Opal Aged Care
C/- Pact PM

Detailed Site Investigation:
Proposed Opal Aged Care Facility,
94 – 100 Explorers Way, St Clair, NSW

P207910JR03V01
December 2021

martens consulting engineers

ENVIRONMENTAL

WATER

WASTEWATER

GEOTECHNICAL

CIVIL

PROJECT MANAGEMENT

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All enquiries regarding this project are to be directed to the Project Manager.

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General Abbreviations

AASS	Actual acid sulfate soil
ABC	Ambient background concentrations
ACM	Asbestos containing material
AEC	Area of environmental concern
AF	Asbestos fines
AMP	Asbestos Management Plan
ANZECC	Australia and New Zealand Environment Conservation Council
ANZG	Australian and New Zealand Governments
ASC NEPM	National Environmental Protection (Assessment of Site Contamination) Measure (2013)
ASS	Acid sulfate soil
ASSMAC	Acid Sulfate Soils Management Advisory Committee
AST	Above ground storage tank
BGL	Below ground level
BH	Borehole
BTEXN	Benzene, toluene, ethylbenzene, xylene, naphthalene
CEMP	Construction Environmental Management Plan
COC	Chain of custody
COPC	Contaminants of potential concern
DA	Development application
DBT	Dibutyltin
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DNAPL	Dense non aqueous phase liquid
DP	Deposited Plan
DPI	NSW Department of Primary Industry
DPIW	NSW Department of Primary Industry – Water
DQI	Data quality indicators
DQO	Data quality objectives
DSI	Detailed Site Investigation
EAC	Ecological assessment criteria
EIL	Ecological investigation level
EMP	Environmental Management Plan
EPA	NSW Environmental Protection Authority
EQL	Estimated quantitation limit (interchangeable with PQL and LOR)
ESA	Environmental Site Assessment
ESL	Ecological screening level
FA	Fibrous asbestos
GIL	Groundwater investigation level
HIL	Health investigation level
HM	Heavy metals
HSL	Health screening level
IA	Investigation area
ISQG	Interim Sediment Quality Guideline
ITP	Inspection Testing Plan
LGA	Local government area
LNAPL	Light non aqueous phase liquid
LOR	Limit of reporting (interchangeable with EQL and PQL)
MA	Martens & Associates Pty Ltd
mAHD	Metres, Australian Height Datum
mbgl	Metres below ground level

MBT	Monobutyltin
MNA	Monitored natural attenuation
MPE	Multi phase extraction
NAPL	Non aqueous phase liquid
NATA	National Association of Testing Authorities
ND	No data
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
OCP	Organochloride pesticides
OEH	NSW Office of Environment and Heritage
OPP	Organophosphorus pesticides
PACM	Potential asbestos containing material
PAH	Polycyclic aromatic hydrocarbons
PASS	Potential acid sulfate soil
PCB	Polychlorinated biphenyl
PCEMP	Post Construction Environmental Management Plan
PESA	Preliminary Environmental Site Assessment
PFAS	Per and polyfluoroalkyl substances
PID	Photoionisation detector
ppb	Parts per billion
ppm	Parts per million
PQL	Practical quantitative limit (interchangeable with EQL and LOR)
PSI	Preliminary Site Investigation
QA/QC	Quality assurance / quality control
RAC	Remediation acceptance criteria
RAP	Remedial Action Plan
HHRA	Human Health Risk Assessment
RPD	Relative percentage difference
SAC	Site assessment criteria
SAQP	Sampling and Analysis Quality Plan
SEPP	State Environmental Planning Policy
SIL	Soil investigation level
SOP	Standard operating procedure
SWL	Standing water level
SWMS	Safe Work Method Statement
TB	Trip blank
TBT	Tributyl tin
TCLP	Toxicity characteristics leaching procedure
TEQ	Toxic equivalency factor
TP	Test pit
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
TS	Trip spike
UCL	Upper confidence limit
UPSS	Underground petroleum storage system
UST	Underground storage tank
VHC	Volatile halogenated compounds
VOC	Volatile organic compounds
WHS	Work health and safety
WHSP	Work Health and Safety Plan

1 Introduction

1.1 Overview

This report prepared by Martens and Associates (MA) documents a detailed site investigation (DSI) for potential contamination at 94 – 100 Explorers Way, St Clair, NSW (the site). This DSI has been commissioned by Opal Aged Care C/ - Pact PM to support a development application (DA) to Penrith City Council (Council) for the construction of a new aged care facility.

The investigation area (IA) for this DSI comprises the entire site, as shown in Attachment A.

1.2 Proposed Development

MA understands from provided concept plans (Custance, 2021) that the proposed development is to include the construction of a new two storey aged care facility, with associated outdoor resident areas, landscaping, on grade car parking, and stormwater infrastructure. Some minor regrading works are expected, however detailed cut and fill earthworks plans were not available at the time of preparing this report.

Concept plans are provided in Attachment B.

1.3 Objectives

The objectives for this DSI were as follows:

- Review of existing site documentation.
- Evaluation of areas of environmental concern (AEC) and associated contaminants of potential concern (COPC) within the IA.
- Provision of comment on the suitability of the IA for the future development use, and where required, recommendations for additional investigations.

1.4 Scope of Works

The scope of works included:

- Review of available previous reports and site documentation related to land contamination.
- Intrusive investigation and soil sampling at nominated locations across the IA.

- Laboratory analysis of representative samples for COPC.
- Preparation of a site contamination report in general accordance with the relevant sections of ASC NEPM (2013), NSW EPA (2017) and NSW EPA (2020).

1.5 Reference Guidelines

This assessment was prepared in with reference to the following guidelines:

- NEPC (1999, amended 2013) National Environmental Protection (Assessment of Site Contamination) Measure. Referred to as ASC NEPM (2013).
- NSW EPA (1995) Sampling Design Guidelines.
- NSW EPA (2017) 3rd Ed. Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.
- NSW EPA (2020) Contaminated Land Guidelines: Consultants Reporting on Contaminated Land.

2 Site Background Information

2.1 Site Details

Site information is summarised in Table 1, with the site location and general surrounds plan provided as Map 01 in Attachment A.

Table 1: Site background information.

Item	Description / Detail
Site address	94 – 100 Explorers Way, St Clair, NSW
Legal identifier	Lot 36, DP 239502
Local Government Area	Penrith City Council
Current zoning	R2 – Low density residential
Site description	At the time of investigations, the site contained one residential dwelling in the south east corner. The remainder of the site comprised grassed open space with scattered trees.
Surrounding land uses	The site was bounded by the M4 Motorway to the north, and low density residential development in all other directions.
Topography	The site had a north easterly aspect with an overall grade <5%. Site elevation ranged between approximately 52.5 mAHD in the northeast corner and 56.7 mAHD in the southwest corner of the site.
Surface hydrology	The nearest surface water receptor was an unnamed drainage depression in the northern portion of the site. The drainage depression extended from the centre of the western boundary and exited the site at the centre of the northern boundary. Overland flow generated on the site drained to the drainage depression, and discharged to the M4 Motorway stormwater system which then likely drained into Ropes Creek (approximately 900m east of the site).
Geology and soil mapping	The *Penrith 1:100,000 Geological Sheet 9030* describes site geology as Bringelly Shale Formation within the Wianamatta Group, containing shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, and rare coal. The NSW Environment and Heritage eSPADE website identifies the site as having soils of the Blacktown landscape, comprising red kurosols, red and yellow sodosols, and yellow chromosols.

2.2 Local Meteorology

A summary of local meteorology from the closest operational BOM station/s with rainfall and temperature data (station 067119 Horsley Park Equestrian Centre AWS 1997 - 2021) is provided in Table 2.

Table 2: Meteorological data.

Month	Mean Rainfall (mm)	Mean Maximum Temperature (°C)
January	73.4	30.1
February	118.3	28.7
March	94.5	26.8

Month	Mean Rainfall (mm)	Mean Maximum Temperature (°C)
April	67.0	23.9
May	42.9	20.6
June	72.6	17.7
July	39.5	17.4
August	38.2	19.0
September	37.1	22.4
October	61.1	24.8
November	74.8	26.6
December	65.7	28.4
Annual	**771.7**	**23.9**

2.3 Hydrogeology

Review of WaterNSW Real-time Water Database indicated no groundwater bores within 500 m of the site.

No springs were listed within 500 m of the site in the NSW Government Hydrography Spatial Data (SEED, 2019).

Should further information on permanent site groundwater conditions be required, an additional assessment would need to be carried out (i.e. installation of groundwater monitoring bores / ongoing groundwater monitoring).

3 Previous Contamination Investigations

3.1 Preliminary Site Investigation (Alliance Geotechnical, 2015)

A preliminary site investigation (PSI) was previously completed for the site by Alliance Geotechnical (AG) in April 2015 (Ref. 1842/ER-1-1), which identified potential sources of contamination across the site. The findings of this PSI have been summarised in Table 3.

Table 3: PSI (AG, 2015) summary.

Investigation Details	Investigation Task and Finding
Scope of works	Desktop review of historical aerial imagery and land title information. Review of local land characteristics including hydrogeology, topography and geology. Site walkover to review existing site conditions.
Key findings of historical site review and field investigations	AG's review of land title information and historical aerials (1947 – 2015) indicated that the site had been used as a rural residential property since it had been established in 1916. A small wooden dwelling had been constructed prior to 1947, and site conditions generally remained unchanged until other site buildings including the existing dwelling were constructed sometime between 1970 and 1986. The site walkover identified the following: o The site contained one two storey concrete dwelling in the south eastern corner, and two additional single storey dwellings to the west of the larger dwelling. o Other site structures (all located in the southern site portion) included a wooden hut, a gazebo, a chicken coop, and two small sheds constructed of wood and sheet metal. o The remainder of the site comprised vegetated open space, with no visible signs of contamination (such as asbestos, hydrocarbon odours or staining). o A man made drainage depression ran through the northern portion of the site. o A soil stockpile was observed adjacent to the northern site boundary. o Potential fill material was observed in the gravel driveway, beneath site buildings, on either side of the drainage channel, and in the soil stockpile. Additionally, three test pits were excavated during a salinity investigation completed concurrently with the PSI. Fill material was observed to depths of 0.5 – 0.6 mbgl in two test pits completed in the central site portion. Fill material comprised silty clay with minor anthropogenic inclusions (including bricks, concrete, PVC, glass and plastic). No asbestos, staining or hydrocarbon odours were noted.
Preliminary conceptual site model	AG identified the potential contaminant source for the site as being fill material of unknown origin which had the potential to contain asbestos, heavy metals, pesticides, PCBs and hydrocarbons.
Recommendations	Based on the findings of the PSI, AG made the following recommendations: o Following demolition of site buildings, soil samples are required to classify material designated for off site disposal. o A standard unexpected finds protocol should be implemented to manage any identified contamination.

3.2 Supplementary Preliminary Site Investigation (MA, 2021)

The AG (2015) PSI was reviewed and updated by MA in March 2021, and an addendum letter was prepared detailing additional findings, and addressing changes to the site between 2015 and 2021 (Ref. P2007910JR01V01). This PSI addendum has been summarised in Table 4.

Table 4: Supplementary PSI (MA, 2021) summary.

