Mar-2022	30-Mar-2022	✓
Soil Glass Jar - Unpreserved (EA055) T1.17.3.22, T.17.3.22	17-Mar-2022	----	----	----	28-Mar-2022	31-Mar-2022	✓
Soil Glass Jar - Unpreserved (EA055) T1.18.3.22	18-Mar-2022	----	----	----	28-Mar-2022	01-Apr-2022	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) T1.16.3.22	16-Mar-2022	29-Mar-2022	12-Sep-2022	✓	29-Mar-2022	12-Sep-2022	✓
Soil Glass Jar - Unpreserved (EG005T) T1.17.3.22, T.17.3.22	17-Mar-2022	29-Mar-2022	13-Sep-2022	✓	29-Mar-2022	13-Sep-2022	✓
Soil Glass Jar - Unpreserved (EG005T) T1.18.3.22	18-Mar-2022	29-Mar-2022	14-Sep-2022	✓	29-Mar-2022	14-Sep-2022	✓



Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) T1.16.3.22	16-Mar-2022	29-Mar-2022	13-Apr-2022	✓	29-Mar-2022	13-Apr-2022	✓
Soil Glass Jar - Unpreserved (EG035T) T1.17.3.22, T.17.3.22	17-Mar-2022	29-Mar-2022	14-Apr-2022	✓	29-Mar-2022	14-Apr-2022	✓
Soil Glass Jar - Unpreserved (EG035T) T1.18.3.22	18-Mar-2022	29-Mar-2022	15-Apr-2022	✓	29-Mar-2022	15-Apr-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM)) T1.16.3.22	16-Mar-2022	30-Mar-2022	30-Mar-2022	✓	31-Mar-2022	09-May-2022	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) T1.17.3.22, T.17.3.22	17-Mar-2022	29-Mar-2022	31-Mar-2022	✓	30-Mar-2022	08-May-2022	✓
Soil Glass Jar - Unpreserved (EP075(SIM)) T1.18.3.22	18-Mar-2022	29-Mar-2022	01-Apr-2022	✓	30-Mar-2022	08-May-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080) T1.16.3.22	16-Mar-2022	29-Mar-2022	30-Mar-2022	✓	30-Mar-2022	30-Mar-2022	✓
Soil Glass Jar - Unpreserved (EP071) T1.16.3.22	16-Mar-2022	30-Mar-2022	30-Mar-2022	✓	30-Mar-2022	09-May-2022	✓
Soil Glass Jar - Unpreserved (EP080) T1.17.3.22, T.17.3.22	17-Mar-2022	28-Mar-2022	31-Mar-2022	✓	31-Mar-2022	31-Mar-2022	✓
Soil Glass Jar - Unpreserved (EP071) T1.17.3.22, T.17.3.22	17-Mar-2022	29-Mar-2022	31-Mar-2022	✓	30-Mar-2022	08-May-2022	✓
Soil Glass Jar - Unpreserved (EP080) T1.18.3.22	18-Mar-2022	28-Mar-2022	01-Apr-2022	✓	31-Mar-2022	01-Apr-2022	✓
Soil Glass Jar - Unpreserved (EP071) T1.18.3.22	18-Mar-2022	29-Mar-2022	01-Apr-2022	✓	30-Mar-2022	08-May-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080) T1.16.3.22	16-Mar-2022	29-Mar-2022	30-Mar-2022	✓	30-Mar-2022	30-Mar-2022	✓
Soil Glass Jar - Unpreserved (EP071) T1.16.3.22	16-Mar-2022	30-Mar-2022	30-Mar-2022	✓	30-Mar-2022	09-May-2022	✓
Soil Glass Jar - Unpreserved (EP080) T1.17.3.22, T.17.3.22	17-Mar-2022	28-Mar-2022	31-Mar-2022	✓	31-Mar-2022	31-Mar-2022	✓
Soil Glass Jar - Unpreserved (EP071) T1.17.3.22, T.17.3.22	17-Mar-2022	29-Mar-2022	31-Mar-2022	✓	30-Mar-2022	08-May-2022	✓
Soil Glass Jar - Unpreserved (EP080) T1.18.3.22	18-Mar-2022	28-Mar-2022	01-Apr-2022	✓	31-Mar-2022	01-Apr-2022	✓
Soil Glass Jar - Unpreserved (EP071) T1.18.3.22	18-Mar-2022	29-Mar-2022	01-Apr-2022	✓	30-Mar-2022	08-May-2022	✓



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) T1.16.3.22	16-Mar-2022	29-Mar-2022	30-Mar-2022	✓	30-Mar-2022	30-Mar-2022	✓
Soil Glass Jar - Unpreserved (EP080) T1.17.3.22, T.17.3.22	17-Mar-2022	28-Mar-2022	31-Mar-2022	✓	31-Mar-2022	31-Mar-2022	✓
Soil Glass Jar - Unpreserved (EP080) T1.18.3.22	18-Mar-2022	28-Mar-2022	01-Apr-2022	✓	31-Mar-2022	01-Apr-2022	✓

Matrix: **WATER**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) WT.22.3.22	22-Mar-2022	29-Mar-2022	18-Sep-2022	✓	29-Mar-2022	18-Sep-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) WT.22.3.22	22-Mar-2022	----	----	----	30-Mar-2022	19-Apr-2022	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM)) WT.22.3.22	22-Mar-2022	28-Mar-2022	29-Mar-2022	✓	30-Mar-2022	07-May-2022	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071) WT.22.3.22	22-Mar-2022	28-Mar-2022	29-Mar-2022	✓	30-Mar-2022	07-May-2022	✓
Clear glass VOC vial - HCl (EP080) WT.22.3.22	22-Mar-2022	30-Mar-2022	05-Apr-2022	✓	30-Mar-2022	05-Apr-2022	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) WT.22.3.22	22-Mar-2022	28-Mar-2022	29-Mar-2022	✓	30-Mar-2022	07-May-2022	✓
Clear glass VOC vial - HCl (EP080) WT.22.3.22	22-Mar-2022	30-Mar-2022	05-Apr-2022	✓	30-Mar-2022	05-Apr-2022	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080) WT.22.3.22	22-Mar-2022	30-Mar-2022	05-Apr-2022	✓	30-Mar-2022	05-Apr-2022	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	12	8.33	10.00	✖	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	3	29	10.34	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	25.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	14.29	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	4	34	11.76	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	4	39	10.26	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	2	29	6.90	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	2	29	6.90	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	2	29	6.90	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	14.29	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	34	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	39	5.13	5.00	✔	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	18	11.11	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	16	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	10	0.00	10.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Matrix: **WATER**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Control Samples (LCS) - Continued							
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	12	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	10	0.00	5.00	✗	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

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Sample Receipt Advice

Company name: Qualtest
Contact name: Libby Betz
Project name: MCLOY'S - LOCHINVAR
Project ID: NEW21P-0129
Turnaround time: 5 Day
Date/Time received: Mar 23, 2022 8:30 AM
Eurofins reference: 873498

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.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✓ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

TP31 0.0-0.1 missing. Analysis cancelled, logged on Hold. | Jar received labelled 0.9-1.0. Logged as TP9 0.9-1.0 as this sample was missing. | TP23 0.0-0.1 labelled TP23 0.0-0.2. TP26 0.4-0.5 labelled TP26 0.5-0.55. Logged both as COC |

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Andrew Black on phone : (+61) 2 9900 8490 or by email: AndrewBlack@eurofins.com

Results will be delivered electronically via email to Libby Betz - libbybetz@qualtest.com.au.

Note: A copy of these results will also be delivered to the general Qualtest email address.

Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Libby Betz

Report 873498-W-V2
Project name MCLOY - LOCHINVAR
Project ID NEW21P-0129
Received Date Mar 23, 2022

Client Sample ID			SW1	SW2	SW3	WB.16.3.22
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			N22-Ma46087	N22-Ma46088	N22-Ma46089	N22-Ma46090
Date Sampled			Mar 22, 2022	Mar 22, 2022	Mar 22, 2022	Mar 16, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
BTEX						
Benzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Toluene	0.001	mg/L	< 0.001	< 0.001	0.007	-
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002	< 0.002	-
o-Xylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003	< 0.003	-
4-Bromofluorobenzene (surr.)	1	%	115	135	127	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01	< 0.01	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02	< 0.02	-
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Benz(a)anthracene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Benzo(a)pyrene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Benzo(g,h,i)perylene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Benzo(k)fluoranthene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Chrysene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Dibenz(a,h)anthracene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Fluoranthene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	-
Pyrene	0.001	mg/L	< 0.005	< 0.001	< 0.001	-

Client Sample ID			SW1	SW2	SW3	WB.16.3.22
Sample Matrix			Water	Water	Water	Water
Eurofins Sample No.			N22-Ma46087	N22-Ma46088	N22-Ma46089	N22-Ma46090
Date Sampled			Mar 22, 2022	Mar 22, 2022	Mar 22, 2022	Mar 16, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Total PAH*	0.001	mg/L	< 0.005	< 0.001	< 0.001	-
2-Fluorobiphenyl (surr.)	1	%	58	50	Q09INT	-
p-Terphenyl-d14 (surr.)	1	%	Q09INT	53	Q09INT	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	-
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	-
Heavy Metals						
Arsenic	0.001	mg/L	0.005	0.004	0.003	< 0.001
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chromium	0.001	mg/L	0.003	0.007	0.003	< 0.001
Copper	0.001	mg/L	0.010	0.007	0.002	< 0.001
Lead	0.001	mg/L	< 0.001	0.002	< 0.001	< 0.001
Mercury	0.0001	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nickel	0.001	mg/L	0.017	0.021	0.012	< 0.001
Zinc	0.005	mg/L	< 0.005	0.12	0.009	< 0.005

Client Sample ID			TB.16.3.22	WD.22.3.22
Sample Matrix			Water	Water
Eurofins Sample No.			N22-Ma46091	N22-Ma46150
Date Sampled			Mar 16, 2022	Mar 22, 2022
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
TRH C15-C28	0.1	mg/L	-	< 0.1
TRH C29-C36	0.1	mg/L	-	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	-	< 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	%	127	119
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.01	mg/L	-	< 0.01
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	< 0.05
TRH C6-C10	0.02	mg/L	-	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	-	< 0.02
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	-	< 0.001
Acenaphthylene	0.001	mg/L	-	< 0.001
Anthracene	0.001	mg/L	-	< 0.001
Benz(a)anthracene	0.001	mg/L	-	< 0.001

Client Sample ID			TB.16.3.22	WD.22.3.22
Sample Matrix			Water	Water
Eurofins Sample No.			N22-Ma46091	N22-Ma46150
Date Sampled			Mar 16, 2022	Mar 22, 2022
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene	0.001	mg/L	-	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	-	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	-	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	-	< 0.001
Chrysene	0.001	mg/L	-	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	-	< 0.001
Fluoranthene	0.001	mg/L	-	< 0.001
Fluorene	0.001	mg/L	-	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	-	< 0.001
Naphthalene	0.001	mg/L	-	< 0.001
Phenanthrene	0.001	mg/L	-	< 0.001
Pyrene	0.001	mg/L	-	< 0.001
Total PAH*	0.001	mg/L	-	< 0.001
2-Fluorobiphenyl (surr.)	1	%	-	Q09INT
p-Terphenyl-d14 (surr.)	1	%	-	Q09INT
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	0.05	mg/L	-	< 0.05
TRH >C16-C34	0.1	mg/L	-	< 0.1
TRH >C34-C40	0.1	mg/L	-	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	-	< 0.1
Heavy Metals				
Arsenic	0.001	mg/L	-	0.005
Cadmium	0.0002	mg/L	-	< 0.0002
Chromium	0.001	mg/L	-	0.003
Copper	0.001	mg/L	-	0.010
Lead	0.001	mg/L	-	< 0.001
Mercury	0.0001	mg/L	-	< 0.0001
Nickel	0.001	mg/L	-	0.017
Zinc	0.005	mg/L	-	0.007
Naphthalene ^{N02}	0.01	mg/L	< 0.01	-
Total Recoverable Hydrocarbons				
TRH C6-C10	0.02	mg/L	< 0.02	-
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 24, 2022	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Mar 24, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 24, 2022	7 Days
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 24, 2022	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Mar 23, 2022	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 24, 2022	7 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Mar 24, 2022	28 Days

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Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID														
1	SS1	Mar 16, 2022		Soil	N22-Ma46026	X				X						X	X	X	
2	SS2	Mar 16, 2022		Soil	N22-Ma46027	X						X				X			
3	SS3	Mar 22, 2022		Soil	N22-Ma46028	X						X				X			
4	SS4	Mar 22, 2022		Soil	N22-Ma46029							X				X			
5	SS5	Mar 22, 2022		Soil	N22-Ma46030	X						X				X			
6	SS6	Mar 22, 2022		Soil	N22-Ma46031							X				X			
7	SS7	Mar 22, 2022		Soil	N22-Ma46032	X						X				X			
8	SS8	Mar 22, 2022		Soil	N22-Ma46033	X										X		X	
9	SS9	Mar 22, 2022		Soil	N22-Ma46034							X				X			

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Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
10	SS10	Mar 17, 2022		Soil	N22-Ma46035	X							X			X			
11	SS11	Mar 17, 2022		Soil	N22-Ma46036	X							X			X			
12	SS12	Mar 17, 2022		Soil	N22-Ma46037	X							X			X			
13	SS13	Mar 17, 2022		Soil	N22-Ma46038								X			X			
14	SS14	Mar 17, 2022		Soil	N22-Ma46039	X										X		X	
15	SS15	Mar 17, 2022		Soil	N22-Ma46040	X										X		X	
16	SS16	Mar 17, 2022		Soil	N22-Ma46041	X							X			X			
17	SS17	Mar 17, 2022		Soil	N22-Ma46042								X			X			
18	SS18	Mar 17, 2022		Soil	N22-Ma46043	X										X		X	
19	SS19	Mar 17, 2022		Soil	N22-Ma46044								X			X			
20	SS20	Mar 17, 2022		Soil	N22-Ma46045								X			X			

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Fax: 02 4960 9775

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Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
21	SS21	Mar 17, 2022		Soil	N22-Ma46046								X			X			
22	SS22	Mar 17, 2022		Soil	N22-Ma46047	X										X		X	
23	SS23	Mar 17, 2022		Soil	N22-Ma46048								X			X			
24	SS24	Mar 17, 2022		Soil	N22-Ma46049								X			X			
25	SS25	Mar 17, 2022		Soil	N22-Ma46050								X			X			
26	SS26	Mar 17, 2022		Soil	N22-Ma46051	X							X			X			
27	SS27	Mar 18, 2022		Soil	N22-Ma46052								X			X			
28	SS28	Mar 18, 2022		Soil	N22-Ma46053								X			X			
29	SS29	Mar 18, 2022		Soil	N22-Ma46054	X										X		X	
30	SS30	Mar 18, 2022		Soil	N22-Ma46055	X							X			X			
31	SS31	Mar 18, 2022		Soil	N22-Ma46056								X			X			

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Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
32	SS32	Mar 18, 2022		Soil	N22-Ma46057	X										X		X	
33	SS33	Mar 18, 2022		Soil	N22-Ma46058								X			X			
34	SS34	Mar 18, 2022		Soil	N22-Ma46059								X			X			
35	SS35	Mar 18, 2022		Soil	N22-Ma46060	X							X			X			
36	SS36	Mar 18, 2022		Soil	N22-Ma46061								X			X			
37	SS37	Mar 18, 2022		Soil	N22-Ma46062								X			X			
38	SS38	Mar 18, 2022		Soil	N22-Ma46063	X							X			X			
39	SS39	Mar 18, 2022		Soil	N22-Ma46064	X							X			X			
40	SS40	Mar 18, 2022		Soil	N22-Ma46065								X			X			
41	SS41	Mar 18, 2022		Soil	N22-Ma46066	X										X		X	
42	SS42	Mar 18, 2022		Soil	N22-Ma46067	X										X		X	

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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
43	SS44	Mar 18, 2022		Soil	N22-Ma46068								X			X			
44	SS45	Mar 18, 2022		Soil	N22-Ma46069								X			X			
45	SS-C1	Mar 22, 2022		Soil	N22-Ma46070									X		X			
46	SS-C2	Mar 22, 2022		Soil	N22-Ma46071									X		X			
47	SS-C3	Mar 22, 2022		Soil	N22-Ma46072									X		X			
48	SS-C4	Mar 22, 2022		Soil	N22-Ma46073									X		X			
49	SS-C5	Mar 22, 2022		Soil	N22-Ma46074									X		X			
50	SS-C6	Mar 16, 2022		Soil	N22-Ma46075									X		X			
51	SS-C7	Mar 16, 2022		Soil	N22-Ma46076									X		X			
52	S1	Mar 22, 2022		Soil	N22-Ma46077			X											
53	S2	Mar 22, 2022		Soil	N22-Ma46078		X				X	X			X				

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
54	S3	Mar 22, 2022		Soil	N22-Ma46079		X				X	X			X				
55	S4	Mar 22, 2022		Soil	N22-Ma46080		X				X		X		X				
56	S5	Mar 22, 2022		Soil	N22-Ma46081		X				X	X			X				
57	S6	Mar 22, 2022		Soil	N22-Ma46082		X				X	X			X				
58	S7	Mar 22, 2022		Soil	N22-Ma46083		X				X	X			X				
59	SED1	Mar 22, 2022		Soil	N22-Ma46084											X		X	
60	SED2	Mar 22, 2022		Soil	N22-Ma46085											X		X	
61	SED3	Mar 22, 2022		Soil	N22-Ma46086											X		X	
62	SW1	Mar 22, 2022		Water	N22-Ma46087													X	
63	SW2	Mar 22, 2022		Water	N22-Ma46088													X	
64	SW3	Mar 22, 2022		Water	N22-Ma46089													X	

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
65	WB.16.3.22	Mar 16, 2022		Water	N22-Ma46090								X						
66	TB.16.3.22	Mar 16, 2022		Water	N22-Ma46091														X
67	TP1 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46092								X			X			
68	TP1 0.9-10	Mar 16, 2022		Soil	N22-Ma46093								X			X			
69	TP2 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46094								X			X			
70	TP3 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46095								X			X			
71	TP4 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46096								X			X			
72	TP4 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46097	X													
73	TP5 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46098								X			X			
74	TP5 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46099	X													
75	TP6 0.0-0.05	Mar 16, 2022		Soil	N22-Ma46100											X		X	

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
76	TP6 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46101	X													
77	TP7 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46102								X			X			
78	TP8 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46103								X			X			
79	TP8 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46104	X													
80	TP9 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46105	X										X		X	
81	TP9 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46106								X			X			
82	TP9 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46107								X			X			
83	TP10 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46108	X										X		X	
84	TP10 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46109								X			X			
85	TP10 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46110								X			X			
86	TP11 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46111								X			X			

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
87	TP11 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46112	X													
88	TP12 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46113								X			X			
89	TP12 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46114	X													
90	TP13 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46115								X			X			
91	TP14 0.0-0.05	Mar 16, 2022		Soil	N22-Ma46116								X			X			
92	TP15 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46117								X			X			
93	TP15 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46118								X			X			
94	TP16 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46119	X										X		X	
95	TP17 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46120											X		X	
96	TP17 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46121	X													
97	TP18 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46122								X			X			

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
98	TP18 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46123	X													
99	TP19 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46124											X		X	
100	TP19 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46125	X													
101	TP20 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46126								X			X			
102	TP20 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46127	X													
103	TP21 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46128								X			X			
104	TP21 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46129	X													
105	TP22 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46130											X		X	
106	TP22 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46131	X													
107	TP25 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46132											X		X	
108	TP25 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46133	X													

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
109	TP26 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46134								X			X			
110	TP27 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46135											X		X	
111	TP27 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46136	X													
112	TP28 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46137								X			X			
113	TP29 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46138								X			X			
114	TP30 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46139								X			X			
115	TP30 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46140	X													
116	TP31 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46141								X			X			
117	TP31 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46142	X													
118	TP32 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46143											X		X	
119	TP32 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46144	X													

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
120	TP32 1.0-1.1	Mar 18, 2022		Soil	N22-Ma46145								X			X			
121	D1.16.3.22	Mar 16, 2022		Soil	N22-Ma46146											X		X	
122	D1.17.3.22	Mar 17, 2022		Soil	N22-Ma46147											X		X	
123	D1.17.3.22	Mar 17, 2022		Soil	N22-Ma46148											X		X	
124	D1.18.3.22	Mar 18, 2022		Soil	N22-Ma46149											X		X	
125	WD.22.3.22	Mar 22, 2022		Water	N22-Ma46150													X	
126	SS43	Mar 18, 2022		Soil	N22-Ma46151				X										
127	TP1 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46152				X										
128	TP1 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46153				X										
129	TP2 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46154				X										
130	TP2 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46155				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
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Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
131	TP3 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46156				X										
132	TP4 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46157				X										
133	TP5 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46158				X										
134	TP6 0.1-0.20	Mar 16, 2022		Soil	N22-Ma46159				X										
135	TP7 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46160				X										
136	TP7 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46161				X										
137	TP8 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46162				X										
138	TP9 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46163				X										
139	TP9 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46164				X										
140	TP10 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46165				X										
141	TP10 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46166				X										

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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
142	TP10 1.9-2.0	Mar 16, 2022		Soil	N22-Ma46167				X										
143	TP11 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46168				X										
144	TP12 0.2-0.3	Mar 18, 2022		Soil	N22-Ma46169				X										
145	TP13 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46170				X										
146	TP13 0.1-0.2	Mar 18, 2022		Soil	N22-Ma46171				X										
147	TP14 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46172				X										
148	TP15 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46173				X										
149	TP15 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46174				X										
150	TP15 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46175				X										
151	TP15 1.9-2.0	Mar 16, 2022		Soil	N22-Ma46176				X										
152	TP16 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46177				X										

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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
153	TP16 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46178				X										
154	TP17 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46179				X										
155	TP18 0.3-0.4	Mar 17, 2022		Soil	N22-Ma46180				X										
156	TP19 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46181				X										
157	TP20 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46182				X										
158	TP21 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46183				X										
159	TP22 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46184				X										
160	TP22 0.9-1.0	Mar 17, 2022		Soil	N22-Ma46185				X										
161	TP23 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46186				X										
162	TP23 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46187				X										
163	TP24 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46188				X										

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
164	TP24 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46189				X										
165	TP24 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46190				X										
166	TP24 0.9-1.0	Mar 17, 2022		Soil	N22-Ma46191				X										
167	TP25 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46192				X										
168	TP25 0.75-0.85	Mar 17, 2022		Soil	N22-Ma46193				X										
169	TP26 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46194				X										
170	TP26 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46195				X										
171	TP27 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46196				X										
172	TP28 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46197				X										
173	TP28 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46198				X										

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Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
174	TP29 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46199				X										
175	TP29 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46200				X										
176	TP30 0.4-0.5	Mar 18, 2022		Soil	N22-Ma46201				X										
177	TP30 0.75-0.85	Mar 18, 2022		Soil	N22-Ma46202				X										
178	TP31 0.4-0.5	Mar 18, 2022		Soil	N22-Ma46203				X										
179	TP31 0.8-0.9	Mar 18, 2022		Soil	N22-Ma46204				X										
180	TP32 0.6-0.7	Mar 18, 2022		Soil	N22-Ma46205				X										
181	TP32 1.5-1.6	Mar 18, 2022		Soil	N22-Ma46206				X										
182	TP32 1.9-2.0	Mar 18, 2022		Soil	N22-Ma46207				X										
183	D.16.3.22	Mar 16, 2022		Soil	N22-Ma46208				X										

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
184	D.18.3.22	Mar 18, 2022		Soil	N22-Ma46209				X										
185	T.18.3.22	Mar 18, 2022		Soil	N22-Ma46210				X										
Test Counts						43	6	61	61	1	6	68	68	7	101	101	1	31	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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 SRA.

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.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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			%	80			70-130	Pass	
TRH C10-C14			%	77			70-130	Pass	
LCS - % Recovery									
BTEX									
Benzene			%	88			70-130	Pass	
Toluene			%	97			70-130	Pass	
Ethylbenzene			%	101			70-130	Pass	
m&p-Xylenes			%	102			70-130	Pass	
o-Xylene			%	98			70-130	Pass	
Xylenes - Total*			%	101			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
Naphthalene			%	117			70-130	Pass	
TRH C6-C10			%	81			70-130	Pass	
LCS - % Recovery									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene			%	78			70-130	Pass	
Acenaphthylene			%	83			70-130	Pass	
Anthracene			%	78			70-130	Pass	
Benz(a)anthracene			%	83			70-130	Pass	
Benzo(a)pyrene			%	82			70-130	Pass	
Benzo(b&j)fluoranthene			%	76			70-130	Pass	
Benzo(g,h,i)perylene			%	90			70-130	Pass	
Benzo(k)fluoranthene			%	81			70-130	Pass	
Chrysene			%	88			70-130	Pass	
Dibenz(a,h)anthracene			%	72			70-130	Pass	
Fluoranthene			%	76			70-130	Pass	
Fluorene			%	82			70-130	Pass	
Indeno(1.2.3-cd)pyrene			%	77			70-130	Pass	
Naphthalene			%	75			70-130	Pass	
Phenanthrene			%	78			70-130	Pass	
Pyrene			%	74			70-130	Pass	
LCS - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions									
TRH >C10-C16			%	77			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	107			80-120	Pass	
Cadmium			%	109			80-120	Pass	
Chromium			%	98			80-120	Pass	
Copper			%	94			80-120	Pass	
Lead			%	81			80-120	Pass	
Mercury			%	95			80-120	Pass	
Nickel			%	94			80-120	Pass	
Zinc			%	94			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 C10-C14	S22-Ma54259	NCP	%	89			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S22-Ma54259	NCP	%	90			70-130	Pass	
Spike - % Recovery									

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals				Result 1					
Arsenic	S22-Ma57604	NCP	%	103			75-125	Pass	
Cadmium	S22-Ma57604	NCP	%	102			75-125	Pass	
Chromium	S22-Ma57604	NCP	%	92			75-125	Pass	
Copper	S22-Ma57604	NCP	%	87			75-125	Pass	
Lead	S22-Ma57604	NCP	%	86			75-125	Pass	
Mercury	S22-Ma57604	NCP	%	89			75-125	Pass	
Nickel	S22-Ma57604	NCP	%	87			75-125	Pass	
Zinc	S22-Ma57604	NCP	%	90			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	S22-Ma54394	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S22-Ma54258	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	S22-Ma54258	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S22-Ma54258	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Ma54394	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S22-Ma54394	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S22-Ma54394	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S22-Ma54394	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S22-Ma54394	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S22-Ma54394	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S22-Ma54394	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S22-Ma54394	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S22-Ma54258	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	S22-Ma54258	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S22-Ma54258	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N22-Ma46088	CP	mg/L	0.004	0.004	2.0	30%	Pass	
Cadmium	N22-Ma46088	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass	
Chromium	N22-Ma46088	CP	mg/L	0.007	0.009	21	30%	Pass	
Copper	N22-Ma46088	CP	mg/L	0.007	0.007	<1	30%	Pass	
Lead	N22-Ma46088	CP	mg/L	0.002	0.002	12	30%	Pass	
Mercury	N22-Ma46088	CP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	N22-Ma46088	CP	mg/L	0.021	0.022	4.0	30%	Pass	
Zinc	N22-Ma46088	CP	mg/L	0.12	0.013	160	30%	Fail	Q15

Comments

V2- new version to amend extraction date glitches in LIMs system between the labs as per internal error.

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	Yes

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
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Andrew Black Analytical Services Manager
 Gabriele Cordero Senior Analyst (NSW)



Glenn Jackson
General 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](#).

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Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Libby Betz
Report 873498-AID-V2
Project Name MCLOYS - LOCHINVAR
Project ID NEW21P-0129
Received Date Mar 23, 2022
Date Reported Apr 27, 2022

Methodology:

Asbestos Fibre
 Identification

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.

NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter 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) is employed.

NOTE: 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 for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name MCLOYS - LOCHINVAR
Project ID NEW21P-0129
Date Sampled Mar 16, 2022 to Mar 22, 2022
Report 873498-AID-V2

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SS1	22-Ma46026	Mar 16, 2022	Approximate Sample 487g Sample consisted of: Brown fine-grained clayey soil, cement, glass and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS2	22-Ma46027	Mar 16, 2022	Approximate Sample 599g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS3	22-Ma46028	Mar 22, 2022	Approximate Sample 459g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS5	22-Ma46030	Mar 22, 2022	Approximate Sample 680g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS7	22-Ma46032	Mar 22, 2022	Approximate Sample 470g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS8	22-Ma46033	Mar 22, 2022	Approximate Sample 941g Sample consisted of: Brown coarse-grained soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS10	22-Ma46035	Mar 17, 2022	Approximate Sample 483g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS11	22-Ma46036	Mar 17, 2022	Approximate Sample 708g Sample consisted of: Brown fine-grained clayey soil, bitumen, plastic and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SS12	22-Ma46037	Mar 17, 2022	Approximate Sample 615g Sample consisted of: Brown fine-grained clayey soil, fragments of fibre, glass, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No trace asbestos detected.
SS14	22-Ma46039	Mar 17, 2022	Approximate Sample 521g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS15	22-Ma46040	Mar 17, 2022	Approximate Sample 567g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS16	22-Ma46041	Mar 17, 2022	Approximate Sample 803g Sample consisted of: Brown fine-grained clayey soil, cement, plaster and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS18	22-Ma46043	Mar 17, 2022	Approximate Sample 904g Sample consisted of: Brown coarse-grained soil, cement, plaster and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS22	22-Ma46047	Mar 17, 2022	Approximate Sample 649g Sample consisted of: Brown fine-grained clayey soil, glass and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Synthetic mineral fibre detected. Organic fibre detected. No trace asbestos detected.
SS26	22-Ma46051	Mar 17, 2022	Approximate Sample 640g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS29	22-Ma46054	Mar 18, 2022	Approximate Sample 430g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS30	22-Ma46055	Mar 18, 2022	Approximate Sample 577g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS32	22-Ma46057	Mar 18, 2022	Approximate Sample 584g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS35	22-Ma46060	Mar 18, 2022	Approximate Sample 540g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS38	22-Ma46063	Mar 18, 2022	Approximate Sample 734g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
SS39	22-Ma46064	Mar 18, 2022	Approximate Sample 521g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS41	22-Ma46066	Mar 18, 2022	Approximate Sample 547g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
SS42	22-Ma46067	Mar 18, 2022	Approximate Sample 808g Sample consisted of: Brown coarse-grained soil, cement, brick, plaster and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP4 0.0-0.2	22-Ma46097	Mar 16, 2022	Approximate Sample 454g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP5 0.0-0.2	22-Ma46099	Mar 16, 2022	Approximate Sample 949g Sample consisted of: Brown coarse-grained soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP6 0.0-0.2	22-Ma46101	Mar 16, 2022	Approximate Sample 773g Sample consisted of: Brown fine-grained clayey soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP8 0.0-0.2	22-Ma46104	Mar 16, 2022	Approximate Sample 501g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP11 0.0-0.2	22-Ma46112	Mar 16, 2022	Approximate Sample 541g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP12 0.0-0.2	22-Ma46114	Mar 18, 2022	Approximate Sample 973g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP17 0.0-0.2	22-Ma46121	Mar 17, 2022	Approximate Sample 481g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP18 0.0-0.2	22-Ma46123	Mar 17, 2022	Approximate Sample 531g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP19 0.0-0.2	22-Ma46125	Mar 17, 2022	Approximate Sample 453g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP20 0.0-0.2	22-Ma46127	Mar 17, 2022	Approximate Sample 573g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
TP21 0.0-0.2	22-Ma46129	Mar 17, 2022	Approximate Sample 651g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP22 0.0-0.2	22-Ma46131	Mar 17, 2022	Approximate Sample 581g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP25 0.0-0.2	22-Ma46133	Mar 17, 2022	Approximate Sample 622g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP27 0.0-0.2	22-Ma46136	Mar 16, 2022	Approximate Sample 592g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP30 0.0-0.2	22-Ma46140	Mar 18, 2022	Approximate Sample 547g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP31 0.0-0.2	22-Ma46142	Mar 18, 2022	Approximate Sample 604g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
TP32 0.0-0.2	22-Ma46144	Mar 18, 2022	Approximate Sample 652g Sample consisted of: Brown fine-grained clayey soil, cement and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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	Mar 23, 2022	Indefinite