Investigation Details	Investigation Task and Finding
Scope of works	Site walkover to review site conditions, surrounding land use and potentially contaminating activities. Review of aerial imagery taken between 2015 and 2021. Review of the AG (2015) PSI.
Key findings of historical site review and field investigations	A review of recent aerial imagery indicated that all site structures with the exception of the dwelling in the south eastern corner had been demolished sometime between 2017 and 2020. The site walkover identified the following: o The site was covered by grassed open space with scattered trees, with the exception of the dwelling in the south eastern corner. o A fragment of bonded potential asbestos containing material (PACM) measuring approximately 20 x 20 mm was observed at the ground surface in the footprint of the former garage. There is potential for additional PACM to have been buried in this area during demolition works. o A stockpile of roofing tiles (approximately 2.0 m x 1.0 m x 0.5 m) was located at the southern site boundary, near the site entrance. o Evidence of cut and fill activities was observed adjacent to the drainage depression in the northern site portion.
Updated conceptual site model	Based on our review of AG (2015) and additional findings of the supplementary PSI, an updated conceptual site model (CSM) was prepared for the site. Potential contamination sources included soil within the footprints of former and existing buildings, sheds and garages, as well as fill material observed in the former dam and adjacent to the drainage depression.
Recommendations	A DSI including intrusive soil sampling works and laboratory analysis was recommended to confirm suitability of the site for the proposed development, or to inform any remediation work required to make the site suitable.

4 Conceptual Site Model

The following assessment of AEC and COPC (Table 4) has been made for the site based on the PSI (AG, 2015) and supplementary PSI (MA, 2021).

Table 5: AEC and COPC.

AEC	Description	COPC
AEC A Former and existing dwellings	Dwellings may have been constructed using potentially contaminating materials including PACM, zinc treated (galvanised) metals, and lead based paints. Pesticides and heavy metals may have been used underneath structures for pest control.	HM, OCP / OPP and asbestos
AEC B Former garages and sheds	Garages and sheds may have been constructed using potentially contaminating materials including PACM, zinc treated (galvanised) metals, and lead based paints, and may have previously stored fuels, oils and chemicals Pesticides and heavy metals may have been used underneath structures for pest control.	HM, TRH, BTEXN, PAH, OCP / OPP, PCB and asbestos
AEC C Potential fill material	Potential fill from unknown sources across the site may have introduced contamination including hydrocarbons, heavy metals, pesticides, PCB and asbestos.	HM, TRH, BTEXN, PAH, OCP / OPP, PCB and asbestos

A conceptual site model (CSM), based on the AEC and COPC identified in Table 5, and the associated exposure pathways to potential receptors are summarised in Table 6.

Table 6: Conceptual site model.

Affected Media	Soil has been identified as the primary potentially contaminated media.
Potential Receptors	Current on site human receptors are the residents of the existing dwelling. Future on site human receptors include residents and staff of the proposed aged care facility, as well as construction and maintenance workers. Potential off site human receptors include and current and future users of adjacent land. Potential ecological receptors include flora and fauna that may inhabit or migrate through the site and adjacent land.
Potential Exposure Pathways	Potential exposure pathways include ingestion, dermal absorption, and inhalation of dust (for all contaminants) and vapours (for volatile hydrocarbons). At the time of this DSI, residential land use was limited to the dwelling in the south eastern site corner, with the remainder of the site primarily consisting of unused grassed open space. However, given that the supplementary PSI (MA, 2021) observed a fragment of PACM at the site surface, we consider that there is a current risk of a complete pathway between potential contaminants and current receptors. Additionally, MA understands that the proposed development is to include the removal of existing grass coverage and completion of minor regrading works, which has the potential to disturb and expose subsurface material. This is likely to present a complete exposure pathway between contaminants and future receptors. In particular, areas of the site containing fill material and PACM present an increased risk to human health should soils be disturbed.

5 Sampling, Analytical and Quality Plan

A Sampling Analytical and Quality Plan (SAQP) was developed to ensure that data collected for the SCA is representative and provides a robust basis for site assessment decisions. Preparation of the SAQP was completed in general accordance with ASC NEPM (2013) methodology and includes:

- Data quality objectives (DQO).
- Data quality indicators (DQI).
- Sampling methodologies and procedures.
- Analytical QA / QC.

The following sections summarise the SAQP.

5.1 Data Quality Objectives

DQO were prepared as statements specifying qualitative and quantitative data required to support project decisions. DQO were prepared in general accordance with NSW EPA (2017, 2020) and ASC NEPM (2013) guidelines, and are presented in Table 7.

Table 7: Data quality objectives.

Step 1 **Stating the Problem**	This DSI has been conducted to assess potential contamination within the IA that may be accessible to human and environmental receptors, in support of the proposed construction of a new aged care facility at the site.
Step 2 **Identifying the Decision(s)**	To assess the suitability of the site for future land use, decisions are to be made based on the following questions: o What is the contaminant exposure pathway? o Has previous or current site use impacted the IA that may pose a risk to humans or the environment for future land use? o Does the IA require remediation or management prior to constructing the proposed development?
Step 3 **Identification of Inputs to the Decision**	The inputs to the assessment include: o Data from previous reports. o Soil sampling at nominated locations across the IA. o Laboratory analytical results for relevant COPC. o Assessment of analytical results against site suitable guidelines.
Step 4 **Study Boundary Definitions**	Study boundaries are as follows: o Lateral – Lateral boundary of the assessment is defined by the IA boundary. o Vertical – Vertical boundary is governed by the maximum depth reached during subsurface investigations. o Temporal – One round of soil sampling has been undertaken at this stage.
Step 5 **Development of Decision Rules**	The decision rule for this investigation is as follows: If the concentration of contaminants exceeds the adopted assessment criteria, a risk assessment is required. Should the risk be unacceptable, additional investigations to remediate and / or manage the onsite impacts, in relation to the proposed development, will be undertaken.
Step 6 **Specification of Limits on Decision Errors**	Guidance found in ASC NEPM (2013) Schedule B2 regarding 95% upper confidence limit (UCL) states that the 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than or equal to this value. Therefore a decision can be made based on a probability that 95% of the data collected will satisfy the site acceptance criteria. A limit on decision error will be 5% that a conclusive statement may be incorrect.
Step 7 **Optimisation of Sampling Design**	Proposed sampling locations shall provide even coverage across the IA. Sampling shall attempt to ensure that critical locations are assessed, sampled, and analysed for appropriate contaminants of concern. Soil sampling locations were set subject to site access and selected using a combined judgemental and grid pattern across the IA.

5.2 Data Quality Indicators

In accordance with NSW EPA (2017), the investigation data set has been compared with DQI outlined in Table 8 to ensure that collected data meets the project needs and that DQO has been met.

Table 8: Data quality indicators.

Assessment Measure (DQI)	Comment
Precision – A measure of the variability (or reproducibility) of data.	Precision is assessed by calculating the relative percent difference (RPD) between blind field duplicates and primary samples. Data precision is deemed acceptable where results are 0 - 10 x EQL or where RPDs <50% (10 - 30 x EQL) or <30% (>30 x EQL). Exceedance of this range may still be considered acceptable where heterogeneous materials such as fill are sampled.
Accuracy – A measure of the closeness of reported data to the "true value".	Data accuracy is assessed by: o Laboratory control samples. o Field spikes and blanks.
Representativeness – The confidence that data are representative of each media present on the site.	To ensure data representativeness the following field and laboratory procedures are followed: o Ensure that the design and implementation of the sampling program have been completed in accordance with MA standard operating procedures (SOP). o Trip blank and trip spike samples shall be used for volatiles during field sampling to ensure no cross contamination or laboratory artefacts. o Ensure that all laboratory hold times are met and that sample handling and transport are completed in accordance with the MA SOP.
Completeness – A measure of the amount of usable data from a data collection activity.	To ensure data set completeness, the following is required: o Confirmation that all sampling methodology was completed in general accordance with the MA SOP. o COC and receipt forms. o Results from all laboratory QA / QC samples (lab blanks, lab duplicates). o NATA accreditation stamp on all laboratory reports.
Comparability - The confidence that data may be considered to be equivalent for each sampling and analytical event.	Comparability is maintained by ensuring that: o All site sampling events are undertaken following methodologies outlined in MA SOP and published guidelines. o NATA accredited laboratory methodologies shall be followed on all laboratory analysis.

5.3 Methodology and Quality Assurance / Quality Control

Site investigation and soil sampling methodology as shown in Table 9, was completed to meet the project DQO.

Table 9: Investigation and sampling methodology.

Activity	Detail / Comments
Fieldworks	Subsurface soil investigations were completed on 22 June 2021 and involved: o Excavation of 24 test pits (TP201 – 224) using an excavator, to a maximum investigation depth of 1.8 mbgl. o Collection and analysis of representative soil samples. o Collection of three fibre cement sheet material samples (ACM01 – ACM03). o Collection of three QA / QC samples for laboratory analysis. Soil sampling locations are shown in Map 03 of Attachment A, and borehole logs are provided in Attachment B.
Soil sampling	Soil sampling was completed by an experienced MA environmental consultant using a clean pair of nitrile gloves for each sample. Samples were collected directly from the centre of the excavator bucket or for shallower samples, directly from the test pit walls. Each sample was placed into a laboratory supplied, 250 mL glass jar with no headspace to limit volatile loss, and labelled with a unique identification number. Additional bagged samples (100 g) were collected at each test pit location for asbestos in soil testing.
QA / QC sampling	QA samples were collected for the initial investigation as follows: o Four soil duplicate samples were collected for intra laboratory analysis during investigations. o Trip spike and trip blank samples were used during soil sampling.
Sample handling and transport	Sample collection, storage and transport were conducted according to MA SOP. Collected soil samples were placed immediately into an ice chilled cooler box. Samples were dispatched to a NATA accredited laboratory (Envirolab) under chain of custody documentation within holding times.

5.4 Laboratory Analytical Suite

Laboratory analysis was carried out by Envirolab Pty Ltd a NATA accredited laboratory. Summary of laboratory analyses is provided in Table 10.

Table 10: Summary of initial soil laboratory analyses.

COPC	Primary Samples Analysed	QA / QC Samples Analysed
BTEXN	23	1 trip spike, 1 trip blank
TRH	23	1 trip blank
PAH	23	
Heavy metals [1]	23	4 duplicates
OCP / OPP	23	
PCB	23	
Asbestos in soil (AS 4964)	23	

Notes
1. Heavy metals – arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

6 Site Assessment Criteria

The site assessment criteria (SAC) adopted for this SCA are listed in Table 11 and derived from the ASC NEPM (2013).

Table 11: Site assessment criteria.

Media	Adopted Guidelines	Applicability
Soil	ASC NEPM (2013)	Health investigation levels (HIL) HIL A – Residential was adopted based on the proposed land use as an aged care facility with access to soil and garden areas. Health screening levels (HSL) HSL A – Residential for clay was adopted based on proposed land use and encountered clayey fill and underlying natural clay material. Ecological Investigation Levels (EIL) Site specific EILs were derived from methodology from ASC NEPM (2013) for the protection of terrestrial ecosystems for urban residential areas and public spaces. The following physiochemical properties were selected based on site observations and modelled data from the NSW eSPADE website: o 5.5 pH o CEC value of 15.0 cmol/kg o Contamination is considered as "aged" (>2 years) o From an area of "low" traffic volumes. Ecological Screening Levels (ESL) ESLs for urban residential and public open space for fine soil were adopted based on proposed land use and encountered fill and natural material. Management Limits Management limits for residential, parkland and public open space for fine soil were adopted based on proposed land use and encountered fill and natural material. Asbestos Assessed on a detect / non-detect basis.