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID														
1	SS1	Mar 16, 2022		Soil	N22-Ma46026	X				X						X	X	X	
2	SS2	Mar 16, 2022		Soil	N22-Ma46027	X							X			X			
3	SS3	Mar 22, 2022		Soil	N22-Ma46028	X							X			X			
4	SS4	Mar 22, 2022		Soil	N22-Ma46029								X			X			
5	SS5	Mar 22, 2022		Soil	N22-Ma46030	X							X			X			
6	SS6	Mar 22, 2022		Soil	N22-Ma46031								X			X			
7	SS7	Mar 22, 2022		Soil	N22-Ma46032	X							X			X			
8	SS8	Mar 22, 2022		Soil	N22-Ma46033	X										X		X	
9	SS9	Mar 22, 2022		Soil	N22-Ma46034								X			X			

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
10	SS10	Mar 17, 2022		Soil	N22-Ma46035	X							X			X			
11	SS11	Mar 17, 2022		Soil	N22-Ma46036	X							X			X			
12	SS12	Mar 17, 2022		Soil	N22-Ma46037	X							X			X			
13	SS13	Mar 17, 2022		Soil	N22-Ma46038								X			X			
14	SS14	Mar 17, 2022		Soil	N22-Ma46039	X										X		X	
15	SS15	Mar 17, 2022		Soil	N22-Ma46040	X										X		X	
16	SS16	Mar 17, 2022		Soil	N22-Ma46041	X							X			X			
17	SS17	Mar 17, 2022		Soil	N22-Ma46042								X			X			
18	SS18	Mar 17, 2022		Soil	N22-Ma46043	X										X		X	
19	SS19	Mar 17, 2022		Soil	N22-Ma46044								X			X			
20	SS20	Mar 17, 2022		Soil	N22-Ma46045								X			X			

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
21	SS21	Mar 17, 2022		Soil	N22-Ma46046								X			X			
22	SS22	Mar 17, 2022		Soil	N22-Ma46047	X										X		X	
23	SS23	Mar 17, 2022		Soil	N22-Ma46048								X			X			
24	SS24	Mar 17, 2022		Soil	N22-Ma46049								X			X			
25	SS25	Mar 17, 2022		Soil	N22-Ma46050								X			X			
26	SS26	Mar 17, 2022		Soil	N22-Ma46051	X							X			X			
27	SS27	Mar 18, 2022		Soil	N22-Ma46052								X			X			
28	SS28	Mar 18, 2022		Soil	N22-Ma46053								X			X			
29	SS29	Mar 18, 2022		Soil	N22-Ma46054	X										X		X	
30	SS30	Mar 18, 2022		Soil	N22-Ma46055	X							X			X			
31	SS31	Mar 18, 2022		Soil	N22-Ma46056								X			X			

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Project Name: MCLOYS - LOCHINVAR
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Fax: 02 4960 9775

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
32	SS32	Mar 18, 2022		Soil	N22-Ma46057	X										X		X	
33	SS33	Mar 18, 2022		Soil	N22-Ma46058								X			X			
34	SS34	Mar 18, 2022		Soil	N22-Ma46059								X			X			
35	SS35	Mar 18, 2022		Soil	N22-Ma46060	X							X			X			
36	SS36	Mar 18, 2022		Soil	N22-Ma46061								X			X			
37	SS37	Mar 18, 2022		Soil	N22-Ma46062								X			X			
38	SS38	Mar 18, 2022		Soil	N22-Ma46063	X							X			X			
39	SS39	Mar 18, 2022		Soil	N22-Ma46064	X							X			X			
40	SS40	Mar 18, 2022		Soil	N22-Ma46065								X			X			
41	SS41	Mar 18, 2022		Soil	N22-Ma46066	X										X		X	
42	SS42	Mar 18, 2022		Soil	N22-Ma46067	X										X		X	

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
43	SS44	Mar 18, 2022		Soil	N22-Ma46068								X			X			
44	SS45	Mar 18, 2022		Soil	N22-Ma46069								X			X			
45	SS-C1	Mar 22, 2022		Soil	N22-Ma46070									X		X			
46	SS-C2	Mar 22, 2022		Soil	N22-Ma46071									X		X			
47	SS-C3	Mar 22, 2022		Soil	N22-Ma46072									X		X			
48	SS-C4	Mar 22, 2022		Soil	N22-Ma46073									X		X			
49	SS-C5	Mar 22, 2022		Soil	N22-Ma46074									X		X			
50	SS-C6	Mar 16, 2022		Soil	N22-Ma46075									X		X			
51	SS-C7	Mar 16, 2022		Soil	N22-Ma46076									X		X			
52	S1	Mar 22, 2022		Soil	N22-Ma46077			X											
53	S2	Mar 22, 2022		Soil	N22-Ma46078		X				X	X			X				

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
54	S3	Mar 22, 2022		Soil	N22-Ma46079		X				X	X			X				
55	S4	Mar 22, 2022		Soil	N22-Ma46080		X				X		X		X				
56	S5	Mar 22, 2022		Soil	N22-Ma46081		X				X	X			X				
57	S6	Mar 22, 2022		Soil	N22-Ma46082		X				X	X			X				
58	S7	Mar 22, 2022		Soil	N22-Ma46083		X				X	X			X				
59	SED1	Mar 22, 2022		Soil	N22-Ma46084											X		X	
60	SED2	Mar 22, 2022		Soil	N22-Ma46085											X		X	
61	SED3	Mar 22, 2022		Soil	N22-Ma46086											X		X	
62	SW1	Mar 22, 2022		Water	N22-Ma46087													X	
63	SW2	Mar 22, 2022		Water	N22-Ma46088													X	
64	SW3	Mar 22, 2022		Water	N22-Ma46089													X	

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
65	WB.16.3.22	Mar 16, 2022		Water	N22-Ma46090								X						
66	TB.16.3.22	Mar 16, 2022		Water	N22-Ma46091														X
67	TP1 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46092								X			X			
68	TP1 0.9-10	Mar 16, 2022		Soil	N22-Ma46093								X			X			
69	TP2 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46094								X			X			
70	TP3 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46095								X			X			
71	TP4 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46096								X			X			
72	TP4 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46097	X													
73	TP5 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46098								X			X			
74	TP5 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46099	X													
75	TP6 0.0-0.05	Mar 16, 2022		Soil	N22-Ma46100											X		X	

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
76	TP6 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46101	X													
77	TP7 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46102								X			X			
78	TP8 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46103								X			X			
79	TP8 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46104	X													
80	TP9 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46105	X										X		X	
81	TP9 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46106								X			X			
82	TP9 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46107								X			X			
83	TP10 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46108	X										X		X	
84	TP10 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46109								X			X			
85	TP10 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46110								X			X			
86	TP11 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46111								X			X			

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
87	TP11 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46112	X													
88	TP12 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46113								X			X			
89	TP12 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46114	X													
90	TP13 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46115								X			X			
91	TP14 0.0-0.05	Mar 16, 2022		Soil	N22-Ma46116								X			X			
92	TP15 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46117								X			X			
93	TP15 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46118								X			X			
94	TP16 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46119	X										X		X	
95	TP17 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46120											X		X	
96	TP17 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46121	X													
97	TP18 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46122								X			X			

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
98	TP18 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46123	X													
99	TP19 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46124											X		X	
100	TP19 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46125	X													
101	TP20 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46126								X			X			
102	TP20 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46127	X													
103	TP21 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46128								X			X			
104	TP21 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46129	X													
105	TP22 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46130											X		X	
106	TP22 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46131	X													
107	TP25 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46132											X		X	
108	TP25 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46133	X													

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
109	TP26 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46134								X			X			
110	TP27 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46135											X		X	
111	TP27 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46136	X													
112	TP28 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46137								X			X			
113	TP29 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46138								X			X			
114	TP30 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46139								X			X			
115	TP30 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46140	X													
116	TP31 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46141								X			X			
117	TP31 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46142	X													
118	TP32 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46143											X		X	
119	TP32 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46144	X													

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
120	TP32 1.0-1.1	Mar 18, 2022		Soil	N22-Ma46145								X			X			
121	D1.16.3.22	Mar 16, 2022		Soil	N22-Ma46146											X		X	
122	D1.17.3.22	Mar 17, 2022		Soil	N22-Ma46147											X		X	
123	D1.17.3.22	Mar 17, 2022		Soil	N22-Ma46148											X		X	
124	D1.18.3.22	Mar 18, 2022		Soil	N22-Ma46149											X		X	
125	WD.22.3.22	Mar 22, 2022		Water	N22-Ma46150													X	
126	SS43	Mar 18, 2022		Soil	N22-Ma46151				X										
127	TP1 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46152				X										
128	TP1 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46153				X										
129	TP2 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46154				X										
130	TP2 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46155				X										

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
131	TP3 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46156				X										
132	TP4 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46157				X										
133	TP5 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46158				X										
134	TP6 0.1-0.20	Mar 16, 2022		Soil	N22-Ma46159				X										
135	TP7 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46160				X										
136	TP7 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46161				X										
137	TP8 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46162				X										
138	TP9 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46163				X										
139	TP9 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46164				X										
140	TP10 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46165				X										
141	TP10 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46166				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
142	TP10 1.9-2.0	Mar 16, 2022		Soil	N22-Ma46167				X										
143	TP11 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46168				X										
144	TP12 0.2-0.3	Mar 18, 2022		Soil	N22-Ma46169				X										
145	TP13 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46170				X										
146	TP13 0.1-0.2	Mar 18, 2022		Soil	N22-Ma46171				X										
147	TP14 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46172				X										
148	TP15 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46173				X										
149	TP15 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46174				X										
150	TP15 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46175				X										
151	TP15 1.9-2.0	Mar 16, 2022		Soil	N22-Ma46176				X										
152	TP16 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46177				X										

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
153	TP16 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46178				X										
154	TP17 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46179				X										
155	TP18 0.3-0.4	Mar 17, 2022		Soil	N22-Ma46180				X										
156	TP19 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46181				X										
157	TP20 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46182				X										
158	TP21 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46183				X										
159	TP22 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46184				X										
160	TP22 0.9-1.0	Mar 17, 2022		Soil	N22-Ma46185				X										
161	TP23 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46186				X										
162	TP23 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46187				X										
163	TP24 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46188				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
164	TP24 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46189				X										
165	TP24 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46190				X										
166	TP24 0.9-1.0	Mar 17, 2022		Soil	N22-Ma46191				X										
167	TP25 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46192				X										
168	TP25 0.75-0.85	Mar 17, 2022		Soil	N22-Ma46193				X										
169	TP26 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46194				X										
170	TP26 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46195				X										
171	TP27 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46196				X										
172	TP28 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46197				X										
173	TP28 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46198				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
174	TP29 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46199				X										
175	TP29 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46200				X										
176	TP30 0.4-0.5	Mar 18, 2022		Soil	N22-Ma46201				X										
177	TP30 0.75-0.85	Mar 18, 2022		Soil	N22-Ma46202				X										
178	TP31 0.4-0.5	Mar 18, 2022		Soil	N22-Ma46203				X										
179	TP31 0.8-0.9	Mar 18, 2022		Soil	N22-Ma46204				X										
180	TP32 0.6-0.7	Mar 18, 2022		Soil	N22-Ma46205				X										
181	TP32 1.5-1.6	Mar 18, 2022		Soil	N22-Ma46206				X										
182	TP32 1.9-2.0	Mar 18, 2022		Soil	N22-Ma46207				X										
183	D.16.3.22	Mar 16, 2022		Soil	N22-Ma46208				X										

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
184	D.18.3.22	Mar 18, 2022		Soil	N22-Ma46209				X										
185	T.18.3.22	Mar 18, 2022		Soil	N22-Ma46210				X										
Test Counts						43	6	61	61	1	6	68	68	7	101	101	1	31	1

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. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).

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:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)
F/ffd	Airborne fibre filter loading as Fibres (N) per Fields counted (n)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
g, kg	Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (V = r x t)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r)
min	Time (t), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration:
$$C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right) \times \left(\frac{1}{r}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$$

Asbestos Content (as asbestos):
$$\% w/w = \frac{(m \times PA)}{M}$$

Weighted Average (of asbestos):
$$\%_{WA} = \frac{\sum (m \times PA) \times x}{x}$$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2 (PA)</i> .
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (% w/w).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2nd Edition (2021).
HSG264	UK HSE HSG264, <i>Asbestos: The Survey Guide</i> (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece graticule area of the specific microscope used for the analysis (a).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (%_{WA}).

Comments

22-Ma46026, 22-Ma46028, 22-Ma46032, 22-Ma46035, 22-Ma46054, 22-Ma46097, 22-Ma46121, 22-Ma46125: Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

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	Yes

Asbestos Counter/Identifier:

Laxman Dias Senior Analyst-Asbestos (NSW)

Authorised by:

Sayed Abu Senior Analyst-Asbestos (NSW)



Glenn Jackson
General 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](#).