7 Results

7.1 General Field Observations

Subsurface contamination investigation works were undertaken on 22 June 2021. All testing locations and test pit spoil were examined for signs of contamination (odours, staining, anthropogenic inclusions, PACM etc.). Site structures and conditions had remained generally unchanged from the initial site walkover undertaken as part of the supplementary PSI (MA, 2021). The dwelling in the south eastern corner of the site was occupied at the time of DSI investigations.

7.2 Soil Conditions

Intrusive soil investigations observed the following:

- An overlying layer of fill material comprising clayey / gravelly silt was encountered in all test pits, to depths ranging between 0.3 – 0.6 mbgl across the majority of the site, and up to 1.0 mbgl in the location of the former dam.
- Buried asbestos containing material (ACM) and building rubble was encountered between 0.1 – 0.2 mbgl in the footprints of the former garage (TP220) and dwelling (TP223). ACM consisted of bonded fibre cement sheeting fragments, and is likely associated with past demolition works.
- Fill material in the remaining test pits either contained no observable anthropogenics, or only minor inclusions (brick, plastic, PVC, glass).
- Residual natural silty clays were encountered below fill material in all test pits.
- No unnatural odours or soil staining was observed.

Borehole locations are shown on Map 03 in Attachment A and borehole logs are provided in Attachment C.

7.3 Analytical Results

The following sections summarise the results of laboratory analysis. Detailed tabulated results showing individual sample concentrations compared to the adopted SAC are available in Attachment D. Laboratory analytical documentation is available in Attachment F.

7.3.1 Laboratory Results

Laboratory analytical results for soil and material samples are summarised in Table 12.

Table 12: Summary of analytical results.

Analyte	Results Compared to SAC
Heavy metals	HIL All results below SAC. EIL All results below SAC.
TRH/BTEXN	HSL All results below SAC. ESL All results below SAC. Management Limits All results below SAC.
OCP/OPP	HIL All results below SAC. EIL All results below SAC.
PAH	HIL **Benzo(a)pyrene TEQ in TP202/0.1/S/1 (6.2 mg/kg)** exceeded the adopted SAC (3 mg/kg). HSL All results below SAC. EIL All results below SAC. ESL **Benzo(a)pyrene in TP202/0.1/S/1 (4.1 mg/kg)** exceeded the adopted SAC (0.7 mg/kg).
Asbestos in soil	No asbestos detected.
Asbestos in material	Asbestos detected in **ACM01** and **ACM02**.

7.3.2 95% UCL Calculations

Statistical analysis of benzo(a)pyrene TEQ was undertaken in consideration of the HIL exceedance in TP202/0.1 as noted in Table 12. Calculations are provided in Attachment G, and summarised in Table 13.

Table 13: Summary of 95% UCL calculation.

Analyte	Contaminant concentration range (mg/kg)	95% UCL (mg/kg)	Average concentration (mg/kg)	Standard deviation (mg/kg)
Benzo(a)pyrene TEQ	<0.5 – 6.2	1.51	0.33	1.29

UCL calculations show that:

- The average concentration of benzo(a)pyrene TEQ is 0.33 mg/kg and the 95% UCL is 1.51 mg/kg, both of which are well below the adopted HIL of 3 mg/kg.
- The maximum concentration of benzo(a)pyrene TEQ is 6.2 mg/kg, which is less than 250% (7.5 mg/kg) of the adopted HIL.
- The standard deviation is 1.29 mg/kg, which is less than 50% (1.5 mg/kg) of the adopted EIL.

Based on these findings, the benzo(a)pyrene TEQ concentration in site soils meets the adopted HIL for residential land use and does not require treatment or remediation.

7.3.3 Data QA / QC

Field QA / QC data was collected as per the SAQP. A review of QA / QC procedure has been completed and is presented in the data validation report in Attachment E.

The report concludes that data is suitable for the purposes of the assessment.

8 Discussion

8.1 Discussion of Results

This DSI was undertaken by MA to provide an assessment of potential land contamination issues at 94 – 100 Explorers Way, St Clair, NSW, and to determine site suitability for the proposed aged care facility. The DSI was conducted in general accordance with the project SAQP (Section 6).

Subsurface investigation locations provided an even coverage across the IA, and included targeted locations within the footprints of former site structures and the former dam. Due to access restrictions, no subsurface investigations were completed within the existing dwelling footprint in the south eastern corner of the site.

An overlying layer of fill material consisting of gravelly / clayey silt with was encountered in all test pits ranging between 0.3 - 0.6 mbgl across the majority of the site, and up to 1.0 mbgl in the location of the former dam. Residual silty clays were encountered below the fill layer, to target test pit termination depths of up to 1.8 mbgl.

Buried building rubble consisting primarily of bricks, metal, timber and fibre cement sheeting to depths of between 0.3 and 0.4 mbgl was observed within the fill layer at three test pit locations which were within the footprints of the former dwelling (TP222 and TP223) and former garage (TP220). Fibre cement sheeting samples ACM01 and ACM02 collected from TP220 and TP223 respectively were confirmed to contain asbestos through laboratory analysis. Test pits excavated in the southern section of the former garage (TP221 and TP224) were not observed to contain building rubble or ACM.

Based on test pit observations and a review of site history, we consider that ACM contaminated fill material is limited to the footprints of the former dwelling and the northern section of the former garage, and most likely a result of incomplete demolition and / or disposal practices during the demolition of these structures sometime between 2015 and 2020. The expected extent of contaminated fill is shown in Attachment A (Map 03).

Results of laboratory testing (Envirolab report 272409) found an exceedance of the benzo(a)pyrene TEQ HIL in the fill sample collected from TP202 in the southern site portion. Statistical analyses and 95% UCL calculations (summarised in section 7.3.2 of this report) were conducted in light of this exceedance, and found that the site concentration of benzo(a)pyrene TEQ satisfies the adopted HIL for residential land use.

Laboratory results also reported an exceedance of the benzo(a)pyrene ESL in the TP202 fill sample. However it is understood based on proposed development plans (Attachment B) that a paved driveway and car park are to be constructed through the southern site portion (including the location of TP202), eliminating the contaminant pathway to sensitive ecological receptors. Therefore, we consider that this exceedance of the benzo(a)pyrene ESL would not impact any future residential use of the site.

Concentrations of COPC for all tested samples across the remainder of the site where all below SAC. With the exception of the identified areas of buried building rubble and ACM noted above, no obvious signs of contamination (soil staining, unnatural odours, etc.) were observed across the site during DSI investigations.

8.2 Data Gaps

A data gap is present for this DSI in the location of the existing dwelling in the south eastern corner of the site, including the fenced area surrounding the dwelling. It is understood that the dwelling is to be demolished as part of the proposed development, and therefore additional testing of soils in this area will be required post demolition.

9 Conclusions and Recommendations

Based on the findings of this DSI, the site contains contamination in the form of shallow buried ACM in fill material, which will require remediation before the site is considered suitable for the proposed aged care facility. Additionally, the data gap presented by the existing dwelling will need to be closed through further testing following site demolition works and prior to commencement of the proposed development.

A remedial action plan (RAP) will be required to guide the remediation of known ACM contamination. Given the amount of material to be remediated, the most practical remediation strategy would involve the excavation and offsite disposal of asbestos contaminated fill material.

Post remediation, a site validation report will be required to confirm site suitability for the proposed development.

Following the remediation works noted above the site is expected to be considered suitable for the proposed use.

A formal waste classification assessment shall be required for any soil material which is to be removed from the site, in accordance with the NSW EPA Waste Classification Guidelines (2014).

10 Limitations

This DSI was undertaken in accordance with current industry standards.

It is important to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land uses. This is particularly the case where onsite filling has occurred, or sampling is affected by to restrictions to site access. Therefore, this report should not be read as a guarantee that only contamination identified shall be found on the site. Should material be exposed in future which appears to be contaminated, additional testing may be required to determine the implications for the site. The management of such 'unexpected finds' is to be included in the proposed site RAP.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of assessing potential site contamination. No reliance on this report should be made for any other investigation or proposal. Martens & Associates Pty Ltd accepts no responsibility, and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

11 References

Alliance Geotechnical (2015) *Preliminary Site Investigation – 94 – 100 Explorers Way, St Clair, NSW*. Ref. 1842/ER-1-1.

Custance (2021) *St Clair RACF, Lot 36 DP 239502, 100 Explorers Way, St Clair, NSW – Concept Plans.* Ref. 3362.

Martens and Associates Pty Ltd (2021) *Preliminary Site Investigation Addendum Letter: 100 Explorers Way, St Clair, NSW*. Ref. P2007910JR01V01.

NEPC (1999, amended 2013) *National Environmental Protection (Assessment of Site Contamination) Measure*. Referred to as ASC NEPM (2013).

NSW Department of Environment & Heritage (eSPADE, NSW soil and land information), www.environment.nsw.gov.au.

NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines.*

NSW EPA (2017) *3rd Ed. Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme.*

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

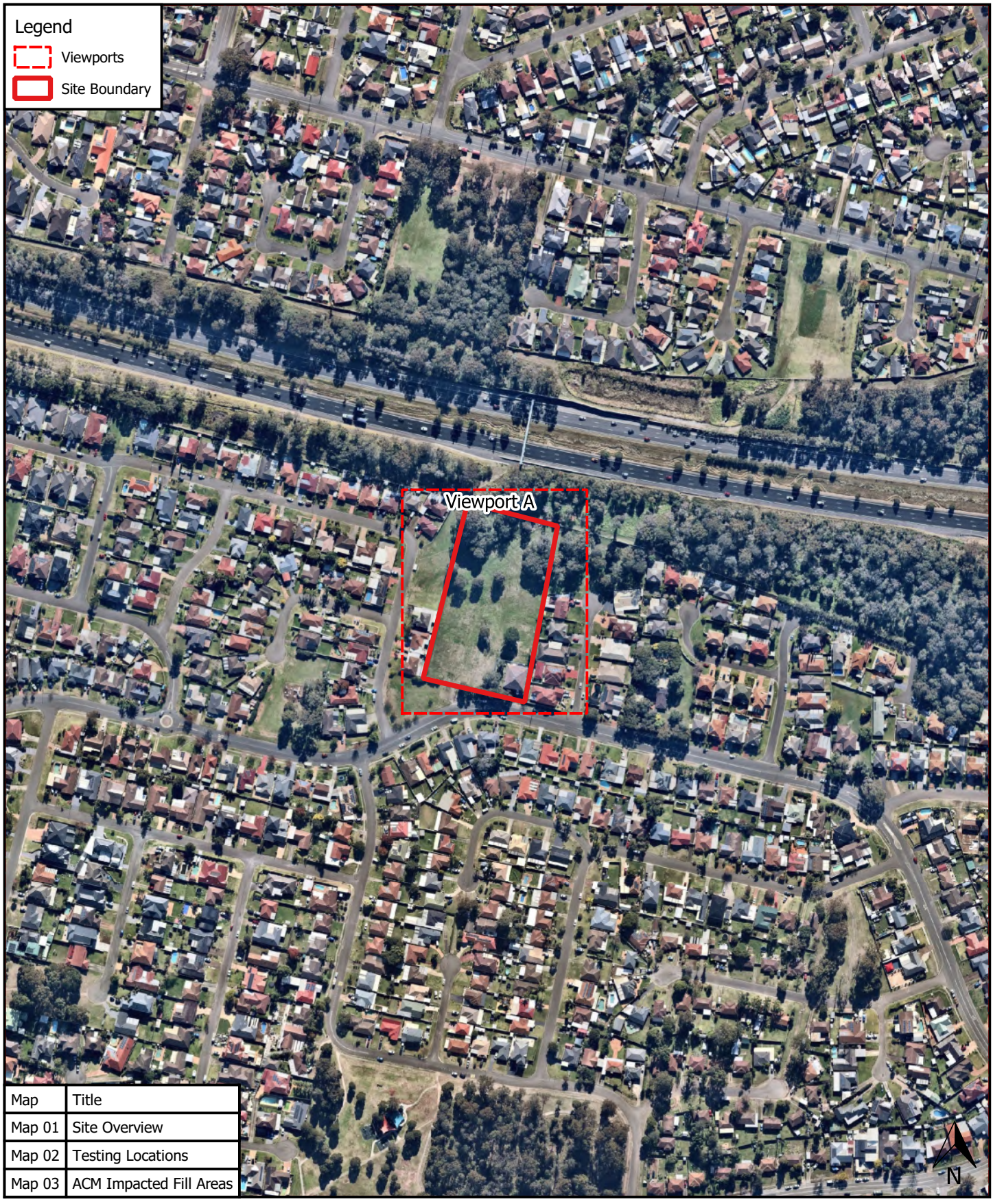
Standards Australia (1997) Australian Standard AS 4482.1 – *Guide to sampling and investigation of potentially contaminated soil: Part 2: Non-volatile and semi-volatile substances.*

Standards Australia (1999) Australian Standard AS 4482.1 – *Guide to sampling and investigation of potentially contaminated soil: Part 2: Volatile substances.*

State Environmental Planning Policy No. *55 – Remediation of Contaminated Land*.

Western Australia Department of Health (2009) *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.* Referred to as WA DoH (2009).

Attachment A: Site Plans



Map	Title
Map 01	Site Overview
Map 02	Testing Locations
Map 03	ACM Impacted Fill Areas

0 40 80 120 160 200 m

1:4000 @ A4

Aerial: Nearmap (5/06/2021)

Project No: P2007910 Map Set: MS02-R01 EPSG: 28356

Map Title / Figure:

Site Overview

Map 01	Map
94 - 100 Explorers Way, St Clair, NSW	Site
Proposed Aged Care Facility	Project
Detailed Site Investigation	Sub-Project
Opal Aged Care C/- Pact PM	Client
06/12/2021	Date

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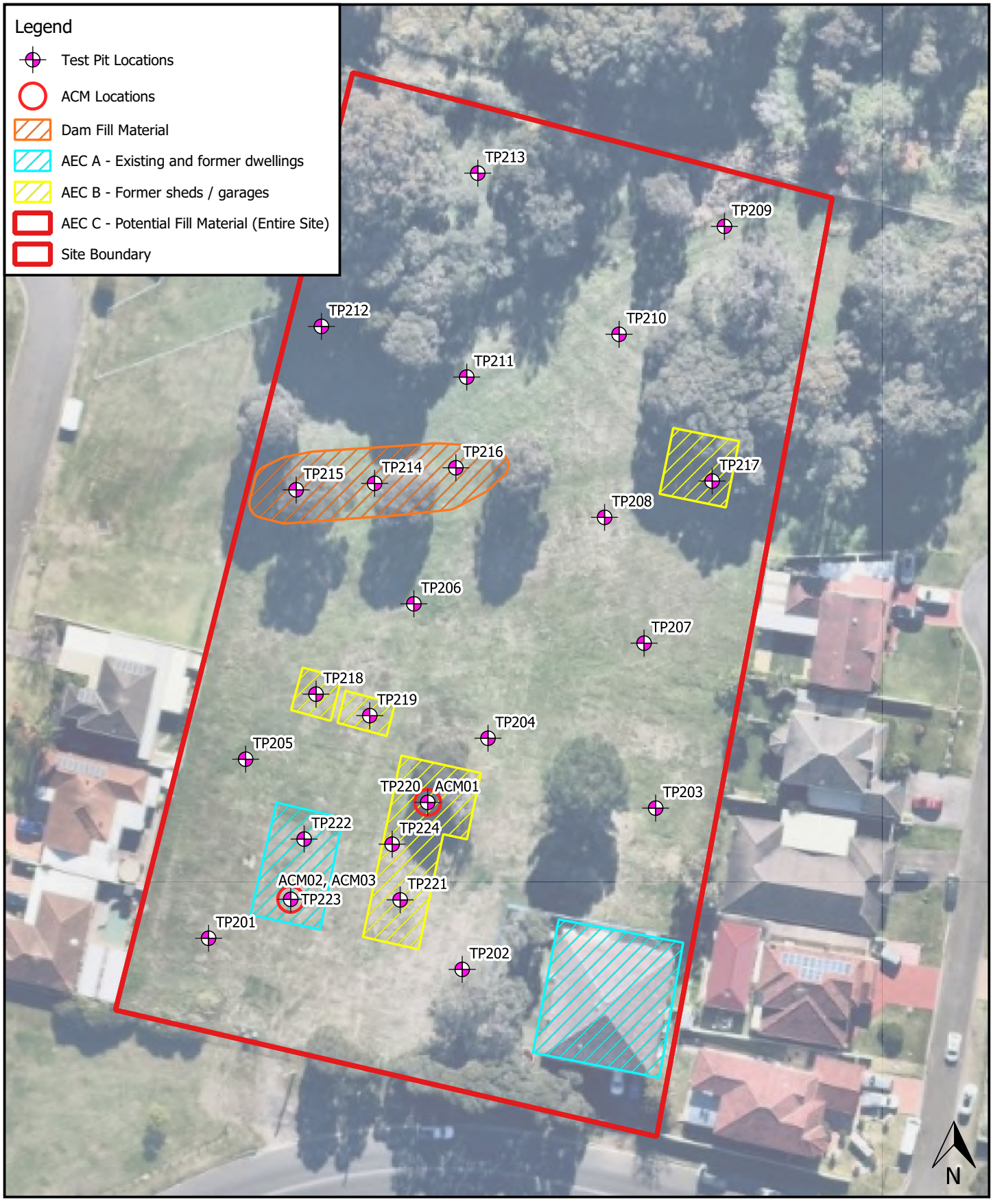

0 8 16 24 32 40 m

1:750 @ A4

Viewport A

Aerial: Nearmap (5/06/2021)

Map Title / Figure:

Testing Locations

Map 02	Map
94 - 100 Explorers Way, St Clair, NSW	Site
Proposed Aged Care Facility	Project
Detailed Site Investigation	Sub-Project
Opal Aged Care C/- Pact PM	Client
06/12/2021	Date

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Project No: P2007910 Map Set: MS02-R01 EPSG: 28356

0 8 16 24 32 40 m

1:750 @ A4

Viewport A

Aerial: Nearmap (5/06/2021)

Map Title / Figure:

ACM Impacted Fill Areas

Map 03	Map
94 - 100 Explorers Way, St Clair, NSW	Site
Proposed Aged Care Facility	Project
Detailed Site Investigation	Sub-Project
Opal Aged Care C/- Pact PM	Client
06/12/2021	Date

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Project No: P2007910 Map Set: MS02-R01 EPSG: 28356

Attachment B: Proposed Development Plans

124 Bedrooms - 154 Beds
- 94 single bedrooms
- 30 companion rooms

37 car spaces

25/06/2021 4:49:01 PM

Revision	Description	Date
A	Development Application Issue	23/06/2021

NOTES : DEVELOPMENT APPLICATION

1. DESIGN RESOLUTION
- The drawings represent general architectural intent for the purpose of this development application only.
- The internal layout is shown indicatively and is subject to further design development.
- The dimensions shown are general only and are subject to further design resolution.
- Location of car park entry point is general only and will be confirmed and dimensioned at later stage.
- The size and position of privacy screens, louvres is indicative and shown in open and closed positions.
- Please refer to Landscape drawings for Landscape component (shown indicatively only in this set)
- Location & sizes of plant, equipment, service areas and service risers on drawings is general and indicative only, and does not include minor elements, such as vent pipes, flues, aerials, etc.

2. GRAPHIC PRESENTATION
Colours presented on drawings are generic only and indicative of the architectural design intent.

3. EXISTING STRUCTURES AND SERVICES
Extent and location of existing and proposed neighbouring structures and services is according to the available survey information and will need to be verified on site at later stage.

THIS DRAWING IS TO BE PRINTED IN COLOUR

Consultants

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Nominated Architect: Craig Shelsher (NSW #8259)

DA ISSUE

NORTH

SCALE @ A1
1:200
0 5 10M

Drawn	Checked	Scale
JP	RW	As indicated @ A1

Project
OPAL ST CLAIR RACF

Project Address
94-100 EXPLORERS WAY, ST CLAIR
NSW 2759

Sheet Title
GROUND FLOOR

Project No.	Sheet No.	Revision
3362	DA1.20	A

Attachment C: Test Pit Logs

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP201**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.80079	RL SURFACE	56.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.80 m depth	LATITUDE	-33.791952	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	56.50				ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, roadbase.			FILL
					0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m DUP01 0.10 m							
			0.2									
			0.4	*0.40* 56.10				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
					0.5/S/1 D 0.50 m							
			0.6									
			0.8	*0.80*	0.8/S/1 D 0.80 m				Hole Terminated at 0.80 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP202**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801185	RL SURFACE	56 m	DATUM AHD
EXCAVATION DIMENSIONS		0.80 m depth	LATITUDE	-33.792	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	56.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Silty CLAY; medium plasticity; brown; trace fine gravels, roadbase.			FILL
			0.2									
				0.30								
				55.70				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.4/S/1 D 0.40 m							
			0.6									
			0.8	*0.80*					Hole Terminated at 0.80 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP203**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801493	RL SURFACE	55.5 m	DATUM AHD
EXCAVATION DIMENSIONS		1.00 m depth	LATITUDE	-33.791795	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.0	55.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, roadbase.			FILL
			0.4	*0.40* 55.10	0.5/S/1 D 0.50 m			CH	Silty CLAY; high plasticity; orange-brown, grey; trace gravels.			RESIDUAL SOIL
			0.8	*0.70* 54.80	0.8/S/1 D 0.80 m				Reddish brown, grey.			
			1.0	*1.00*					Hole Terminated at 1.00 m Target depth			
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP204**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801233	RL SURFACE	55.5 m	DATUM AHD
EXCAVATION DIMENSIONS		1.10 m depth	LATITUDE	-33.791699	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	55.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; brown, dark brown; trace fine gravels, roadbase, anthropogenics (plastic).			FILL
			0.4									
			0.6	*0.60* 54.90	0.7/S/1 D 0.70 m			CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.8									
			1.0	*1.10*					Hole Terminated at 1.10 m Target depth			
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP205**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.800854	RL SURFACE	55.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.90 m depth	LATITUDE	-33.79172	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	55.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, roadbase, anthropogenics (plastic).			FILL
				0.30								
			0.4	55.20	0.4/S/1 D 0.40 m			CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.6									
			0.8	*0.90*								
			1.0						Hole Terminated at 0.90 m Target depth			
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP206**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801122	RL SURFACE	55 m	DATUM AHD
EXCAVATION DIMENSIONS		0.90 m depth	LATITUDE	-33.791522	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	55.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m DUP02 0.10 m			ML	FILL: Clayey SILT; low plasticity; brown, dark brown; trace fine gravels, roadbase, anthropogenics (glass).			FILL
			0.4	*0.40* 54.60				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.6		0.5/S/1 D 0.50 m							
			0.8	*0.90*					Hole Terminated at 0.90 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP207**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.80148	RL SURFACE	55 m	DATUM AHD
EXCAVATION DIMENSIONS		1.00 m depth	LATITUDE	-33.79158	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.0	55.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; brown, dark brown; trace fine gravels, roadbase, anthropogenics (plastic, tarp).			FILL
			0.40	0.40 54.60				CH	Silty CLAY; high plasticity; orange-brown, grey; trace gravels.			RESIDUAL SOIL
					0.5/S/1 D 0.50 m							
			1.00	1.00					Hole Terminated at 1.00 m Target depth			