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Qualtest
2 Murray Dwyer Circuit
Mayfield West
NSW 2304



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Libby Betz

Report 873498-S-V2
 Project name MCLOY'S - LOCHINVAR
 Project ID NEW21P-0129
 Received Date Mar 23, 2022

Client Sample ID			SS1	SS2	SS3	SS4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46026	N22-Ma46027	N22-Ma46028	N22-Ma46029
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 22, 2022	Mar 22, 2022
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	86	-	-	-
TRH C10-C36 (Total)	50	mg/kg	86	-	-	-
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	%	71	-	-	-
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			SS1 Soil N22-Ma46026 Mar 16, 2022	SS2 Soil N22-Ma46027 Mar 16, 2022	SS3 Soil N22-Ma46028 Mar 22, 2022	SS4 Soil N22-Ma46029 Mar 22, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
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	%	91	-	-	-
p-Terphenyl-d14 (surr.)	1	%	79	-	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	-
TRH >C16-C34	100	mg/kg	110	-	-	-
TRH >C34-C40	100	mg/kg	< 100	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	110	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	50	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.4	-	-	-
% Moisture	1	%	22	16	35	29
Heavy Metals						
Arsenic	2	mg/kg	31	30	8.0	12
Cadmium	0.4	mg/kg	0.7	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	34	54	24	27
Copper	5	mg/kg	20	15	9.7	13
Lead	5	mg/kg	2000	30	18	21
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	16	18	8.1	11
Zinc	5	mg/kg	510	200	68	130
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	14	-	-	-

Client Sample ID			SS5 Soil N22-Ma46030 Mar 22, 2022	SS6 Soil N22-Ma46031 Mar 22, 2022	SS7 Soil N22-Ma46032 Mar 22, 2022	SS8 Soil N22-Ma46033 Mar 22, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
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-C36 (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	%	-	-	-	76

Client Sample ID			SS5 Soil N22-Ma46030 Mar 22, 2022	SS6 Soil N22-Ma46031 Mar 22, 2022	SS7 Soil N22-Ma46032 Mar 22, 2022	SS8 Soil N22-Ma46033 Mar 22, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
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	%	-	-	-	91
p-Terphenyl-d14 (surr.)	1	%	-	-	-	89
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
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
% Moisture	1	%	13	24	30	15
Heavy Metals						
Arsenic	2	mg/kg	7.2	10	14	5.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	63	73	100	55
Copper	5	mg/kg	18	30	28	18
Lead	5	mg/kg	6.9	63	24	7.6
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	45	45	45	58
Zinc	5	mg/kg	52	190	190	81

Client Sample ID			SS9 Soil N22-Ma46034 Mar 22, 2022	SS10 Soil N22-Ma46035 Mar 17, 2022	SS11 Soil N22-Ma46036 Mar 17, 2022	SS12 Soil N22-Ma46037 Mar 17, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
% Moisture	1	%	15	27	20	20
Heavy Metals						
Arsenic	2	mg/kg	9.8	24	12	27
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	1.1
Chromium	5	mg/kg	110	130	71	110
Copper	5	mg/kg	26	41	27	41
Lead	5	mg/kg	18	13	12	23
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	56	60	42	47
Zinc	5	mg/kg	140	39	110	800

Client Sample ID			SS13 Soil N22-Ma46038 Mar 17, 2022	SS14 Soil N22-Ma46039 Mar 17, 2022	SS15 Soil N22-Ma46040 Mar 17, 2022	SS16 Soil N22-Ma46041 Mar 17, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	< 20	-
TRH C15-C28	50	mg/kg	-	< 50	< 50	-
TRH C29-C36	50	mg/kg	-	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	66	63	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	< 50	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	-
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	-

Client Sample ID			SS13	SS14	SS15	SS16
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46038	N22-Ma46039	N22-Ma46040	N22-Ma46041
Date Sampled			Mar 17, 2022	Mar 17, 2022	Mar 17, 2022	Mar 17, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	85	84	-
p-Terphenyl-d14 (surr.)	1	%	-	85	94	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	< 100	< 100	-
TRH >C34-C40	100	mg/kg	-	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	-
% Moisture	1	%	22	23	27	6.3
Heavy Metals						
Arsenic	2	mg/kg	22	31	16	4.8
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	75	60	55	26
Copper	5	mg/kg	30	23	22	18
Lead	5	mg/kg	8.9	14	15	8.8
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	29	30	32	15
Zinc	5	mg/kg	93	61	140	72

Client Sample ID			SS17	SS18	SS19	SS20
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46042	N22-Ma46043	N22-Ma46044	N22-Ma46045
Date Sampled			Mar 17, 2022	Mar 17, 2022	Mar 17, 2022	Mar 17, 2022
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	-	440	-	-
TRH C29-C36	50	mg/kg	-	380	-	-
TRH C10-C36 (Total)	50	mg/kg	-	820	-	-
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	%	-	72	-	-

Client Sample ID			SS17	SS18	SS19	SS20
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46042	N22-Ma46043	N22-Ma46044	N22-Ma46045
Date Sampled			Mar 17, 2022	Mar 17, 2022	Mar 17, 2022	Mar 17, 2022
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	%	-	91	-	-
p-Terphenyl-d14 (surr.)	1	%	-	83	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	760	-	-
TRH >C34-C40	100	mg/kg	-	150	-	-
TRH >C10-C40 (total)*	100	mg/kg	-	910	-	-
% Moisture	1	%	23	12	27	26
Heavy Metals						
Arsenic	2	mg/kg	66	4.8	49	73
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	150	13	160	130
Copper	5	mg/kg	33	16	52	43
Lead	5	mg/kg	6.5	35	6.5	13
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	51	8.6	66	47
Zinc	5	mg/kg	44	130	34	87

Client Sample ID			SS21 Soil N22-Ma46046 Mar 17, 2022	SS22 Soil N22-Ma46047 Mar 17, 2022	SS23 Soil N22-Ma46048 Mar 17, 2022	SS24 Soil N22-Ma46049 Mar 17, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
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	-	110	-	-
TRH C10-C36 (Total)	50	mg/kg	-	110	-	-
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	%	-	63	-	-
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	%	-	88	-	-
p-Terphenyl-d14 (surr.)	1	%	-	83	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	-	-
TRH >C16-C34	100	mg/kg	-	120	-	-
TRH >C34-C40	100	mg/kg	-	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	-	120	-	-
% Moisture	1	%	25	20	28	41

Client Sample ID			SS21	SS22	SS23	SS24
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46046	N22-Ma46047	N22-Ma46048	N22-Ma46049
Date Sampled			Mar 17, 2022	Mar 17, 2022	Mar 17, 2022	Mar 17, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	60	6.4	34	18
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	1.1
Chromium	5	mg/kg	95	32	150	120
Copper	5	mg/kg	29	17	67	46
Lead	5	mg/kg	17	12	5.4	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	32	16	61	52
Zinc	5	mg/kg	200	180	47	120

Client Sample ID			SS25	SS26	SS27	SS28
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46050	N22-Ma46051	N22-Ma46052	N22-Ma46053
Date Sampled			Mar 17, 2022	Mar 17, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	45	21	29	24
Heavy Metals						
Arsenic	2	mg/kg	47	31	4.1	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	150	110	79	16
Copper	5	mg/kg	67	38	20	14
Lead	5	mg/kg	15	20	6.5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	53	46	42	13
Zinc	5	mg/kg	55	150	46	40

Client Sample ID			SS29	SS30	SS31	SS32
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46054	N22-Ma46055	N22-Ma46056	N22-Ma46057
Date Sampled			Mar 18, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	120	-	-	< 50
TRH C29-C36	50	mg/kg	70	-	-	52
TRH C10-C36 (Total)	50	mg/kg	190	-	-	52
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	60	-	-	89

Client Sample ID			SS29	SS30	SS31	SS32
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46054	N22-Ma46055	N22-Ma46056	N22-Ma46057
Date Sampled			Mar 18, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluorene	0.5	mg/kg	< 0.5	-	-	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	81	-	-	96
p-Terphenyl-d14 (surr.)	1	%	81	-	-	98
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	160	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	160	-	-	< 100
% Moisture	1	%	29	19	27	23
Heavy Metals						
Arsenic	2	mg/kg	7.8	3.3	3.6	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	140	57	140	15
Copper	5	mg/kg	41	27	32	< 5
Lead	5	mg/kg	8.4	8.1	5.9	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	71	34	91	7.3
Zinc	5	mg/kg	46	110	44	9.1

Client Sample ID			SS33	SS34	SS35	SS36
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46058	N22-Ma46059	N22-Ma46060	N22-Ma46061
Date Sampled			Mar 18, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	24	24	34	22
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	22	7.2	18	29
Copper	5	mg/kg	5.5	< 5	7.2	10
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	13	< 5	10.0	17
Zinc	5	mg/kg	7.8	13	68	15

Client Sample ID			SS37	SS38	SS39	SS40
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46062	N22-Ma46063	N22-Ma46064	N22-Ma46065
Date Sampled			Mar 18, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	24	12	25	23
Heavy Metals						
Arsenic	2	mg/kg	< 2	2.1	4.3	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	35	14	35	15
Copper	5	mg/kg	14	6.2	14	6.4
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	23	8.4	15	8.6
Zinc	5	mg/kg	79	13	20	25

Client Sample ID			SS41	SS42	SS44	SS45
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46066	N22-Ma46067	N22-Ma46068	N22-Ma46069
Date Sampled			Mar 18, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	-
TRH C10-C14	20	mg/kg	< 20	< 20	-	-
TRH C15-C28	50	mg/kg	< 50	< 50	-	-
TRH C29-C36	50	mg/kg	66	< 50	-	-
TRH C10-C36 (Total)	50	mg/kg	66	< 50	-	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	-	-
4-Bromofluorobenzene (surr.)	1	%	65	84	-	-

Client Sample ID			SS41	SS42	SS44	SS45
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46066	N22-Ma46067	N22-Ma46068	N22-Ma46069
Date Sampled			Mar 18, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	-	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	-	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	-	-
2-Fluorobiphenyl (surr.)	1	%	105	94	-	-
p-Terphenyl-d14 (surr.)	1	%	107	103	-	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	-	-
% Moisture	1	%	25	11	22	30
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	13
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	20	6.7	9.6	38
Copper	5	mg/kg	11	< 5	< 5	14
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	12	< 5	5.7	21
Zinc	5	mg/kg	38	11	8.9	21

Client Sample ID			SS-C1	SS-C2	SS-C3	SS-C4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46070	N22-Ma46071	N22-Ma46072	N22-Ma46073
Date Sampled			Mar 22, 2022	Mar 22, 2022	Mar 22, 2022	Mar 22, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	27	36	33	36
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	23	21	100	170
Heavy Metals						
Chromium	5	mg/kg	23	21	100	170

Client Sample ID			SS-C5	SS-C6	SS-C7	S2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46074	N22-Ma46075	N22-Ma46076	N22-Ma46078
Date Sampled			Mar 22, 2022	Mar 16, 2022	Mar 16, 2022	Mar 22, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	32	39	28	-
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	-
Chromium (trivalent)	5	mg/kg	77	79	88	-
Heavy Metals						
Chromium	5	mg/kg	77	79	88	-
Pathogens						
E.coli (MPN)	1	MPN/g	-	-	-	see attached
Thermotolerant Coliforms (MPN)	1	MPN/g	-	-	-	see attached

Client Sample ID			S3	S4	S5	S6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46079	N22-Ma46080	N22-Ma46081	N22-Ma46082
Date Sampled			Mar 22, 2022	Mar 22, 2022	Mar 22, 2022	Mar 22, 2022
Test/Reference	LOR	Unit				
Pathogens						
E.coli (MPN)	1	MPN/g	see attached	see attached	see attached	see attached
Thermotolerant Coliforms (MPN)	1	MPN/g	see attached	see attached	see attached	see attached

Client Sample ID			S7	SED1	SED2	SED3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46083	N22-Ma46084	N22-Ma46085	N22-Ma46086
Date Sampled			Mar 22, 2022	Mar 22, 2022	Mar 22, 2022	Mar 22, 2022
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	< 20
TRH C15-C28	50	mg/kg	-	< 50	71	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	71	< 50

Client Sample ID			S7 Soil N22-Ma46083 Mar 22, 2022	SED1 Soil N22-Ma46084 Mar 22, 2022	SED2 Soil N22-Ma46085 Mar 22, 2022	SED3 Soil N22-Ma46086 Mar 22, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
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	%	-	62	78	54
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	%	-	97	94	62
p-Terphenyl-d14 (surr.)	1	%	-	86	95	66
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
% Moisture	1	%	-	43	51	57
Heavy Metals						
Arsenic	2	mg/kg	-	19	6.1	9.7
Cadmium	0.4	mg/kg	-	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	-	100	100	110
Copper	5	mg/kg	-	48	35	35
Lead	5	mg/kg	-	8.8	14	13
Mercury	0.1	mg/kg	-	< 0.1	< 0.1	< 0.1

Client Sample ID			S7	SED1	SED2	SED3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46083	N22-Ma46084	N22-Ma46085	N22-Ma46086
Date Sampled			Mar 22, 2022	Mar 22, 2022	Mar 22, 2022	Mar 22, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	5	mg/kg	-	68	62	49
Zinc	5	mg/kg	-	42	77	64
Pathogens						
E.coli (MPN)	1	MPN/g	see attached	-	-	-
Thermotolerant Coliforms (MPN)	1	MPN/g	see attached	-	-	-

Client Sample ID			TP1 0.0-0.1	TP1 0.9-10	TP2 0.0-0.1	TP3 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46092	N22-Ma46093	N22-Ma46094	N22-Ma46095
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 16, 2022	Mar 16, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	35	15	32	44
Heavy Metals						
Arsenic	2	mg/kg	3.3	< 2	3.1	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	110	110	140	27
Copper	5	mg/kg	29	13	26	6.9
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	69	84	81	13
Zinc	5	mg/kg	70	79	73	17

Client Sample ID			TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.05	TP7 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46096	N22-Ma46098	N22-Ma46100	N22-Ma46102
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 16, 2022	Mar 16, 2022
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-C36 (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	%	-	-	82	-
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	-

Client Sample ID			TP4 0.0-0.1	TP5 0.0-0.1	TP6 0.0-0.05	TP7 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46096	N22-Ma46098	N22-Ma46100	N22-Ma46102
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 16, 2022	Mar 16, 2022
Test/Reference	LOR	Unit				
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	%	-	-	107	-
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	-
TRH >C10-C40 (total)*	100	mg/kg	-	-	< 100	-
% Moisture	1	%	26	6.3	8.5	19
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	16	44	24	25
Copper	5	mg/kg	6.1	35	17	6.6
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	9.4	31	15	15
Zinc	5	mg/kg	7.4	100	42	9.6

Client Sample ID			TP8 0.0-0.1 Soil N22-Ma46103 Mar 16, 2022	TP9 0.0-0.1 Soil N22-Ma46105 Mar 16, 2022	TP9 0.4-0.5 Soil N22-Ma46106 Mar 16, 2022	TP9 0.9-1.0 Soil N22-Ma46107 Mar 16, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
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	-	51	-	-
TRH C10-C36 (Total)	50	mg/kg	-	51	-	-
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	%	-	73	-	-
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	%	-	88	-	-
p-Terphenyl-d14 (surr.)	1	%	-	94	-	-
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	-	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	-	-
% Moisture	1	%	17	24	26	29

Client Sample ID			TP8 0.0-0.1	TP9 0.0-0.1	TP9 0.4-0.5	TP9 0.9-1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46103	N22-Ma46105	N22-Ma46106	N22-Ma46107
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 16, 2022	Mar 16, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	6.4	4.5	5.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	21	120	150	130
Copper	5	mg/kg	7.3	23	29	33
Lead	5	mg/kg	< 5	12	7.0	14
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	12	40	71	49
Zinc	5	mg/kg	12	38	39	53

Client Sample ID			TP10 0.0-0.1	TP10 0.4-0.5	TP10 1.4-1.5	TP11 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46108	N22-Ma46109	N22-Ma46110	N22-Ma46111
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 16, 2022	Mar 16, 2022
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-C36 (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	%	112	-	-	-
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	-	-	-

Client Sample ID			TP10 0.0-0.1 Soil	TP10 0.4-0.5 Soil	TP10 1.4-1.5 Soil	TP11 0.0-0.1 Soil
Sample Matrix			N22-Ma46108	N22-Ma46109	N22-Ma46110	N22-Ma46111
Eurofins Sample No.			Mar 16, 2022	Mar 16, 2022	Mar 16, 2022	Mar 16, 2022
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	%	109	-	-	-
p-Terphenyl-d14 (surr.)	1	%	127	-	-	-
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	-	-	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	-
% Moisture	1	%	14	16	27	28
Heavy Metals						
Arsenic	2	mg/kg	< 2	2.9	4.8	5.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	25	16	130	140
Copper	5	mg/kg	8.5	8.5	39	35
Lead	5	mg/kg	< 5	< 5	11	8.3
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	15	15	76	67
Zinc	5	mg/kg	15	10	62	46

Client Sample ID			TP12 0.0-0.1 Soil	TP13 0.0-0.1 Soil	TP14 0.0-0.05 Soil	TP15 0.0-0.1 Soil
Sample Matrix			N22-Ma46113	N22-Ma46115	N22-Ma46116	N22-Ma46117
Eurofins Sample No.			Mar 18, 2022	Mar 18, 2022	Mar 16, 2022	Mar 16, 2022
Date Sampled						
Test/Reference	LOR	Unit				
% Moisture	1	%	7.7	5.2	24	12
Heavy Metals						
Arsenic	2	mg/kg	4.3	4.0	100	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	36	17	150	10
Copper	5	mg/kg	27	14	39	< 5
Lead	5	mg/kg	7.6	11	9.6	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	23	9.6	47	< 5
Zinc	5	mg/kg	63	72	43	6.3

Client Sample ID			TP15 0.9-1.0 Soil N22-Ma46118 Mar 16, 2022	TP16 0.0-0.1 Soil N22-Ma46119 Mar 16, 2022	TP17 0.0-0.1 Soil N22-Ma46120 Mar 17, 2022	TP18 0.0-0.1 Soil N22-Ma46122 Mar 17, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	< 20	< 20	-
TRH C10-C14	20	mg/kg	-	< 20	< 20	-
TRH C15-C28	50	mg/kg	-	< 50	71	-
TRH C29-C36	50	mg/kg	-	< 50	100	-
TRH C10-C36 (Total)	50	mg/kg	-	< 50	171	-
BTEX						
Benzene	0.1	mg/kg	-	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	-	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	-	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	-	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	-	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	-	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	-	58	55	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	-	< 0.5	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	-	< 50	< 50	-
TRH C6-C10	20	mg/kg	-	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	-	< 20	< 20	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2	1.2	-
Acenaphthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	-	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	-	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	-	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	-	< 0.5	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	-	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	-	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	-	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	-	96	105	-
p-Terphenyl-d14 (surr.)	1	%	-	100	146	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	-
TRH >C16-C34	100	mg/kg	-	< 100	140	-
TRH >C34-C40	100	mg/kg	-	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	140	-
% Moisture	1	%	18	9.2	36	13

Client Sample ID			TP15 0.9-1.0	TP16 0.0-0.1	TP17 0.0-0.1	TP18 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46118	N22-Ma46119	N22-Ma46120	N22-Ma46122
Date Sampled			Mar 16, 2022	Mar 16, 2022	Mar 17, 2022	Mar 17, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	13	5.6	8.5	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	56	15	24	26
Copper	5	mg/kg	19	7.7	25	11
Lead	5	mg/kg	< 5	11	21	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	37	10	11	13
Zinc	5	mg/kg	32	120	68	15

Client Sample ID			TP19 0.0-0.1	TP20 0.0-0.1	TP21 0.0-0.1	TP22 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46124	N22-Ma46126	N22-Ma46128	N22-Ma46130
Date Sampled			Mar 17, 2022	Mar 17, 2022	Mar 17, 2022	Mar 17, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	-	< 20
TRH C10-C14	20	mg/kg	< 20	-	-	< 20
TRH C15-C28	50	mg/kg	< 50	-	-	< 50
TRH C29-C36	50	mg/kg	< 50	-	-	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	-	-	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	-	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	-	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	-	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	-	-	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	-	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	102	-	-	90
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	-	< 50
TRH C6-C10	20	mg/kg	< 20	-	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	-	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	-	1.2
Acenaphthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(b,j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5
Chrysene	0.5	mg/kg	< 0.5	-	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	-	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	-	-	< 0.5

Client Sample ID			TP19 0.0-0.1 Soil	TP20 0.0-0.1 Soil	TP21 0.0-0.1 Soil	TP22 0.0-0.1 Soil
Sample Matrix			N22-Ma46124	N22-Ma46126	N22-Ma46128	N22-Ma46130
Eurofins Sample No.			Mar 17, 2022	Mar 17, 2022	Mar 17, 2022	Mar 17, 2022
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluorene	0.5	mg/kg	< 0.5	-	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	-	-	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Pyrene	0.5	mg/kg	< 0.5	-	-	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	-	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	98	-	-	97
p-Terphenyl-d14 (surr.)	1	%	116	-	-	115
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	-	< 50
TRH >C16-C34	100	mg/kg	< 100	-	-	< 100
TRH >C34-C40	100	mg/kg	< 100	-	-	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	-	< 100
% Moisture	1	%	18	12	11	15
Heavy Metals						
Arsenic	2	mg/kg	4.3	6.3	4.7	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	11	26	9.6	9.9
Copper	5	mg/kg	5.3	14	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	5.2	12	< 5	5.3
Zinc	5	mg/kg	16	9.2	< 5	< 5

Client Sample ID			TP25 0.0-0.1 Soil	TP26 0.0-0.1 Soil	TP27 0.0-0.1 Soil	TP28 0.0-0.1 Soil
Sample Matrix			N22-Ma46132	N22-Ma46134	N22-Ma46135	N22-Ma46137
Eurofins Sample No.			Mar 17, 2022	Mar 17, 2022	Mar 16, 2022	Mar 16, 2022
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	-	< 20	-
TRH C10-C14	20	mg/kg	< 20	-	< 20	-
TRH C15-C28	50	mg/kg	< 50	-	< 50	-
TRH C29-C36	50	mg/kg	< 50	-	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	-	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	-	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	-	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	93	-	83	-

Client Sample ID			TP25 0.0-0.1 Soil N22-Ma46132 Mar 17, 2022	TP26 0.0-0.1 Soil N22-Ma46134 Mar 17, 2022	TP27 0.0-0.1 Soil N22-Ma46135 Mar 16, 2022	TP28 0.0-0.1 Soil N22-Ma46137 Mar 16, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-	< 50	-
TRH C6-C10	20	mg/kg	< 20	-	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-	< 20	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	-	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	-	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	-	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	-	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	-	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	-	< 0.5	-
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	-	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	-	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	-	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	96	-	97	-
p-Terphenyl-d14 (surr.)	1	%	109	-	123	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	-	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	-	< 100	-
% Moisture	1	%	17	21	17	15
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	2.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	5.2	16
Copper	5	mg/kg	< 5	< 5	< 5	5.1
Lead	5	mg/kg	< 5	< 5	6.1	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	13
Zinc	5	mg/kg	< 5	< 5	31	8.6

Client Sample ID			TP29 0.0-0.1 Soil N22-Ma46138 Mar 16, 2022	TP30 0.0-0.1 Soil N22-Ma46139 Mar 18, 2022	TP31 0.0-0.1 Soil N22-Ma46141 Mar 18, 2022	TP32 0.0-0.1 Soil N22-Ma46143 Mar 18, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	-	-	-	< 20
TRH C10-C14	20	mg/kg	-	-	-	35
TRH C15-C28	50	mg/kg	-	-	-	< 50
TRH C29-C36	50	mg/kg	-	-	-	< 50
TRH C10-C36 (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	%	-	-	-	80
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	%	-	-	-	101
p-Terphenyl-d14 (surr.)	1	%	-	-	-	113
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
TRH >C10-C40 (total)*	100	mg/kg	-	-	-	< 100
% Moisture	1	%	17	27	19	20

Client Sample ID			TP29 0.0-0.1	TP30 0.0-0.1	TP31 0.0-0.1	TP32 0.0-0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46138	N22-Ma46139	N22-Ma46141	N22-Ma46143
Date Sampled			Mar 16, 2022	Mar 18, 2022	Mar 18, 2022	Mar 18, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.8	18	12	5.8
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	7.8	< 5	< 5
Zinc	5	mg/kg	< 5	9.9	9.5	6.9

Client Sample ID			TP32 1.0-1.1	D1.16.3.22	D.17.3.22	D1.17.3.22
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46145	N22-Ma46146	N22-Ma46147	N22-Ma46148
Date Sampled			Mar 18, 2022	Mar 16, 2022	Mar 17, 2022	Mar 17, 2022
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	< 20
TRH C15-C28	50	mg/kg	-	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	-	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	-	< 50	< 50	< 50
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	%	-	93	76	68
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

Client Sample ID			TP32 1.0-1.1	D1.16.3.22	D.17.3.22	D1.17.3.22
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Ma46145	N22-Ma46146	N22-Ma46147	N22-Ma46148
Date Sampled			Mar 18, 2022	Mar 16, 2022	Mar 17, 2022	Mar 17, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
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	%	-	98	86	90
p-Terphenyl-d14 (surr.)	1	%	-	111	94	98
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	-	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	-	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	-	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	-	< 100	< 100	< 100
% Moisture	1	%	14	8.7	23	34
Heavy Metals						
Arsenic	2	mg/kg	< 2	6.3	3.5	46
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	15	13	88	150
Copper	5	mg/kg	< 5	< 5	17	47
Lead	5	mg/kg	< 5	11	7.1	30
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.8	< 0.1
Nickel	5	mg/kg	8.3	8.0	38	52
Zinc	5	mg/kg	5.4	92	50	190

Client Sample ID			D1.18.3.22
Sample Matrix			Soil
Eurofins Sample No.			N22-Ma46149
Date Sampled			Mar 18, 2022
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	59
TRH C10-C36 (Total)	50	mg/kg	59
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	%	93

Client Sample ID			D1.18.3.22
Sample Matrix			Soil
Eurofins Sample No.			N22-Ma46149
Date Sampled			Mar 18, 2022
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	%	91
p-Terphenyl-d14 (surr.)	1	%	95
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
TRH >C10-C40 (total)*	100	mg/kg	< 100
% Moisture	1	%	25
Heavy Metals			
Arsenic	2	mg/kg	4.9
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	150
Copper	5	mg/kg	62
Lead	5	mg/kg	12
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	72
Zinc	5	mg/kg	200

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 31, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Mar 29, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 29, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Mar 23, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Mar 29, 2022	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Apr 06, 2022	28 Days
Conductivity (1:5 aqueous extract at 25°C as rec.) - Method: LTM-INO-4030 Conductivity	Sydney	Mar 29, 2022	7 Days
Cation Exchange Capacity - Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage	Melbourne	Apr 01, 2022	28 Days
pH (1:5 Aqueous extract at 25°C as rec.) - Method: LTM-GEN-7090 pH by ISE	Sydney	Mar 29, 2022	7 Days
Thermotolerant Coliforms (MPN) - Method: Inhouse: Thermotolerant Coliforms in Soil by MPN*	WaterTestingVic	Mar 23, 2022	72 Hours
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Mar 23, 2022	14 Days
Chromium (speciated)			
Chromium (hexavalent) - Method: In-house method E057.2	Sydney	Mar 31, 2022	28 Days
Chromium (trivalent) - Method: E043 /E057 Total Speciated Chromium	Sydney	Mar 23, 2022	28 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Mar 31, 2022	28 Days

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID														
1	SS1	Mar 16, 2022		Soil	N22-Ma46026	X				X						X	X	X	
2	SS2	Mar 16, 2022		Soil	N22-Ma46027	X						X				X			
3	SS3	Mar 22, 2022		Soil	N22-Ma46028	X						X				X			
4	SS4	Mar 22, 2022		Soil	N22-Ma46029							X				X			
5	SS5	Mar 22, 2022		Soil	N22-Ma46030	X						X				X			
6	SS6	Mar 22, 2022		Soil	N22-Ma46031							X				X			
7	SS7	Mar 22, 2022		Soil	N22-Ma46032	X						X				X			
8	SS8	Mar 22, 2022		Soil	N22-Ma46033	X										X		X	
9	SS9	Mar 22, 2022		Soil	N22-Ma46034							X				X			

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
10	SS10	Mar 17, 2022		Soil	N22-Ma46035	X							X			X			
11	SS11	Mar 17, 2022		Soil	N22-Ma46036	X							X			X			
12	SS12	Mar 17, 2022		Soil	N22-Ma46037	X							X			X			
13	SS13	Mar 17, 2022		Soil	N22-Ma46038								X			X			
14	SS14	Mar 17, 2022		Soil	N22-Ma46039	X										X		X	
15	SS15	Mar 17, 2022		Soil	N22-Ma46040	X										X		X	
16	SS16	Mar 17, 2022		Soil	N22-Ma46041	X							X			X			
17	SS17	Mar 17, 2022		Soil	N22-Ma46042								X			X			
18	SS18	Mar 17, 2022		Soil	N22-Ma46043	X										X		X	
19	SS19	Mar 17, 2022		Soil	N22-Ma46044								X			X			
20	SS20	Mar 17, 2022		Soil	N22-Ma46045								X			X			

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
21	SS21	Mar 17, 2022		Soil	N22-Ma46046								X			X			
22	SS22	Mar 17, 2022		Soil	N22-Ma46047	X										X		X	
23	SS23	Mar 17, 2022		Soil	N22-Ma46048								X			X			
24	SS24	Mar 17, 2022		Soil	N22-Ma46049								X			X			
25	SS25	Mar 17, 2022		Soil	N22-Ma46050								X			X			
26	SS26	Mar 17, 2022		Soil	N22-Ma46051	X							X			X			
27	SS27	Mar 18, 2022		Soil	N22-Ma46052								X			X			
28	SS28	Mar 18, 2022		Soil	N22-Ma46053								X			X			
29	SS29	Mar 18, 2022		Soil	N22-Ma46054	X										X		X	
30	SS30	Mar 18, 2022		Soil	N22-Ma46055	X							X			X			
31	SS31	Mar 18, 2022		Soil	N22-Ma46056								X			X			

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
32	SS32	Mar 18, 2022		Soil	N22-Ma46057	X										X		X	
33	SS33	Mar 18, 2022		Soil	N22-Ma46058								X			X			
34	SS34	Mar 18, 2022		Soil	N22-Ma46059								X			X			
35	SS35	Mar 18, 2022		Soil	N22-Ma46060	X							X			X			
36	SS36	Mar 18, 2022		Soil	N22-Ma46061								X			X			
37	SS37	Mar 18, 2022		Soil	N22-Ma46062								X			X			
38	SS38	Mar 18, 2022		Soil	N22-Ma46063	X							X			X			
39	SS39	Mar 18, 2022		Soil	N22-Ma46064	X							X			X			
40	SS40	Mar 18, 2022		Soil	N22-Ma46065								X			X			
41	SS41	Mar 18, 2022		Soil	N22-Ma46066	X										X		X	
42	SS42	Mar 18, 2022		Soil	N22-Ma46067	X										X		X	