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP208**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801423	RL SURFACE	54.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.80 m depth	LATITUDE	-33.791412	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	54.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m DUP03 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels.			FILL
				0.30 54.20				CH	Silty CLAY; high plasticity; orange-brown, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.4/S/1 D 0.40 m							
			0.6									
			0.8	*0.80*					Hole Terminated at 0.80 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP209**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.80162	RL SURFACE	53 m	DATUM AHD
EXCAVATION DIMENSIONS		0.70 m depth	LATITUDE	-33.791039	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	53.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, anthropogenics (plastic, paper).			FILL
				0.30 52.70				CH	Silty CLAY; high plasticity; orange-brown, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.4/S/1 D 0.40 m							
			0.6	*0.70*								
			0.8						Hole Terminated at 0.70 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP210**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801452	RL SURFACE	53.5 m	DATUM AHD
EXCAVATION DIMENSIONS		1.00 m depth	LATITUDE	-33.791176	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	53.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m DUP04 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, anthropogenics (plastic, paper).			FILL
				0.30 53.20				CH	Silty CLAY; high plasticity; orange-brown, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.5/S/1 D 0.50 m							
			0.6									
			0.8									
			1.0	*1.00*					Hole Terminated at 1.00 m Target depth			
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP211**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801212	RL SURFACE	53.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.90 m depth	LATITUDE	-33.791228	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	53.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, anthropogenics (plastic, paper).			FILL
				0.30								
			0.4	53.20	0.5/S/1 D 0.50 m			CH	Silty CLAY; high plasticity; orange-brown, grey; trace gravels.			RESIDUAL SOIL
			0.6									
			0.8									
				0.90					Hole Terminated at 0.90 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP212**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.800987	RL SURFACE	54.5 m	DATUM AHD
EXCAVATION DIMENSIONS		1.00 m depth	LATITUDE	-33.791158	ASPECT	E	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.0	54.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Gravelly Clayey SILT; low plasticity; pale brown.			FILL
			0.4	*0.40* 54.10	0.5/S/1 D 0.50 m			CH	Silty CLAY; high plasticity; reddish brown, grey; trace fine gravels.			RESIDUAL SOIL
			1.0	*1.00*					Hole Terminated at 1.00 m Target depth			
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP213**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801236	RL SURFACE	54 m	DATUM AHD
EXCAVATION DIMENSIONS		0.80 m depth	LATITUDE	-33.790962	ASPECT	E	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	54.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Gravelly Clayey SILT; low plasticity; pale brown.			FILL
			0.2									
			0.4	*0.40* 53.60				CH	Silty CLAY; high plasticity; reddish brown, grey; trace fine gravels.			RESIDUAL SOIL
					0.5/S/1 D 0.50 m							
			0.6									
			0.8	*0.80*					Hole Terminated at 0.80 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP214**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801065	RL SURFACE	54.5 m	DATUM AHD
EXCAVATION DIMENSIONS		1.80 m depth	LATITUDE	-33.791364	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	54.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; brown; trace fine gravels, anthropogenics (tile, brick, car tyre).			FILL
			0.2									
			0.4									
			0.6		0.6/S/1 D 0.60 m							
			0.8									
			1.0	*1.00* 53.50				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			1.2		1.1/S/1 D 1.10 m							
			1.4									
			1.6									
			1.8	*1.80*					Hole Terminated at 1.80 m Target depth			
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP215**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.800942	RL SURFACE	54.5 m	DATUM AHD
EXCAVATION DIMENSIONS		1.60 m depth	LATITUDE	-33.79137	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	54.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; brown; trace fine gravels, anthropogenics (tile, PVC, brick).			FILL
			0.2									
			0.4									
			0.6		0.6/S/1 D 0.60 m							
			0.8									
			1.0	*1.00* 53.50	1.1/S/1 D 1.10 m			CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			1.2									
			1.4									
			1.6	*1.60*					Hole Terminated at 1.60 m Target depth			
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP216**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801192	RL SURFACE	54 m	DATUM AHD
EXCAVATION DIMENSIONS		0.80 m depth	LATITUDE	-33.791346	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	54.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; brown; trace fine gravels, anthropogenics (tile, PVC, plastic).			FILL
			0.2									
			0.4									
				0.50								
				53.50				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.6		0.6/S/1 D 0.60 m							
			0.8	*0.80*					Hole Terminated at 0.80 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP217**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801592	RL SURFACE	54 m	DATUM AHD
EXCAVATION DIMENSIONS		0.60 m depth	LATITUDE	-33.79137	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	54.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels.			FILL
			0.2									
				0.30								
				53.70				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.4/S/1 D 0.40 m							
			0.6	*0.60*					Hole Terminated at 0.60 m Target depth			
			0.8									
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP218**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.800966	RL SURFACE	55.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.70 m depth	LATITUDE	-33.791637	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	55.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, anthropogenics (brick, tile, PVC).			FILL
				0.30								
			0.4	55.20	0.5/S/1 D 0.50 m			CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.6	*0.70*								
			0.8						Hole Terminated at 0.70 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP219**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801049	RL SURFACE	55.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.60 m depth	LATITUDE	-33.791667	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	55.50	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels, roadbase.			FILL
			0.2									
				0.30								
				55.20				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.4/S/1 D 0.40 m							
			0.6	*0.60*					Hole Terminated at 0.60 m Target depth			
			0.8									
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP220**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801137	RL SURFACE	55.5 m	DATUM AHD
EXCAVATION DIMENSIONS		0.80 m depth	LATITUDE	-33.791781	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0	55.50				ML	FILL: Gravelly clayey SILT; low plasticity; dark brown; with building rubble (ACM, tile, PVC, glass).			FILL
					0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m ACM01 0.10 m							
			0.2									
			0.4	0.40 55.10				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
					0.5/S/1 D 0.50 m							
			0.6									
			0.8	0.80					Hole Terminated at 0.80 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

EXCAVATION LOG TO BE READ IN CONJUCTION WITH ACCOMPANYING REPORT NOTES AND ABBREVIATIONS

MARTENS & ASSOCIATES PTY LTD
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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP221**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.801091	RL SURFACE	56 m	DATUM AHD
EXCAVATION DIMENSIONS		1.00 m depth	LATITUDE	-33.791908	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	56.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels; no building rubble.			FILL
			0.4	*0.40* 55.60				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
					0.5/S/1 D 0.50 m							
			0.6									
			0.8									
			1.0	*1.00*					Hole Terminated at 1.00 m Target depth			
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP222**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.800943	RL SURFACE	56 m	DATUM AHD
EXCAVATION DIMENSIONS		0.70 m depth	LATITUDE	-33.791826	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	56.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m			ML	FILL: Clayey SILT; low plasticity; dark brown; with building rubble (brick, tile, PVC); no ACM observed.			FILL
			0.4	*0.40* 55.60				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.6	*0.70*	0.5/S/1 D 0.50 m							
			0.8						Hole Terminated at 0.70 m Target depth			
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP223**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.80092	RL SURFACE	56 m	DATUM AHD
EXCAVATION DIMENSIONS		0.70 m depth	LATITUDE	-33.791904	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	56.00	0.1/S/1 D 0.10 m 0.1/S/2 D 0.10 m ACM02 0.10 m ACM03 0.10 m			ML	FILL: Gravelly clayey SILT; low plasticity; dark brown; with building rubble (ACM, tile, PVC, brick, glass).			FILL
				0.30 55.70				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.4		0.5/S/1 D 0.50 m							
			0.6	*0.70*					Hole Terminated at 0.70 m Target depth			
			0.8									
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

CLIENT	Opal Aged Care		COMMENCED	22/06/2021	COMPLETED	22/06/2021	**REF TP224**
PROJECT	Detailed Site Investigation		LOGGED	DS	CHECKED	JF	Sheet 1 OF 1
SITE	94 - 100 Explorers Way, St Clair, NSW		GEOLOGY	Bringelly Shale	VEGETATION	Grass	PROJECT NO. P2007910
EQUIPMENT		Excavator	LONGITUDE	150.80108	RL SURFACE	56 m	DATUM AHD
EXCAVATION DIMENSIONS		0.50 m depth	LATITUDE	-33.791835	ASPECT	N	SLOPE <5%

Excavation					Sampling		Field Material Description					
METHOD	EXCAVATION RESISTANCE	WATER	DEPTH (metres)	*DEPTH* RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS / ASCS CLASSIFICATION	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
		Not Encountered	0.2	56.00				ML	FILL: Clayey SILT; low plasticity; dark brown; trace fine gravels; no building rubble.			FILL
				0.30 55.70				CH	Silty CLAY; high plasticity; reddish brown, red, grey; trace gravels.			RESIDUAL SOIL
			0.4	*0.50*								
			0.6						Hole Terminated at 0.50 m Target depth			
			0.8									
			1.0									
			1.2									
			1.4									
			1.6									
			1.8									
			2.0									
			2.2									
			2.4									

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Engineering Log - TEST PIT

Attachment D: Laboratory Summary Tables

	BTEX						TRH							Halogenated Benzenes	PAH																	PCBs							
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C34 Fraction (F3)	>C34-C40 Fraction (F4)	>C10-C40 Fraction (Sum)	Hexachlorobenzene	Benzo(b+j+k)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Benzo(a)pyrene TEQ calc (Half)	Benzo(a)pyrene TEQ (LOR)	Benzo(e)pyrene TEQ calc (Zero)	PAHs (Sum of positives)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.5	1	2	1	3	25	25	50	50	100	100	50	0.1	0.2	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil							800		1,000		3,500	10,000																												
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																																								
0-1m	0.7	480				110		50		280																	5													
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																											170													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																																								
0-2m			125			45			120	120										0.7																				
NEPM 2013 Table 1A(1) HILs Res A Soil														10																3	3	3	300								1
Field ID																																								
TP201/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP202/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	360	300	670	<0.1	6.7	<0.1	0.6	0.8	3.8	4.1	2.7	2.9	0.7	4.3	<0.1	2.2	<0.1	1	4.4	6.2	6.2	6.2	34	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP203/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP204/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP205/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP206/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP207/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP208/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP209/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP210/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP211/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP212/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP213/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP214/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP215/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP216/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP217/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP218/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP219/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP220/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP221/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP222/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP223/0.1/S/1	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	1	<0.1	<0.1	<0.1	0.4	0.68	0.3	0.4	<0.1	0.6	<0.1	0.3	<0.1	0.2	0.6	0.9	1	0.9	4.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																																								
Number of Results	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Number of Detects	0	0	0	0	0	0	0	0	0	0	1	1	1	0	2	0	1	1	2	2	2	2	1	2	0	2	0	2	2	2	2	2	2	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	<100	<100	<50	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	360	300	670	ND	1	ND	0.6	0.8	0.4	0.68	0.3	0.4	0.7	0.6	ND	0.3	ND	0.2	0.6	0.9	1	0.9	4.6	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.5	<1	<2	<1	<3	<25	<25	<50	<50	360	300	670	<0.1	6.7	<0.1	0.6	0.8	3.8	4.1	2.7	2.9	0.7	4.3	<0.1	2.2	<0.1	1	4.4	6.2	6.2	6.2	34	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	360	300	670	ND	6.7	ND	0.6	0.8	3.8	4.1	2.7	2.9	0.7	4.3	ND	2.2	ND	1	4.4	6.2	6.2	6.2	34	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	0.1	0.25	0.5	1	0.5	1.5	12	12	25	25	63	61	53	0.05	0.43	0.05	0.074	0.083	0.23	0.23	0.18	0.19	0.078	0.26	0.05	0.15	0.05	0.098	0.26	0.54	0.54	0.54	1.7	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0	0	0	0	0	0	0	0	0	65	52	134	0	1.4	0	0.11	0.16	0.78	0.85	0.55	0.6	0.14	0.89	0	0.45	0	0.2	0.91	1.2	1.2	1.2	7.1	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	0.1	0.25	0.5	1	0.5	1.5	12.5	12.5	25	25	86.62	79.53	101.2	0.05	0.92	0.05	0.115	0.139	0.508	0.537	0.374	0.402	0.127	0.577	0.05	0.315	0.05	0.169	0.589	0.982	0.987	0.982	4.245	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