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
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Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
43	SS44	Mar 18, 2022		Soil	N22-Ma46068								X			X			
44	SS45	Mar 18, 2022		Soil	N22-Ma46069								X			X			
45	SS-C1	Mar 22, 2022		Soil	N22-Ma46070									X		X			
46	SS-C2	Mar 22, 2022		Soil	N22-Ma46071									X		X			
47	SS-C3	Mar 22, 2022		Soil	N22-Ma46072									X		X			
48	SS-C4	Mar 22, 2022		Soil	N22-Ma46073									X		X			
49	SS-C5	Mar 22, 2022		Soil	N22-Ma46074									X		X			
50	SS-C6	Mar 16, 2022		Soil	N22-Ma46075									X		X			
51	SS-C7	Mar 16, 2022		Soil	N22-Ma46076									X		X			
52	S1	Mar 22, 2022		Soil	N22-Ma46077			X											
53	S2	Mar 22, 2022		Soil	N22-Ma46078		X				X	X			X				

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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
54	S3	Mar 22, 2022		Soil	N22-Ma46079		X				X	X			X				
55	S4	Mar 22, 2022		Soil	N22-Ma46080		X				X		X		X				
56	S5	Mar 22, 2022		Soil	N22-Ma46081		X				X	X			X				
57	S6	Mar 22, 2022		Soil	N22-Ma46082		X				X	X			X				
58	S7	Mar 22, 2022		Soil	N22-Ma46083		X				X	X			X				
59	SED1	Mar 22, 2022		Soil	N22-Ma46084											X		X	
60	SED2	Mar 22, 2022		Soil	N22-Ma46085											X		X	
61	SED3	Mar 22, 2022		Soil	N22-Ma46086											X		X	
62	SW1	Mar 22, 2022		Water	N22-Ma46087													X	
63	SW2	Mar 22, 2022		Water	N22-Ma46088													X	
64	SW3	Mar 22, 2022		Water	N22-Ma46089													X	

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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
65	WB.16.3.22	Mar 16, 2022		Water	N22-Ma46090								X						
66	TB.16.3.22	Mar 16, 2022		Water	N22-Ma46091														X
67	TP1 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46092								X			X			
68	TP1 0.9-10	Mar 16, 2022		Soil	N22-Ma46093								X			X			
69	TP2 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46094								X			X			
70	TP3 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46095								X			X			
71	TP4 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46096								X			X			
72	TP4 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46097	X													
73	TP5 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46098								X			X			
74	TP5 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46099	X													
75	TP6 0.0-0.05	Mar 16, 2022		Soil	N22-Ma46100											X		X	

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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
76	TP6 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46101	X													
77	TP7 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46102								X			X			
78	TP8 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46103								X			X			
79	TP8 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46104	X													
80	TP9 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46105	X										X		X	
81	TP9 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46106								X			X			
82	TP9 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46107								X			X			
83	TP10 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46108	X										X		X	
84	TP10 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46109								X			X			
85	TP10 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46110								X			X			
86	TP11 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46111								X			X			

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Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
87	TP11 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46112	X													
88	TP12 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46113								X			X			
89	TP12 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46114	X													
90	TP13 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46115								X			X			
91	TP14 0.0-0.05	Mar 16, 2022		Soil	N22-Ma46116								X			X			
92	TP15 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46117								X			X			
93	TP15 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46118								X			X			
94	TP16 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46119	X										X		X	
95	TP17 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46120											X		X	
96	TP17 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46121	X													
97	TP18 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46122								X			X			

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Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
98	TP18 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46123	X													
99	TP19 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46124											X		X	
100	TP19 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46125	X													
101	TP20 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46126								X			X			
102	TP20 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46127	X													
103	TP21 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46128								X			X			
104	TP21 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46129	X													
105	TP22 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46130											X		X	
106	TP22 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46131	X													
107	TP25 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46132											X		X	
108	TP25 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46133	X													

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
109	TP26 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46134								X			X			
110	TP27 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46135											X		X	
111	TP27 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46136	X													
112	TP28 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46137								X			X			
113	TP29 0.0-0.1	Mar 16, 2022		Soil	N22-Ma46138								X			X			
114	TP30 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46139								X			X			
115	TP30 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46140	X													
116	TP31 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46141								X			X			
117	TP31 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46142	X													
118	TP32 0.0-0.1	Mar 18, 2022		Soil	N22-Ma46143											X		X	
119	TP32 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46144	X													

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
120	TP32 1.0-1.1	Mar 18, 2022		Soil	N22-Ma46145								X			X			
121	D1.16.3.22	Mar 16, 2022		Soil	N22-Ma46146											X		X	
122	D1.17.3.22	Mar 17, 2022		Soil	N22-Ma46147											X		X	
123	D1.17.3.22	Mar 17, 2022		Soil	N22-Ma46148											X		X	
124	D1.18.3.22	Mar 18, 2022		Soil	N22-Ma46149											X		X	
125	WD.22.3.22	Mar 22, 2022		Water	N22-Ma46150													X	
126	SS43	Mar 18, 2022		Soil	N22-Ma46151				X										
127	TP1 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46152				X										
128	TP1 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46153				X										
129	TP2 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46154				X										
130	TP2 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46155				X										

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Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
131	TP3 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46156				X										
132	TP4 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46157				X										
133	TP5 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46158				X										
134	TP6 0.1-0.20	Mar 16, 2022		Soil	N22-Ma46159				X										
135	TP7 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46160				X										
136	TP7 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46161				X										
137	TP8 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46162				X										
138	TP9 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46163				X										
139	TP9 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46164				X										
140	TP10 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46165				X										
141	TP10 0.9-1.0	Mar 16, 2022		Soil	N22-Ma46166				X										

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Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
142	TP10 1.9-2.0	Mar 16, 2022		Soil	N22-Ma46167				X										
143	TP11 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46168				X										
144	TP12 0.2-0.3	Mar 18, 2022		Soil	N22-Ma46169				X										
145	TP13 0.0-0.2	Mar 18, 2022		Soil	N22-Ma46170				X										
146	TP13 0.1-0.2	Mar 18, 2022		Soil	N22-Ma46171				X										
147	TP14 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46172				X										
148	TP15 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46173				X										
149	TP15 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46174				X										
150	TP15 1.4-1.5	Mar 16, 2022		Soil	N22-Ma46175				X										
151	TP15 1.9-2.0	Mar 16, 2022		Soil	N22-Ma46176				X										
152	TP16 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46177				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
153	TP16 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46178				X										
154	TP17 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46179				X										
155	TP18 0.3-0.4	Mar 17, 2022		Soil	N22-Ma46180				X										
156	TP19 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46181				X										
157	TP20 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46182				X										
158	TP21 0.2-0.3	Mar 17, 2022		Soil	N22-Ma46183				X										
159	TP22 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46184				X										
160	TP22 0.9-1.0	Mar 17, 2022		Soil	N22-Ma46185				X										
161	TP23 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46186				X										
162	TP23 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46187				X										
163	TP24 0.0-0.1	Mar 17, 2022		Soil	N22-Ma46188				X										

Company Name: Qualtest
Address: 2 Murray Dwyer Circuit
Mayfield West
NSW 2304

Project Name: MCLOYS - LOCHINVAR
Project ID: NEW21P-0129

Order No.:
Report #: 873498
Phone: 02 4968 4468
Fax: 02 4960 9775

Received: Mar 23, 2022 8:30 AM
Due: Mar 30, 2022
Priority: 5 Day
Contact Name: Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
164	TP24 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46189				X										
165	TP24 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46190				X										
166	TP24 0.9-1.0	Mar 17, 2022		Soil	N22-Ma46191				X										
167	TP25 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46192				X										
168	TP25 0.75-0.85	Mar 17, 2022		Soil	N22-Ma46193				X										
169	TP26 0.0-0.2	Mar 17, 2022		Soil	N22-Ma46194				X										
170	TP26 0.4-0.5	Mar 17, 2022		Soil	N22-Ma46195				X										
171	TP27 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46196				X										
172	TP28 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46197				X										
173	TP28 0.4-0.5	Mar 16, 2022		Soil	N22-Ma46198				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
Address:	2 Murray Dwyer Circuit Mayfield West NSW 2304	Report #:	873498	Due:	Mar 30, 2022
Project Name:	MCLOYS - LOCHINVAR	Phone:	02 4968 4468	Priority:	5 Day
Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
174	TP29 0.0-0.2	Mar 16, 2022		Soil	N22-Ma46199				X										
175	TP29 0.2-0.3	Mar 16, 2022		Soil	N22-Ma46200				X										
176	TP30 0.4-0.5	Mar 18, 2022		Soil	N22-Ma46201				X										
177	TP30 0.75-0.85	Mar 18, 2022		Soil	N22-Ma46202				X										
178	TP31 0.4-0.5	Mar 18, 2022		Soil	N22-Ma46203				X										
179	TP31 0.8-0.9	Mar 18, 2022		Soil	N22-Ma46204				X										
180	TP32 0.6-0.7	Mar 18, 2022		Soil	N22-Ma46205				X										
181	TP32 1.5-1.6	Mar 18, 2022		Soil	N22-Ma46206				X										
182	TP32 1.9-2.0	Mar 18, 2022		Soil	N22-Ma46207				X										
183	D.16.3.22	Mar 16, 2022		Soil	N22-Ma46208				X										

Company Name:	Qualtest	Order No.:		Received:	Mar 23, 2022 8:30 AM
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Project ID:	NEW21P-0129	Fax:	02 4960 9775	Contact Name:	Libby Betz

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Asbestos - W/A guidelines	E.coli (MPN)	HOLD	HOLD	pH (1:5 Aqueous extract at 25°C as rec.)	Thermotolerant Coliforms (MPN)	Metals M8	Metals M8	Chromium (speciated)	Moisture Set	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254								X				X		X	X	X	X	X	
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X			X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794																			
Mayfield Laboratory - NATA # 1261 Site # 25079																			
Perth Laboratory - NATA # 2377 Site # 2370																			
External Laboratory							X				X								
184	D.18.3.22	Mar 18, 2022		Soil	N22-Ma46209				X										
185	T.18.3.22	Mar 18, 2022		Soil	N22-Ma46210				X										
Test Counts						43	6	61	61	1	6	68	68	7	101	101	1	31	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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 SRA.

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.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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	
Total PAH*	mg/kg	-			0.5	N/A	
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							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Chromium (hexavalent)	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	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
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	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	91			70-130	Pass	
TRH C10-C14	%	74			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	98			70-130	Pass	
Toluene	%	97			70-130	Pass	
Ethylbenzene	%	87			70-130	Pass	
m&p-Xylenes	%	82			70-130	Pass	
o-Xylene	%	92			70-130	Pass	
Xylenes - Total*	%	86			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	116			70-130	Pass	
TRH C6-C10	%	92			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	85			70-130	Pass	
Acenaphthylene	%	74			70-130	Pass	
Anthracene	%	71			70-130	Pass	
Benz(a)anthracene	%	70			70-130	Pass	
Benzo(a)pyrene	%	74			70-130	Pass	
Benzo(b&j)fluoranthene	%	72			70-130	Pass	
Benzo(g,h,i)perylene	%	76			70-130	Pass	
Benzo(k)fluoranthene	%	72			70-130	Pass	
Chrysene	%	70			70-130	Pass	
Dibenz(a,h)anthracene	%	71			70-130	Pass	
Fluoranthene	%	70			70-130	Pass	
Fluorene	%	78			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	73			70-130	Pass	
Naphthalene	%	74			70-130	Pass	
Phenanthrene	%	70			70-130	Pass	
Pyrene	%	73			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	73			70-130	Pass	
LCS - % Recovery							
Conductivity (1:5 aqueous extract at 25°C as rec.)	%	94			70-130	Pass	
Chromium (hexavalent)	%	96			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	104			80-120	Pass	
Cadmium	%	105			80-120	Pass	
Chromium	%	104			80-120	Pass	
Chromium	%	109			80-120	Pass	
Copper	%	104			80-120	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Lead				%	107			80-120	Pass	
Mercury				%	105			80-120	Pass	
Nickel				%	104			80-120	Pass	
Zinc				%	114			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 C10-C14	S22-Ma65958	NCP	%		76			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH C6-C10	S22-Ma48926	NCP	%		71			70-130	Pass	
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene	S22-Ma47362	NCP	%		111			70-130	Pass	
Acenaphthylene	S22-Ma47362	NCP	%		96			70-130	Pass	
Anthracene	S22-Ma47362	NCP	%		97			70-130	Pass	
Benz(a)anthracene	S22-Ma47362	NCP	%		94			70-130	Pass	
Benzo(a)pyrene	S22-Ma47362	NCP	%		104			70-130	Pass	
Benzo(b&j)fluoranthene	S22-Ma47362	NCP	%		105			70-130	Pass	
Benzo(g,h,i)perylene	S22-Ma47362	NCP	%		116			70-130	Pass	
Benzo(k)fluoranthene	S22-Ma47362	NCP	%		106			70-130	Pass	
Chrysene	S22-Ma47362	NCP	%		101			70-130	Pass	
Dibenz(a,h)anthracene	S22-Ma47362	NCP	%		101			70-130	Pass	
Fluoranthene	S22-Ma47362	NCP	%		96			70-130	Pass	
Fluorene	S22-Ma47362	NCP	%		105			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S22-Ma47362	NCP	%		98			70-130	Pass	
Naphthalene	S22-Ma47362	NCP	%		96			70-130	Pass	
Phenanthrene	S22-Ma47362	NCP	%		96			70-130	Pass	
Pyrene	S22-Ma47362	NCP	%		90			70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	S22-Ma65958	NCP	%		71			70-130	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Chromium	N22-Ma56951	NCP	%		98			75-125	Pass	
Spike - % Recovery										
Heavy Metals					Result 1					
Arsenic	N22-Ma46055	CP	%		99			75-125	Pass	
Cadmium	N22-Ma46055	CP	%		101			75-125	Pass	
Copper	N22-Ma46055	CP	%		123			75-125	Pass	
Lead	N22-Ma46055	CP	%		102			75-125	Pass	
Mercury	N22-Ma46055	CP	%		97			75-125	Pass	
Nickel	N22-Ma46055	CP	%		102			75-125	Pass	
Zinc	N22-Ma46055	CP	%		105			75-125	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	N22-Ma46066	CP	%		71			70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	N22-Ma46066	CP	%		76			70-130	Pass	
Toluene	N22-Ma46066	CP	%		79			70-130	Pass	
Ethylbenzene	N22-Ma46066	CP	%		82			70-130	Pass	
m&p-Xylenes	N22-Ma46066	CP	%		80			70-130	Pass	
o-Xylene	N22-Ma46066	CP	%		86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes - Total*	N22-Ma46066	CP	%	82			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	N22-Ma46066	CP	%	93			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N22-Ma46098	CP	%	112			75-125	Pass	
Cadmium	N22-Ma46098	CP	%	112			75-125	Pass	
Copper	N22-Ma46098	CP	%	118			75-125	Pass	
Lead	N22-Ma46098	CP	%	105			75-125	Pass	
Mercury	N22-Ma46098	CP	%	101			75-125	Pass	
Nickel	N22-Ma46098	CP	%	93			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C10-C14	N22-Ma46143	CP	%	77			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	N22-Ma46143	CP	%	77			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25°C as rec.)	S22-Ma45643	NCP	uS/cm	27	21	25	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S22-Ma45644	NCP	pH Units	5.9	6.6	<1	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Cation Exchange Capacity	N22-Ma50106	NCP	meq/100g	6.3	6.0	5.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N22-Ma46034	CP	mg/kg	9.8	12	21	30%	Pass	
Cadmium	N22-Ma46034	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N22-Ma46034	CP	mg/kg	110	120	12	30%	Pass	
Copper	N22-Ma46034	CP	mg/kg	26	30	14	30%	Pass	
Lead	N22-Ma46034	CP	mg/kg	18	18	2.0	30%	Pass	
Mercury	N22-Ma46034	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N22-Ma46034	CP	mg/kg	56	65	15	30%	Pass	
Zinc	N22-Ma46034	CP	mg/kg	140	130	4.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N22-Ma46037	CP	%	20	20	1.0	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N22-Ma46047	CP	%	20	22	10	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N22-Ma46054	CP	mg/kg	7.8	5.5	34	30%	Fail	Q15
Cadmium	N22-Ma46054	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N22-Ma46054	CP	mg/kg	140	150	2.0	30%	Pass	
Copper	N22-Ma46054	CP	mg/kg	41	41	1.0	30%	Pass	
Lead	N22-Ma46054	CP	mg/kg	8.4	8.7	4.0	30%	Pass	
Mercury	N22-Ma46054	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N22-Ma46054	CP	mg/kg	71	74	4.0	30%	Pass	
Zinc	N22-Ma46054	CP	mg/kg	46	52	12	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	N22-Ma46057	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	N22-Ma46057	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	N22-Ma46057	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	N22-Ma46057	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	N22-Ma46057	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	N22-Ma46057	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	N22-Ma46057	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	N22-Ma46057	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	N22-Ma46057	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46057	CP	%	23	19	19	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46064	CP	mg/kg	4.3	2.2	65	30%	Fail Q15
Cadmium	N22-Ma46064	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46064	CP	mg/kg	35	25	31	30%	Fail Q15
Copper	N22-Ma46064	CP	mg/kg	14	10	26	30%	Pass
Lead	N22-Ma46064	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	N22-Ma46064	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46064	CP	mg/kg	15	11	30	30%	Pass
Zinc	N22-Ma46064	CP	mg/kg	20	15	29	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46067	CP	%	11	9.8	9.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (hexavalent)	N22-Ma46071	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46074	CP	mg/kg	9.6	9.4	2.0	30%	Pass
Cadmium	N22-Ma46074	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46074	CP	mg/kg	77	77	<1	30%	Pass
Copper	N22-Ma46074	CP	mg/kg	24	30	22	30%	Pass
Lead	N22-Ma46074	CP	mg/kg	12	12	4.0	30%	Pass
Mercury	N22-Ma46074	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46074	CP	mg/kg	22	24	9.0	30%	Pass
Zinc	N22-Ma46074	CP	mg/kg	25	29	14	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	N22-Ma46084	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	N22-Ma46084	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	N22-Ma46084	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	N22-Ma46084	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	N22-Ma46084	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	N22-Ma46084	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	N22-Ma46084	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	N22-Ma46084	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	N22-Ma46084	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46084	CP	%	43	36	19	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C10-C14	N22-Ma46085	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	N22-Ma46085	CP	mg/kg	71	< 50	150	30%	Fail Q15
TRH C29-C36	N22-Ma46085	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	N22-Ma46085	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	N22-Ma46085	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	N22-Ma46085	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	N22-Ma46085	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46093	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	N22-Ma46093	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46093	CP	mg/kg	110	96	16	30%	Pass
Copper	N22-Ma46093	CP	mg/kg	13	12	5.0	30%	Pass
Lead	N22-Ma46093	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	N22-Ma46093	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46093	CP	mg/kg	84	89	5.0	30%	Pass
Zinc	N22-Ma46093	CP	mg/kg	79	78	1.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46095	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	N22-Ma46095	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46095	CP	mg/kg	27	55	68	30%	Fail Q02
Copper	N22-Ma46095	CP	mg/kg	6.9	20	97	30%	Fail Q15
Lead	N22-Ma46095	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	N22-Ma46095	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46095	CP	mg/kg	13	32	87	30%	Fail Q15
Zinc	N22-Ma46095	CP	mg/kg	17	24	34	30%	Fail Q15

Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46102	CP	%	19	16	14	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46107	CP	mg/kg	5.6	5.5	1.0	30%	Pass
Cadmium	N22-Ma46107	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46107	CP	mg/kg	130	110	21	30%	Pass
Copper	N22-Ma46107	CP	mg/kg	33	31	8.0	30%	Pass
Lead	N22-Ma46107	CP	mg/kg	14	13	5.0	30%	Pass
Mercury	N22-Ma46107	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46107	CP	mg/kg	49	47	3.0	30%	Pass
Zinc	N22-Ma46107	CP	mg/kg	53	51	2.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46115	CP	%	5.2	4.5	13	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	N22-Ma46120	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	N22-Ma46120	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	N22-Ma46120	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	N22-Ma46120	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	N22-Ma46120	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	N22-Ma46120	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	N22-Ma46120	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	N22-Ma46120	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	N22-Ma46120	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46130	CP	%	15	18	18	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	N22-Ma46132	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	N22-Ma46132	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	N22-Ma46132	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	N22-Ma46132	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	N22-Ma46132	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	N22-Ma46132	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	N22-Ma46132	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	N22-Ma46132	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	N22-Ma46132	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46137	CP	mg/kg	2.5	6.6	89	30%	Fail Q15
Cadmium	N22-Ma46137	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46137	CP	mg/kg	16	37	80	30%	Fail Q15
Copper	N22-Ma46137	CP	mg/kg	5.1	13	85	30%	Fail Q15
Lead	N22-Ma46137	CP	mg/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Mercury	N22-Ma46137	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46137	CP	mg/kg	13	30	77	30%	Fail Q15
Zinc	N22-Ma46137	CP	mg/kg	8.6	17	64	30%	Fail Q15
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	N22-Ma46141	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	N22-Ma46141	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	N22-Ma46141	CP	mg/kg	12	7.7	41	30%	Fail Q15
Copper	N22-Ma46141	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	N22-Ma46141	CP	mg/kg	< 5	< 5	<1	30%	Pass
Mercury	N22-Ma46141	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	N22-Ma46141	CP	mg/kg	< 5	< 5	<1	30%	Pass
Zinc	N22-Ma46141	CP	mg/kg	9.5	5.6	51	30%	Fail Q15
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	N22-Ma46146	CP	%	8.7	7.7	12	30%	Pass

Comments

E coli and Thermotolerant coliforms analysed by; Eurofins Food Testing; accreditation number 20293; report reference AR-22-NV-003797-01
V2- new version to amend extraction date glitches in LIMs system between the labs as per internal error.

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	Yes

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
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Andrew Black	Analytical Services Manager
Gabriele Cordero	Senior Analyst (NSW)
Mary Makarios	Senior Analyst (NSW)
Charl Du Preez	Senior Analyst (NSW)
Sayeed Abu	Senior Analyst (NSW)



Glenn Jackson
General 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](#).

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CERTIFICATE OF ANALYSIS

Work Order : **ES2210663**
Client : **QUALTEST LABORATORY(NSW) PTY LTD**
Contact : LIBBY BETZ
Address : 2 Murray Dwyer Circuit, Mayfield West, 2304
 Mayfield West 2304
Telephone : 02 4968 4468
Project : NEW21P-0129 McCloys - Lochinvar
Order number : ----
C-O-C number : ----
Sampler : B.Snow
Site : ----
Quote number : EN/333
No. of samples received : 5
No. of samples analysed : 5

Page : 1 of 8
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555
Date Samples Received : 25-Mar-2022 16:30
Date Analysis Commenced : 28-Mar-2022
Issue Date : 01-Apr-2022 16:03



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG035: Positive Mercury result ES22010663 #3 has been confirmed by reanalysis.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	T1.16.3.22	T1.17.3.22	T.17.3.22	T1.18.3.22	----
Sampling date / time					16-Mar-2022 00:00	17-Mar-2022 00:00	17-Mar-2022 00:00	18-Mar-2022 00:00	----
Compound	CAS Number	LOR	Unit		ES2210663-001	ES2210663-002	ES2210663-003	ES2210663-004	-----
					Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		9.2	26.2	21.1	24.2	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		6	31	<5	5	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	----
Chromium	7440-47-3	2	mg/kg		19	88	52	96	----
Copper	7440-50-8	5	mg/kg		11	42	16	48	----
Lead	7439-92-1	5	mg/kg		10	15	7	11	----
Nickel	7440-02-0	2	mg/kg		19	42	38	60	----
Zinc	7440-66-6	5	mg/kg		156	97	28	178	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		<0.1	<0.1	0.1	<0.1	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		0.6	0.6	0.6	0.6	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		1.2	1.2	1.2	1.2	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	T1.16.3.22	T1.17.3.22	T.17.3.22	T1.18.3.22	----
Sampling date / time					16-Mar-2022 00:00	17-Mar-2022 00:00	17-Mar-2022 00:00	18-Mar-2022 00:00	----
Compound	CAS Number	LOR	Unit		ES2210663-001	ES2210663-002	ES2210663-003	ES2210663-004	-----
					Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		102	100	98.7	90.7	----
2-Chlorophenol-D4	93951-73-6	0.5	%		101	99.3	98.6	90.2	----
2,4,6-Tribromophenol	118-79-6	0.5	%		111	83.9	76.2	62.1	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		104	97.3	96.5	91.6	----
Anthracene-d10	1719-06-8	0.5	%		109	101	100	94.7	----
4-Terphenyl-d14	1718-51-0	0.5	%		97.3	88.7	89.0	84.1	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%		82.7	89.4	77.3	77.6	----
Toluene-D8	2037-26-5	0.2	%		88.4	103	87.7	87.7	----

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 Work Order : ES2210663
 Client : QUALTEST LABORATORY(NSW) PTY LTD
 Project : NEW21P-0129 McCloys - Lochinvar



Analytical Results

Sub-Matrix: **SOIL**
 (Matrix: **SOIL**)

Sample ID

				T1.16.3.22	T1.17.3.22	T.17.3.22	T1.18.3.22	----
Sampling date / time				16-Mar-2022 00:00	17-Mar-2022 00:00	17-Mar-2022 00:00	18-Mar-2022 00:00	----
Compound	CAS Number	LOR	Unit	ES2210663-001	ES2210663-002	ES2210663-003	ES2210663-004	-----
				Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	86.3	94.7	82.1	83.6	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Sample ID

				WT.22.3.22	----	----	----	----
Sampling date / time				22-Mar-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2210663-005	-----	-----	-----	-----
Result				----	----	----	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	0.006	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	0.012	----	----	----	----
Copper	7440-50-8	0.001	mg/L	0.009	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.017	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.008	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WT.22.3.22	----	----	----	----
Sampling date / time					22-Mar-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2210663-005	-----	-----	-----	-----
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	----	----	----	----
Toluene	108-88-3	2	µg/L		<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	----	----	----	----
^ Total Xylenes	----	2	µg/L		<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	1.0	%		26.3	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%		54.8	----	----	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%		57.5	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%		68.0	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%		77.7	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%		80.9	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		93.8	----	----	----	----
Toluene-D8	2037-26-5	2	%		112	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		94.5	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			13/04/2022 10:45:02 AM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	Zinc											
11												
12	General Statistics											
13	Total Number of Observations				87		Number of Distinct Observations				61	
14	Number of Detects				82		Number of Non-Detects				5	
15	Number of Distinct Detects				60		Number of Distinct Non-Detects				1	
16	Minimum Detect				5.4		Minimum Non-Detect				5	
17	Maximum Detect				800		Maximum Non-Detect				5	
18	Variance Detects				12279		Percent Non-Detects				5.747%	
19	Mean Detects				77.67		SD Detects				110.8	
20	Median Detects				44.5		CV Detects				1.427	
21	Skewness Detects				4.323		Kurtosis Detects				24.18	
22	Mean of Logged Detects				3.754		SD of Logged Detects				1.101	
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic				0.589		Normal GOF Test on Detected Observations Only					
26	5% Shapiro Wilk P Value				0		Detected Data Not Normal at 5% Significance Level					
27	Lilliefors Test Statistic				0.257		Lilliefors GOF Test					
28	5% Lilliefors Critical Value				0.0978		Detected Data Not Normal at 5% Significance Level					
29	Detected Data Not Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	Mean		73.49		Standard Error of Mean				11.68			
33	SD		108.3		95% KM (BCA) UCL				92.43			
34	95% KM (t) UCL		92.91		95% KM (Percentile Bootstrap) UCL				93.89			
35	95% KM (z) UCL		92.7		95% KM Bootstrap t UCL				105.1			
36	90% KM Chebyshev UCL		108.5		95% KM Chebyshev UCL				124.4			
37	97.5% KM Chebyshev UCL		146.4		99% KM Chebyshev UCL				189.7			
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic		1.176		Anderson-Darling GOF Test							
41	5% A-D Critical Value		0.784		Detected Data Not Gamma Distributed at 5% Significance Level							
42	K-S Test Statistic		0.102		Kolmogrov-Smirnoff GOF							
43	5% K-S Critical Value		0.102		Detected Data Not Gamma Distributed at 5% Significance Level							
44	Detected Data Not Gamma Distributed at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)		0.969		k star (bias corrected MLE)				0.941			
48	Theta hat (MLE)		80.17		Theta star (bias corrected MLE)				82.5			
49	nu hat (MLE)		158.9		nu star (bias corrected)				154.4			
50	MLE Mean (bias corrected)		77.67		MLE Sd (bias corrected)				80.05			
51												
52	Gamma Kaplan-Meier (KM) Statistics											
53	k hat (KM)		0.461		nu hat (KM)				80.19			
54	Approximate Chi Square Value (80.19, α)		60.56		Adjusted Chi Square Value (80.19, β)				60.27			
55	95% Gamma Approximate KM-UCL (use when n>=50)		97.32		95% Gamma Adjusted KM-UCL (use when n<50)				97.78			
56												
57	Gamma ROS Statistics using Imputed Non-Detects											