	Metals								Organochlorine Pesticides																				Organophosphorous Pesticides										
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	4,4-DDE	a-BHC	Aldrin	b-BHC	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor	Azinophos methyl	Bromophos-ethyl	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Ronnel
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	4	0.4	1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																																							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay 0-1m																																							
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open	100		640	150	1,100		220	350									180																						
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil 0-2m																																							
NEPM 2013 Table 1A(1) HILs Res A Soil	100	20		6,000	300	40	400	7,400										240					10			6		300			160								
Field ID																																							
TP201/0.1/S/1	<4	<0.4	5	2	8	<0.1	1	26	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP202/0.1/S/1	5	<0.4	19	5	10	<0.1	3	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP203/0.1/S/1	8	0.5	28	2	12	<0.1	3	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP204/0.1/S/1	9	0.5	32	1	13	<0.1	2	15	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP205/0.1/S/1	11	0.6	38	6	27	<0.1	2	130	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP206/0.1/S/1	6	0.4	26	3	13	<0.1	3	14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP207/0.1/S/1	7	0.4	25	4	18	<0.1	5	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP208/0.1/S/1	8	0.4	29	3	14	<0.1	3	7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP209/0.1/S/1	5	<0.4	18	7	12	<0.1	4	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP210/0.1/S/1	6	<0.4	13	5	16	<0.1	3	18	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP211/0.1/S/1	5	<0.4	16	4	16	<0.1	2	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP212/0.1/S/1	8	0.4	30	2	11	<0.1	2	10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP213/0.1/S/1	4	<0.4	25	3	13	<0.1	3	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP214/0.1/S/1	5	<0.4	15	5	11	<0.1	2	12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP215/0.1/S/1	7	<0.4	20	10	15	<0.1	4	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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP216/0.1/S/1	8	0.5	36	8	20	<0.1	4	28	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP217/0.1/S/1	8	<0.4	20	4	12	<0.1	2	6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP218/0.1/S/1	<4	0.6	11	6	34	<0.1	2	170	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP219/0.1/S/1	9	0.4	28	7	39	<0.1	3	54	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP220/0.1/S/1	10	0.6	34	5	26	<0.1	3	38	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP221/0.1/S/1	7	<0.4	26	3	14	<0.1	2	8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP222/0.1/S/1	6	0.4	24	7	25	<0.1	4	93	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP223/0.1/S/1	6	0.4	24	8	190	0.2	4	120	<0.1	<0.1	<0.1	<0.1	0.2	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistics																																							
Number of Results	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
Number of Detects	21	13	23	23	23	1	23	23	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	4	0.4	5	1	8	<0.1	1	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect	4	0.4	5	1	8	0.2	1	3	ND	ND	ND	ND	0.2	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	11	0.6	38	10	190	0.2	5	170	<0.1	<0.1	<0.1	<0.1	0.2	1.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect	11	0.6	38	10	190	0.2	5	170	ND	ND	ND	ND	0.2	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *	6.6	0.35	24	4.8	25	0.057	2.9	35	0.05	0.05	0.05	0.05	0.057	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.061	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	2.3	0.15	8.2	2.3	37	0.031	0.97	47	0	0	0	0	0.031	0.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0.052	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *	7.422	0.406	26.51	5.612	37.95	0.0677	3.216	51.76	0.05	0.05	0.05	0.05	0.0677	0.186	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.0795	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil

Attachment E: Data Validation Report

Sample Handling

Lab Report	Sample Chain of Custody (COC) Procedures	Sample Preservation	Sample Receipt Notification Matches COC	Samples Analysed Within Holding Time
272409 - S	Pass	Pass	Pass	Pass

Precision / Accuracy

Lab Report	Analysed by NATA Laboratory	Trip Spike and Blank Used	Adequate Duplicates Analysed	Field Rinsate Analysed
272409 - S	Pass	Pass	Pass	NA

Trip spike and blank were reported within the acceptable recovery range.

Trip blank reported less than LOR for volatile analysis.

As sampling involved collecting samples from the centre of a soil clod, no rinsate was considered necessary as part of the QC process.

Duplicates/ laboratory QA / QC

Lab Report	Field RPD	Laboratory Surrogate Recovery	Laboratory Duplicate RPD	Lab Blank and Matrix Spike Recovery	Laboratory Control Sample
272409 - S	**Fail**	Pass	Pass	Pass	Pass

RPD control limits were exceeded for heavy metals between primary and duplicate soil samples. Chemical concentrations in these samples were well below adopted SAC, and RPD exceedances were likely attributed to the heterogeneity of encountered fill material. As such, the exceeding RPD values are not considered grounds for rejecting the data set.

Lab Report Number			272409	272409		272409	272409		272409	805945-S		272409	805945-S	
Field ID			TP205/0.1/S/1	DUP01		TP208/0.1/S/1	DUP03		TP206/0.1/S/1	DUP02		TP210/0.1/S/1	DUP04	
Date					RPD			RPD			RPD			RPD
	Unit	EQL												
Metals														
Arsenic	mg/kg	4	11	30	90	8	5	46	6	25	123	6	11	59
Cadmium	mg/kg	0.4	0.6	0.7	15	0.4	<0.4	0	0.4	<0.4	0	<0.4	<0.4	0
Chromium (III+VI)	mg/kg	1	38	22	53	29	17	52	26	55	72	13	29	76
Copper	mg/kg	1	6	51	158	3	2	40	3	12	120	5	6.6	28
Lead	mg/kg	1	27	30	11	14	12	15	13	25	63	16	21	27
Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Nickel	mg/kg	1	2	11	82	3	2	40	<5	<5	0	<5	<5	0
Zinc	mg/kg	1	130	80	48	7	6	15	14	21	40	18	17	6

*RPDs have only been considered where a concentration is greater than 1 times the EQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

Attachment F: Laboratory Certificates

martens
consulting engineers since 1989

SOIL ANALYSIS CHAIN OF CUSTODY FORM

Project												
Name	P2007910 – St Clair DSI											
Martens Contact Officer	Dean Shi					**Contact Email**	dshi@martens.com.au					
Sampling and Shipping	**Sample Date**	22/06/2021		**Dispatch Date**	23/06/2021		**Turnaround Time**		Standard			
	Our Reference	P207910COC03V01				**Shipping Method (X)**	**Hand**		**Post**		**Courier**	X
	On Ice (X)	X	**No Ice (X)**		**Other (X)**							
Laboratory												
Name	Envirolab Pty Ltd											
Sample Delivery Address	12 Ashley Street, Chatswood, NSW											
Instructions												
Delivery Contact	**Name**	Aileen		**Phone**	9910 6200	**Fax**		**Email**	samplereceipt@envirolabservices.com.au			
Please Send Report By (X)	**Post**		**Fax**		**Email**	X	**Reporting Email Address**	dshi@martens.com.au; jfulton@martens.com.au ; martens@esdat.com.au				

	Item	Sample ID*	Combo 6a	HM	TRH	BTEX	Asbestos ID (material)	HOLD
1	1	TP201/0.1/S/1	X					
2	2	TP201/0.1/S/2						
3	3	TP201/0.5/S/1						X
4	4	TP201/0.8/S/1						X
5	5	TP202/0.1/S/1	X					
6	6	TP202/0.1/S/2						
7	7	TP202/0.4/S/1						X
8	8	TP203/0.1/S/1	X					
9	9	TP203/0.1/S/2						
10	10	TP203/0.5/S/1						X
11	11	TP203/0.8/S/1						X
12	12	TP204/0.1/S/1	X					
13	13	TP204/0.1/S/2						

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

Job No: 272409
Date Received: 23.6.21
Time Received: 1520
Received By: EC
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Head Office
Suite 201, 20 George St
Hornsby NSW 2077, Australia
Ph 02 9476 9999 **Fax** 02 9476 8767

> mail@martens.com.au
> www.martens.com.au
MARTENS & ASSOCIATES P/L
ABN 85 070 240 890 ACN 070 240 890

	Item	Sample ID*	Combo 6a	HM	TRH	BTEX	Asbestos ID (material)	HOLD
14	14	TP204/0.7/S/1						X
15	15	TP205/0.1/S/1	X					
16	16	TP205/0.1/S/2						
17	17	TP205/0.4/S/1						X
18	18	TP206/0.1/S/1	X					
19	19	TP206/0.1/S/2						
20	20	TP206/0.5/S/1						X
21	21	TP207/0.1/S/1	X					
22	22	TP207/0.1/S/2						
23	23	TP207/0.5/S/1						X
24	24	TP208/0.1/S/1	X					
25	25	TP208/0.1/S/2						
26	26	TP208/0.4/S/1						X
27	27	TP209/0.1/S/1	X					
28	28	TP209/0.1/S/2						
29	29	TP209/0.4/S/1						X
30	30	TP210/0.1/S/1	X					
31	31	TP210/0.1/S/2						
32	32	TP210/0.5/S/1						X
33	33	TP211/0.1/S/1	X					
34	34	TP211/0.1/S/2						
35	35	TP211/0.5/S/1						X
36	36	TP212/0.1/S/1	X					
37	37	TP212/0.1/S/2						
38	38	TP212/0.5/S/1						X
39	39	TP213/0.1/S/1	X					
40	40	TP213/0.1/S/2						
41	41	TP213/0.5/S/1						X
42	42	TP214/0.1/S/1	X					
43	43	TP214/0.1/S/2						
44	44	TP214/0.6/S/1						X

272409

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

CERTIFICATE OF ANALYSIS 272409

Client Details

Client	Martens & Associates Pty Ltd
Attention	Dean Shi
Address	Suite 201, 20 George St, Hornsby, NSW, 2077

Sample Details

Your Reference	**P2007910 – St Clair DSI**
Number of Samples	82 soil
Date samples received	23/06/2021
Date completed instructions received	24/06/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	01/07/2021
Date of Issue	01/07/2021

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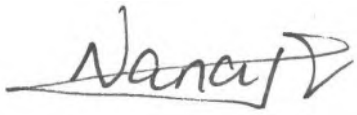
Asbestos Approved By
Analysed by Asbestos Approved Identifier: Panika Wongchanda
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Senior Chemist
Lucy Zhu, Asbestos Supervisor
Steven Luong, Organics Supervisor

Authorised By



Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	94	116	101	96	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	101	103	100	95	110

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	99	100	104	104	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	103	100	102	107	100