	A	B	C	D	E	F	G	H	I	J	K	L
58	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
59	GROS may not be used when kstar of detected data is small such as < 0.1											
60	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
62		Minimum	0.01							Mean	73.2	
63		Maximum	800							Median	43	
64		SD	109.1							CV	1.49	
65		k hat (MLE)	0.605							k star (bias corrected MLE)	0.592	
66		Theta hat (MLE)	120.9							Theta star (bias corrected MLE)	123.6	
67		nu hat (MLE)	105.3							nu star (bias corrected)	103	
68		MLE Mean (bias corrected)	73.2							MLE Sd (bias corrected)	95.13	
69										Adjusted Level of Significance (β)	0.0472	
70		Approximate Chi Square Value (103.03, α)	80.61							Adjusted Chi Square Value (103.03, β)	80.28	
71		95% Gamma Approximate UCL (use when $n \geq 50$)	93.56							95% Gamma Adjusted UCL (use when $n < 50$)	93.95	
72												
73	Lognormal GOF Test on Detected Observations Only											
74		Lilliefors Test Statistic	0.0697							Lilliefors GOF Test		
75		5% Lilliefors Critical Value	0.0978							Detected Data appear Lognormal at 5% Significance Level		
76	Detected Data appear Lognormal at 5% Significance Level											
77												
78	Lognormal ROS Statistics Using Imputed Non-Detects											
79		Mean in Original Scale	73.39							Mean in Log Scale	3.604	
80		SD in Original Scale	108.9							SD in Log Scale	1.234	
81		95% t UCL (assumes normality of ROS data)	92.81							95% Percentile Bootstrap UCL	93.78	
82		95% BCA Bootstrap UCL	101.9							95% Bootstrap t UCL	103.8	
83		95% H-UCL (Log ROS)	109.3									
84												
85	UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed											
86		KM Mean (logged)	3.631							95% H-UCL (KM -Log)	102.1	
87		KM SD (logged)	1.174							95% Critical H Value (KM-Log)	2.413	
88		KM Standard Error of Mean (logged)	0.127									
89												
90	DL/2 Statistics											
91	DL/2 Normal					DL/2 Log-Transformed						
92		Mean in Original Scale	73.35							Mean in Log Scale	3.591	
93		SD in Original Scale	109							SD in Log Scale	1.258	
94		95% t UCL (Assumes normality)	92.77							95% H-Stat UCL	112.5	
95	DL/2 is not a recommended method, provided for comparisons and historical reasons											
96												
97	Nonparametric Distribution Free UCL Statistics											
98	Detected Data appear Lognormal Distributed at 5% Significance Level											
99												
100	Suggested UCL to Use											
101	95% KM (Chebyshev) UCL		124.4									
102												
103	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
104	Recommendations are based upon data size, data distribution, and skewness.											
105	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
106	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
107												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation			13/04/2022 10:39:15 AM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	Nickel											
12												
13	General Statistics											
14	Total Number of Observations				12		Number of Distinct Observations				12	
15							Number of Missing Observations				0	
16	Minimum				9.4		Mean				43.62	
17	Maximum				100		Median				40	
18	SD				24.94		Std. Error of Mean				7.198	
19	Coefficient of Variation				0.572		Skewness				0.925	
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic				0.95		Shapiro Wilk GOF Test					
23	5% Shapiro Wilk Critical Value				0.859		Data appear Normal at 5% Significance Level					
24	Lilliefors Test Statistic				0.12		Lilliefors GOF Test					
25	5% Lilliefors Critical Value				0.256		Data appear Normal at 5% Significance Level					
26	Data appear Normal at 5% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL					95% UCLs (Adjusted for Skewness)						
30	95% Student's-t UCL				56.54		95% Adjusted-CLT UCL (Chen-1995)				57.51	
31							95% Modified-t UCL (Johnson-1978)				56.86	
32												
33	Gamma GOF Test											
34	A-D Test Statistic				0.109		Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value				0.739		Detected data appear Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic				0.0857		Kolmogrov-Smirnoff Gamma GOF Test					
37	5% K-S Critical Value				0.247		Detected data appear Gamma Distributed at 5% Significance Level					
38	Detected data appear Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)				3.153		k star (bias corrected MLE)				2.42	
42	Theta hat (MLE)				13.83		Theta star (bias corrected MLE)				18.02	
43	nu hat (MLE)				75.68		nu star (bias corrected)				58.09	
44	MLE Mean (bias corrected)				43.62		MLE Sd (bias corrected)				28.04	
45						Approximate Chi Square Value (0.05)				41.57		
46	Adjusted Level of Significance				0.029		Adjusted Chi Square Value				39.44	
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL (use when n>=50))				60.95		95% Adjusted Gamma UCL (use when n<50)				64.24	
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic				0.973		Shapiro Wilk Lognormal GOF Test					
53	5% Shapiro Wilk Critical Value				0.859		Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic				0.108		Lilliefors Lognormal GOF Test					
55	5% Lilliefors Critical Value				0.256		Data appear Lognormal at 5% Significance Level					
56	Data appear Lognormal at 5% Significance Level											
57												

	A	B	C	D	E	F	G	H	I	J	K	L
58	Lognormal Statistics											
59	Minimum of Logged Data					2.241	Mean of logged Data					3.609
60	Maximum of Logged Data					4.605	SD of logged Data					0.641
61												
62	Assuming Lognormal Distribution											
63	95% H-UCL					71.08	90% Chebyshev (MVUE) UCL					70
64	95% Chebyshev (MVUE) UCL					81.58	97.5% Chebyshev (MVUE) UCL					97.65
65	99% Chebyshev (MVUE) UCL					129.2						
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					55.46	95% Jackknife UCL					56.54
72	95% Standard Bootstrap UCL					55.08	95% Bootstrap-t UCL					60.06
73	95% Hall's Bootstrap UCL					62.6	95% Percentile Bootstrap UCL					55.75
74	95% BCA Bootstrap UCL					57.42						
75	90% Chebyshev(Mean, Sd) UCL					65.21	95% Chebyshev(Mean, Sd) UCL					74.99
76	97.5% Chebyshev(Mean, Sd) UCL					88.57	99% Chebyshev(Mean, Sd) UCL					115.2
77												
78	Suggested UCL to Use											
79	95% Student's-t UCL					56.54						
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												

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			13/04/2022 10:38:07 AM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	Copper											
11												
12	General Statistics											
13	Total Number of Observations				88		Number of Distinct Observations				48	
14	Number of Detects				74		Number of Non-Detects				14	
15	Number of Distinct Detects				47		Number of Distinct Non-Detects				1	
16	Minimum Detect				5.1		Minimum Non-Detect				5	
17	Maximum Detect				220		Maximum Non-Detect				5	
18	Variance Detects				734		Percent Non-Detects				15.91%	
19	Mean Detects				25.33		SD Detects				27.09	
20	Median Detects				19.5		CV Detects				1.07	
21	Skewness Detects				5.309		Kurtosis Detects				36.83	
22	Mean of Logged Detects				2.946		SD of Logged Detects				0.728	
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic				0.571		Normal GOF Test on Detected Observations Only					
26	5% Shapiro Wilk P Value				0		Detected Data Not Normal at 5% Significance Level					
27	Lilliefors Test Statistic				0.228		Lilliefors GOF Test					
28	5% Lilliefors Critical Value				0.103		Detected Data Not Normal at 5% Significance Level					
29	Detected Data Not Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	Mean				22.1		Standard Error of Mean				2.766	
33	SD				25.77		95% KM (BCA) UCL				27.45	
34	95% KM (t) UCL				26.69		95% KM (Percentile Bootstrap) UCL				27.14	
35	95% KM (z) UCL				26.65		95% KM Bootstrap t UCL				29.51	
36	90% KM Chebyshev UCL				30.39		95% KM Chebyshev UCL				34.15	
37	97.5% KM Chebyshev UCL				39.37		99% KM Chebyshev UCL				49.62	
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic				0.858		Anderson-Darling GOF Test					
41	5% A-D Critical Value				0.765		Detected Data Not Gamma Distributed at 5% Significance Level					
42	K-S Test Statistic				0.0771		Kolmogrov-Smirnoff GOF					
43	5% K-S Critical Value				0.105		Detected data appear Gamma Distributed at 5% Significance Level					
44	Detected data follow Appr. Gamma Distribution at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)				1.901		k star (bias corrected MLE)				1.833	
48	Theta hat (MLE)				13.33		Theta star (bias corrected MLE)				13.82	
49	nu hat (MLE)				281.3		nu star (bias corrected)				271.2	
50	MLE Mean (bias corrected)				25.33		MLE Sd (bias corrected)				18.71	
51												
52	Gamma Kaplan-Meier (KM) Statistics											
53	k hat (KM)				0.735		nu hat (KM)				129.4	
54	Approximate Chi Square Value (129.38, α)				104.1		Adjusted Chi Square Value (129.38, β)				103.7	
55	95% Gamma Approximate KM-UCL (use when n>=50)				27.46		95% Gamma Adjusted KM-UCL (use when n<50)				27.56	
56												
57	Gamma ROS Statistics using Imputed Non-Detects											

	A	B	C	D	E	F	G	H	I	J	K	L
58	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
59	GROS may not be used when kstar of detected data is small such as < 0.1											
60	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
62		Minimum	0.01							Mean	21.3	
63		Maximum	220							Median	17	
64		SD	26.51							CV	1.244	
65		k hat (MLE)	0.486							k star (bias corrected MLE)	0.477	
66		Theta hat (MLE)	43.86							Theta star (bias corrected MLE)	44.69	
67		nu hat (MLE)	85.48							nu star (bias corrected)	83.9	
68		MLE Mean (bias corrected)	21.3							MLE Sd (bias corrected)	30.85	
69										Adjusted Level of Significance (β)	0.0473	
70		Approximate Chi Square Value (83.90, α)	63.79							Adjusted Chi Square Value (83.90, β)	63.5	
71		95% Gamma Approximate UCL (use when $n \geq 50$)	28.02							95% Gamma Adjusted UCL (use when $n < 50$)	28.15	
72												
73	Lognormal GOF Test on Detected Observations Only											
74		Lilliefors Test Statistic	0.0661							Lilliefors GOF Test		
75		5% Lilliefors Critical Value	0.103							Detected Data appear Lognormal at 5% Significance Level		
76	Detected Data appear Lognormal at 5% Significance Level											
77												
78	Lognormal ROS Statistics Using Imputed Non-Detects											
79		Mean in Original Scale	21.92							Mean in Log Scale	2.685	
80		SD in Original Scale	26.05							SD in Log Scale	0.91	
81		95% t UCL (assumes normality of ROS data)	26.53							95% Percentile Bootstrap UCL	26.75	
82		95% BCA Bootstrap UCL	28.26							95% Bootstrap t UCL	29.39	
83		95% H-UCL (Log ROS)	27.37									
84												
85	UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed											
86		KM Mean (logged)	2.734							95% H-UCL (KM -Log)	25.96	
87		KM SD (logged)	0.824							95% Critical H Value (KM-Log)	2.081	
88		KM Standard Error of Mean (logged)	0.0884									
89												
90	DL/2 Statistics											
91	DL/2 Normal			DL/2 Log-Transformed								
92		Mean in Original Scale	21.7							Mean in Log Scale	2.623	
93		SD in Original Scale	26.2							SD in Log Scale	1.001	
94		95% t UCL (Assumes normality)	26.34							95% H-Stat UCL	28.93	
95	DL/2 is not a recommended method, provided for comparisons and historical reasons											
96												
97	Nonparametric Distribution Free UCL Statistics											
98	Detected Data appear Approximate Gamma Distributed at 5% Significance Level											
99												
100	Suggested UCL to Use											
101		95% KM (BCA) UCL	27.45							95% GROS Approximate Gamma UCL	28.02	
102		95% Approximate Gamma KM-UCL	27.46									
103												
104	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
105	Recommendations are based upon data size, data distribution, and skewness.											
106	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
107	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
108												

APPENDIX F:

Data Validation Report

QA/QC DATA VALIDATION REPORT**Job No: NEW21P-0129-AD****Eurofins report: 873498-S, 873498-AID, 873498-W****ALS reports: ES2210663_0_COA****1. SAMPLE HANDLING**

Item	Yes/No	Comments
Were the sample holding times met?	Yes	
Were the samples in proper custody between collection in the field and reaching the laboratory?	Yes	
Were the samples properly and adequately preserved?	Yes	
Were the samples received by the laboratory in good condition?	Yes	

Sampling Handling was:

Satisfactory :	✓	Partially Satisfactory:	Unsatisfactory:
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2. PRECISION AND ACCURACY ASSESSMENT

Item	Yes/No	Comment
Was a NATA registered laboratory used?	Yes	-
Did the laboratory perform the requested tests?	Yes	-
Were the laboratory methods adopted NATA endorsed?	Yes	-
Were the appropriate test procedures followed?	Yes	-
Were the reporting limits satisfactory?	Yes	-
Was the NATA seal on the reports?	Yes	-
Were the reports signed by an authorised person?	Yes	-

Laboratory Precision and Accuracy was:

Satisfactory :	✓	Partially Satisfactory:	Unsatisfactory:
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3. FIELD QA/QC

Soil, Sediment and Water Samples

	Soil/Sediment	Surface Water
No. Samples Analysed	100	3
No. of Duplicates	4	1
No. of Triplicates	4	1
No. of Wash Blanks	1	
No. of Trip Blanks	1	
No. of Trip Spikes	0	

No. Days Sampling

Item	Soil
Number of Days Sampling	4
Number of Sampling Events	1

Field Duplicates

Item	Yes/No	Comments
Were an adequate number of field duplicates collected?	Yes	Duplicates collected at a rate of 1 per 12.5 samples.
Were RPDs within control limits? No Limit for 5-10 x EQL and 30% for >10 x EQL	No	RPDs were within the acceptable range with the exception of: - Chromium in soil duplicate pairs TP22 0.0-0.1/D.17.3.22/T17.3.22, T19 0.0-0.1/D1.17.3.22/T1.17.3.22 SS1 and SS41/D1.18.3.22/T1.18.3.22 - RPDs ranging from 131% to 173%; - Copper in soil duplicate pair SS41/D1.18.3.22 - RPD of 140%; - Nickel in soil duplicate pairs TP19 0.0-0.1/D1.17.3.22 and SS41/D1.18.3.22/T1.18.3.22 – RPDs ranging from 133 to 164%; and - Zinc in soil duplicate pairs TP19 0.0-0.1/D1.17.3.22/T1.17.3.22 and SS41/D1.18.3.22/T1.18.3.22 – RPDs ranging from 130% to 169%. The RPD exceedances are considered to be due to the heterogeneous nature of the distribution of contaminants. The sample with the highest concentration has been adopted, and therefore the RPDs are not considered to affect the outcome of the assessment

Trip Blanks/Trip Spikes

Item	Yes/No	Comments
Were an adequate number of trip blanks and trip spikes collected?	Yes	Trip blanks and trip spikes collected at a rate of 1 per sampling event, where deemed necessary based on field observations. No odours or staining was observed
Were the trip blanks free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	Yes	-
Were the trip spikes within recovery limits (between 80% and 120%)	N/A	

Rinsate Samples

Item	Yes/No	Comments
Were an adequate number of rinsate samples used? (1 per day of using reusable sampling equipment – trowel, hand auger etc)	Yes	-
Were the rinsate samples free of contaminants? (If no, comment whether the contaminants present are also detected in the samples and whether they are common laboratory chemicals).	Yes	-

4. LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

A) Type of QA/QC Sample	Yes/No	Comments
Laboratory Blanks/Reagent Blanks (at least 1 per batch)	Yes	-
Laboratory Duplicates (at least 1 per batch or 1 per 10 samples)	Yes	-
Matrix Spikes, Matrix Spike Duplicates (1 for each soil type)	Yes	-
Laboratory Control Spike	Yes	-
Surrogate (where appropriate)	Yes	-

Item	Yes/No	Comments
B) Were the laboratory blanks and/or reagent blanks free of contamination?	Yes	-

Item	Yes/No	Comments
C) Were the spike recoveries within control limits? I: <i>Organics/inorganics/metals (50% to 150%)</i> II: <i>Phenols (20% to 130%)</i>	Yes	-
D) Were the RPDs of the laboratory duplicates within control limits?	Yes	Soil Laboratory duplicate RPDs were recorded within the control limits except for a range of metals (31-150%) and TRH C15-C28 the laboratory quoted code Q15 which states "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report." And Q02 which states "The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause". Based on this the laboratory RPDs are not considered to affect the data. Water Laboratory duplicate RPDs were recorded within the control limits except of zinc (160%) the laboratory quoted code Q15 which states "The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report." Based on this the laboratory RPDs are not considered to affect the data
E) Were the surrogate recoveries within control limits?	Yes	-

Laboratory Internal QA/QC was:

Satisfactory :	✓	Partially Satisfactory:	Unsatisfactory:
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5. DATA USABILITY

Item	Yes/No	Comments
Was the data directly usable?	Yes	
Was the data usable with the following corrections/modifications? (see comments)	NA	
Was the data not usable?	NA	