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		272409-66	272409-69	272409-79	272409-80	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	Trip Spike	Trip Blank	TP217/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	<25	<25	[NA]	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	[NA]	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	[NA]	<25	<25
Benzene	mg/kg	<0.2	<0.2	107%	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	103%	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	103%	<1	<1
m+p-xylene	mg/kg	<2	<2	104%	<2	<2
o-Xylene	mg/kg	<1	<1	103%	<1	<1
naphthalene	mg/kg	<1	<1	[NA]	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	[NA]	<3	<3
Surrogate aaa-Trifluorotoluene	%	104	102	96	104	111

svTRH (C10-C40) in Soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	28/06/2021	30/06/2021	28/06/2021	28/06/2021	28/06/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	160	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	300	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	360	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	300	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	670	<50	<50	<50
Surrogate o-Terphenyl	%	91	85	88	89	90

svTRH (C10-C40) in Soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	28/06/2021	28/06/2021	29/06/2021	29/06/2021	29/06/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	87	85	86	84

svTRH (C10-C40) in Soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	110	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	88	86	96	95	86

svTRH (C10-C40) in Soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	83	84	85	84

svTRH (C10-C40) in Soil				
Our Reference		272409-66	272409-69	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	TP217/0.1/S/1
Type of sample		soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	86	88	74

PAHs in Soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.6	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	4.3	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	4.4	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	3.8	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	2.9	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	6.7	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	4.1	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	2.2	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.7	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	2.7	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	34	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	6.2	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	6.2	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	6.2	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	121	125	124	115	109

PAHs in Soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	116	113	111	108	115

PAHs in Soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	114	112	112	118	119

PAHs in Soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	116	105	120	112	111

PAHs in Soil				
Our Reference		272409-66	272409-69	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	TP217/0.1/S/1
Type of sample		soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	30/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.6	<0.1
Pyrene	mg/kg	<0.1	0.6	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.4	<0.1
Chrysene	mg/kg	<0.1	0.4	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	1	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.68	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.3	<0.1
Total +ve PAH's	mg/kg	<0.05	4.6	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.9	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.9	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1	<0.5
Surrogate p-Terphenyl-d14	%	117	113	106

Organochlorine Pesticides in soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	89	92	90	88

Organochlorine Pesticides in soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	89	88	87	89

Organochlorine Pesticides in soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	90	90	91	91

Organochlorine Pesticides in soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	85	92	89	88

Organochlorine Pesticides in soil				
Our Reference		272409-66	272409-69	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	TP217/0.1/S/1
Type of sample		soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	30/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	0.3	<0.1
gamma-Chlordane	mg/kg	<0.1	1.2	<0.1
alpha-chlordane	mg/kg	<0.1	0.2	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	90	112

Organophosphorus Pesticides in Soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	89	92	90	88

Organophosphorus Pesticides in Soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	89	88	87	89

Organophosphorus Pesticides in Soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	90	90	91	91

Organophosphorus Pesticides in Soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	85	92	89	88

Organophosphorus Pesticides in Soil				
Our Reference		272409-66	272409-69	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	TP217/0.1/S/1
Type of sample		soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	30/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	90	112

PCBs in Soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	89	92	90	88

PCBs in Soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	89	88	87	89

PCBs in Soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	90	90	91	91

PCBs in Soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021	30/06/2021	30/06/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	85	92	89	88

PCBs in Soil				
Our Reference		272409-66	272409-69	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	TP217/0.1/S/1
Type of sample		soil	soil	soil
Date extracted	-	28/06/2021	28/06/2021	30/06/2021
Date analysed	-	30/06/2021	30/06/2021	30/06/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	90	112

Acid Extractable metals in soil						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Arsenic	mg/kg	<4	5	8	9	11
Cadmium	mg/kg	<0.4	<0.4	0.5	0.5	0.6
Chromium	mg/kg	5	19	28	32	38
Copper	mg/kg	2	5	2	1	6
Lead	mg/kg	8	10	12	13	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	3	3	2	2
Zinc	mg/kg	26	6	6	15	130

Acid Extractable metals in soil						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Arsenic	mg/kg	6	7	8	5	6
Cadmium	mg/kg	0.4	0.4	0.4	<0.4	<0.4
Chromium	mg/kg	26	25	29	18	13
Copper	mg/kg	3	4	3	7	5
Lead	mg/kg	13	18	14	12	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	3	5	3	4	3
Zinc	mg/kg	14	16	7	6	18

Acid Extractable metals in soil						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Arsenic	mg/kg	5	8	4	5	7
Cadmium	mg/kg	<0.4	0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	30	25	15	20
Copper	mg/kg	4	2	3	5	10
Lead	mg/kg	16	11	13	11	15
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	2	3	2	4
Zinc	mg/kg	3	10	6	12	13

Acid Extractable metals in soil						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Arsenic	mg/kg	8	<4	9	10	7
Cadmium	mg/kg	0.5	0.6	0.4	0.6	<0.4
Chromium	mg/kg	36	11	28	34	26
Copper	mg/kg	8	6	7	5	3
Lead	mg/kg	20	34	39	26	14
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	2	3	3	2
Zinc	mg/kg	28	170	54	38	8

Acid Extractable metals in soil						
Our Reference		272409-66	272409-69	272409-72	272409-74	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	DUP01	DUP03	TP217/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Arsenic	mg/kg	6	6	30	5	8
Cadmium	mg/kg	0.4	0.4	0.7	<0.4	<0.4
Chromium	mg/kg	24	24	22	17	20
Copper	mg/kg	7	8	51	2	4
Lead	mg/kg	25	190	30	12	12
Mercury	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Nickel	mg/kg	4	4	11	2	2
Zinc	mg/kg	93	120	80	6	6

Acid Extractable metals in soil			
Our Reference		272409-83	272409-84
Your Reference	UNITS	TP201/0.1/S/1 - [TRIPLICATE]	TP213/0.1/S/1 - [TRIPLICATE]
Type of sample		soil	soil
Date prepared	-	29/06/2021	29/06/2021
Date analysed	-	29/06/2021	29/06/2021
Arsenic	mg/kg	6	6
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	17	28
Copper	mg/kg	7	3
Lead	mg/kg	16	15
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	3	3
Zinc	mg/kg	31	6

Moisture						
Our Reference		272409-1	272409-5	272409-8	272409-12	272409-15
Your Reference	UNITS	TP201/0.1/S/1	TP202/0.1/S/1	TP203/0.1/S/1	TP204/0.1/S/1	TP205/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Moisture	%	21	13	14	7.8	12

Moisture						
Our Reference		272409-18	272409-21	272409-24	272409-27	272409-30
Your Reference	UNITS	TP206/0.1/S/1	TP207/0.1/S/1	TP208/0.1/S/1	TP209/0.1/S/1	TP210/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Moisture	%	13	15	13	22	12

Moisture						
Our Reference		272409-33	272409-36	272409-39	272409-42	272409-46
Your Reference	UNITS	TP211/0.1/S/1	TP212/0.1/S/1	TP213/0.1/S/1	TP214/0.1/S/1	TP215/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Moisture	%	12	11	7.4	13	17

Moisture						
Our Reference		272409-50	272409-54	272409-57	272409-60	272409-63
Your Reference	UNITS	TP216/0.1/S/1	TP218/0.1/S/1	TP219/0.1/S/1	TP220/0.1/S/1	TP221/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Moisture	%	13	19	8.6	24	13

Moisture						
Our Reference		272409-66	272409-69	272409-72	272409-74	272409-81
Your Reference	UNITS	TP222/0.1/S/1	TP223/0.1/S/1	DUP01	DUP03	TP217/0.1/S/1
Type of sample		soil	soil	soil	soil	soil
Date prepared	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Date analysed	-	29/06/2021	29/06/2021	29/06/2021	29/06/2021	29/06/2021
Moisture	%	15	18	27	13	12

Asbestos ID - soils						
Our Reference		272409-2	272409-6	272409-9	272409-13	272409-16
Your Reference	UNITS	TP201/0.1/S/2	TP202/0.1/S/2	TP203/0.1/S/2	TP204/0.1/S/2	TP205/0.1/S/2
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Sample mass tested	g	Approx. 40g	Approx. 60g	Approx. 60g	Approx. 45g	Approx. 50g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		272409-19	272409-22	272409-25	272409-28	272409-31
Your Reference	UNITS	TP206/0.1/S/2	TP207/0.1/S/2	TP208/0.1/S/2	TP209/0.1/S/2	TP210/0.1/S/2
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Sample mass tested	g	Approx. 35g	Approx. 45g	Approx. 40g	Approx. 35g	Approx. 45g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		272409-34	272409-37	272409-40	272409-43	272409-47
Your Reference	UNITS	TP211/0.1/S/2	TP212/0.1/S/2	TP213/0.1/S/2	TP214/0.1/S/2	TP215/0.1/S/2
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Sample mass tested	g	Approx. 50g	Approx. 60g	Approx. 35g	Approx. 55g	Approx. 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		272409-51	272409-53	272409-55	272409-58	272409-61
Your Reference	UNITS	TP216/0.1/S/2	TP217/0.1/S/2	TP218/0.1/S/2	TP219/0.1/S/2	TP220/0.1/S/2
Type of sample		soil	soil	soil	soil	soil
Date analysed	-	28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Sample mass tested	g	Approx. 50g	Approx. 50g	Approx. 70g	Approx. 55g	Approx. 55g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference		272409-64	272409-67	272409-70
Your Reference	UNITS	TP221/0.1/S/2	TP222/0.1/S/2	TP223/0.1/S/2
Type of sample		soil	soil	soil
Date analysed	-	28/06/2021	28/06/2021	28/06/2021
Sample mass tested	g	Approx. 55g	Approx. 50g	Approx. 40g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - materials				
Our Reference	UNITS	272409-76	272409-77	272409-78
Your Reference		ACM01	ACM02	ACM03
Type of sample		soil	soil	soil
Date analysed	-	28/06/2021	28/06/2021	28/06/2021
Mass / Dimension of Sample	-	105x90x6mm	70x52x6mm	42x32x6mm
Sample Description	-	Grey fibre cement material	Grey fibre cement material	Beige fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected Amosite asbestos detected	Chrysotile asbestos detected Organic fibres detected	No asbestos detected Organic fibres detected
Trace Analysis	-	[NT]	[NT]	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date extracted	-			28/06/2021	1	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			30/06/2021	1	30/06/2021	30/06/2021		30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	110	102
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	110	102
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	104	96
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	106	99
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	110	103
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	116	107
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	112	105
naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	110	1	94	93	1	97	91

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date extracted	-			[NT]	21	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			[NT]	21	30/06/2021	30/06/2021		30/06/2021	30/06/2021
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	21	<25	<25	0	114	112
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	21	<25	<25	0	114	112
Benzene	mg/kg	0.2	Org-023	[NT]	21	<0.2	<0.2	0	108	108
Toluene	mg/kg	0.5	Org-023	[NT]	21	<0.5	<0.5	0	112	112
Ethylbenzene	mg/kg	1	Org-023	[NT]	21	<1	<1	0	118	115
m+p-xylene	mg/kg	2	Org-023	[NT]	21	<2	<2	0	115	112
o-Xylene	mg/kg	1	Org-023	[NT]	21	<1	<1	0	119	111
naphthalene	mg/kg	1	Org-023	[NT]	21	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	21	103	103	0	103	102

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	30/06/2021	30/06/2021		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	39	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	39	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	39	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	39	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	39	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-023	[NT]	39	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	39	104	100	4	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	81	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	81	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	81	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	81	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	81	111	109	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date extracted	-			28/06/2021	1	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			29/06/2021	1	28/06/2021	28/06/2021		28/06/2021	30/06/2021
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	82	96
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	76	#
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	60	#
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	82	96
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	76	#
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	60	#
Surrogate o-Terphenyl	%		Org-020	63	1	91	89	2	83	96

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date extracted	-			[NT]	21	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			[NT]	21	28/06/2021	28/06/2021		29/06/2021	29/06/2021
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	21	<50	<50	0	95	122
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	21	<100	<100	0	91	114
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	21	<100	<100	0	63	85
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	21	<50	<50	0	95	122
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	21	<100	<100	0	91	114
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	21	<100	<100	0	63	85
Surrogate o-Terphenyl	%		Org-020	[NT]	21	87	90	3	89	95

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	29/06/2021	29/06/2021		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	39	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	39	110	<100	10	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	39	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	39	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	39	96	87	10	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	81	29/06/2021	29/06/2021		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	81	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	81	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	81	74	78	5	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date extracted	-			28/06/2021	1	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			30/06/2021	1	30/06/2021	30/06/2021		30/06/2021	30/06/2021
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	109
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	102
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	109
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	138
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	#
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	#
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	#
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	88	#
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	114	1	121	114	6	115	125

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date extracted	-			[NT]	21	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			[NT]	21	30/06/2021	30/06/2021		30/06/2021	30/06/2021
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	81	66
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	82	79
Fluorene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	79	77
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	95	89
Anthracene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	88	86
Pyrene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	80	80
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	75	72
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	21	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	21	<0.05	<0.05	0	82	86
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	21	113	116	3	112	110

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	30/06/2021	30/06/2021		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	39	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	39	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	39	112	113	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Date analysed	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	81	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	81	106	101	5	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date extracted	-			28/06/2021	1	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			30/06/2021	1	30/06/2021	30/06/2021		30/06/2021	30/06/2021
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	78
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	89	92
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	83
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	88
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	105
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	101
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	95
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	111
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	88
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	76	72
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	101	1	93	89	4	98	91

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date extracted	-			[NT]	21	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			[NT]	21	30/06/2021	30/06/2021		30/06/2021	30/06/2021
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	78	77
HCB	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	91	87
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	77	73
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	83	79
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	91	91
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	87	87
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	93	91
Endrin	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	84	77
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	72	74
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	70	68
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	21	89	91	2	91	89

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	30/06/2021	30/06/2021		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	39	90	90	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Date analysed	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	81	112	117	4	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date extracted	-			28/06/2021	1	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			30/06/2021	1	30/06/2021	30/06/2021		30/06/2021	30/06/2021
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	77
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	88
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	71	71
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	63	84
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	87	105
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	71	78
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	123
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	101	1	93	89	4	98	91

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date extracted	-			[NT]	21	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			[NT]	21	30/06/2021	30/06/2021		30/06/2021	30/06/2021
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	86	86
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	75	72
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	75	71
Malathion	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	70	82
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	87	91
Parathion	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	71	71
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	77	67
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	21	89	91	2	91	89

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	30/06/2021	30/06/2021		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	39	90	90	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Date analysed	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	81	112	117	4	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date extracted	-			28/06/2021	1	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			30/06/2021	1	30/06/2021	30/06/2021		30/06/2021	30/06/2021
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	100	100
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	101	1	93	89	4	98	91

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date extracted	-			[NT]	21	28/06/2021	28/06/2021		28/06/2021	28/06/2021
Date analysed	-			[NT]	21	30/06/2021	30/06/2021		30/06/2021	30/06/2021
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	100	100
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	21	89	91	2	91	89

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	39	28/06/2021	28/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	30/06/2021	30/06/2021		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	39	90	90	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Date analysed	-			[NT]	81	30/06/2021	30/06/2021		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	81	112	117	4	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	272409-5
Date prepared	-			29/06/2021	1	29/06/2021	29/06/2021		29/06/2021	29/06/2021
Date analysed	-			29/06/2021	1	29/06/2021	29/06/2021		29/06/2021	29/06/2021
Arsenic	mg/kg	4	Metals-020	<4	1	<4	10	86	97	74
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	0.5	22	98	77
Chromium	mg/kg	1	Metals-020	<1	1	5	24	131	101	79
Copper	mg/kg	1	Metals-020	<1	1	2	7	111	95	85
Lead	mg/kg	1	Metals-020	<1	1	8	21	90	99	72
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	104	82
Nickel	mg/kg	1	Metals-020	<1	1	1	3	100	98	71
Zinc	mg/kg	1	Metals-020	<1	1	26	45	54	94	#

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	272409-42
Date prepared	-			[NT]	21	29/06/2021	29/06/2021		29/06/2021	29/06/2021
Date analysed	-			[NT]	21	29/06/2021	29/06/2021		29/06/2021	29/06/2021
Arsenic	mg/kg	4	Metals-020	[NT]	21	7	6	15	103	121
Cadmium	mg/kg	0.4	Metals-020	[NT]	21	0.4	<0.4	0	101	98
Chromium	mg/kg	1	Metals-020	[NT]	21	25	24	4	108	115
Copper	mg/kg	1	Metals-020	[NT]	21	4	5	22	101	#
Lead	mg/kg	1	Metals-020	[NT]	21	18	16	12	102	107
Mercury	mg/kg	0.1	Metals-021	[NT]	21	<0.1	<0.1	0	128	93
Nickel	mg/kg	1	Metals-020	[NT]	21	5	4	22	102	108
Zinc	mg/kg	1	Metals-020	[NT]	21	16	14	13	97	101

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	39	29/06/2021	29/06/2021		[NT]	[NT]
Date analysed	-			[NT]	39	29/06/2021	29/06/2021		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	39	4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	39	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	39	25	15	50	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	39	3	4	29	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	39	13	12	8	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	39	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	39	3	3	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	39	6	8	29	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

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

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.
Note: Sample 272409-6 was sub-sampled from a jar provided by the client.

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.
Note: Samples 272409-2, 9, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 47, 51, 53, 55, 58, 61, 64, 67, 70 were sub-sampled from bags provided by the client.

TRH Soil C10-C40 NEPM - # Percent recovery for the surrogate/matrix spike is not possible to report as the high concentration of analytes in sample #3 have caused interference.

Acid Extractable Metals in Soil:
- The laboratory RPD acceptance criteria has been exceeded for 272409-1 for Cr, Pb and Zn. Therefore a triplicate result has been issued as laboratory sample number 272409-83.
- The laboratory RPD acceptance criteria has been exceeded for 272409-39 for Cr. Therefore a triplicate result has been issued as laboratory sample number 272409-84.
-# Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

PAH_S:
Percent recovery for the matrix spike is not possible to report as the high concentration of analytes in sample/s 272409-5 have caused interference.

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Sample Receipt Advice

Company name:	Martens & Associates Pty Ltd
Contact name:	Dean Shi
Project name:	ST CLAIR DSI
Project ID:	P20007910
Turnaround time:	5 Day
Date/Time received	Jun 24, 2021 3:40 PM
Eurofins reference	805945

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.
X	Split sample sent to requested external lab.
X	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Received DUP02 instead of DUP03.

Contact

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

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Dean Shi - dshi@martens.com.au.

Note: A copy of these results will also be delivered to the general Martens & Associates Pty Ltd email address.

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NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
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Attention: **Dean Shi**

Report **805945-S**
Project name ST CLAIR DSI
Project ID P20007910
Received Date Jun 24, 2021

Client Sample ID			**DUP02**	**DUP04**
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**S21-Jn52167**	**S21-Jn52168**
Date Sampled			**Jun 22, 2021**	**Jun 22, 2021**
Test/Reference	LOR	Unit		
Heavy Metals				
Arsenic	2	mg/kg	25	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	55	29
Copper	5	mg/kg	12	6.6
Lead	5	mg/kg	25	21
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	21	17
% Moisture	1	%	11	11

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
Metals M8	Sydney	Jun 25, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Sydney	Jun 25, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Project Name: ST CLAIR DSI
Project ID: P20007910

Order No.:
Report #: 805945
Phone: 02 9476 9999
Fax: 02 9476 8767

Received: Jun 24, 2021 3:40 PM
Due: Jul 1, 2021
Priority: 5 Day
Contact Name: Dean Shi

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Metals M8	Moisture Set
Melbourne Laboratory - NATA Site # 1254							
Sydney Laboratory - NATA Site # 18217						X	X
Brisbane Laboratory - NATA Site # 20794							
Perth Laboratory - NATA Site # 23736							
Mayfield Laboratory - NATA Site # 25079							
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	DUP02	Jun 22, 2021		Soil	S21-Jn52167	X	X
2	DUP04	Jun 22, 2021		Soil	S21-Jn52168	X	X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples 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.

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

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	99			80-120	Pass	
Cadmium	%	92			80-120	Pass	
Chromium	%	91			80-120	Pass	
Copper	%	90			80-120	Pass	
Lead	%	92			80-120	Pass	
Mercury	%	108			80-120	Pass	
Nickel	%	90			80-120	Pass	
Zinc	%	92			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-Jn46728	NCP	%	97			75-125	Pass	
Cadmium	S21-Jn46728	NCP	%	102			75-125	Pass	
Chromium	S21-Jn46728	NCP	%	80			75-125	Pass	
Copper	S21-Jn46728	NCP	%	97			75-125	Pass	
Lead	S21-Jn54648	NCP	%	80			75-125	Pass	
Mercury	S21-Jn46728	NCP	%	113			75-125	Pass	
Nickel	S21-Jn46728	NCP	%	101			75-125	Pass	
Zinc	S21-Jn54648	NCP	%	88			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Jn52982	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S21-Jn52982	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Jn52982	NCP	mg/kg	11	12	9.0	30%	Pass	
Copper	S21-Jn52982	NCP	mg/kg	8.4	14	51	30%	Fail	Q15
Lead	S21-Jn52982	NCP	mg/kg	< 5	5.8	50	30%	Fail	Q15
Mercury	S21-Jn52982	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-Jn52982	NCP	mg/kg	9.8	12	17	30%	Pass	
Zinc	S21-Jn52982	NCP	mg/kg	26	38	37	30%	Fail	Q15
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-Jn52133	NCP	%	20	20	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
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:

Ursula Long	Analytical Services Manager
John Nguyen	Senior Analyst-Metal (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.

Attachment G: 95% UCL Calculations

Nonparametric UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.18/07/2021 11:36:28 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C0

General Statistics

Total Number of Observations	23	Number of Distinct Observations	3
		Number of Missing Observations	0
Minimum	0.025	Mean	0.332
Maximum	6.2	Median	0.025
SD	1.292	Std. Error of Mean	0.269
Coefficient of Variation	3.898	Skewness	4.653
Mean of logged Data	-3.293	SD of logged Data	1.342

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0.794	95% Adjusted-CLT UCL (Chen-1995)	1.054
		95% Modified-t UCL (Johnson-1978)	0.838

Nonparametric Distribution Free UCLs

95% CLT UCL	0.775	95% Jackknife UCL	0.794
95% Standard Bootstrap UCL	N/A	95% Bootstrap-t UCL	N/A
95% Hall's Bootstrap UCL	N/A	95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A		
90% Chebyshev(Mean, Sd) UCL	1.14	95% Chebyshev(Mean, Sd) UCL	1.506
97.5% Chebyshev(Mean, Sd) UCL	2.014	99% Chebyshev(Mean, Sd) UCL	3.012

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	1.506		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Attachment H: Unexpected Finds Protocol

It is considered possible that unexpected situations may occur during stripping or bulk earthworks, including the possibility to uncover unidentified environmental concerns. A site contingency plan for managing unexpected situations is to be prepared by the Contractor to address unexpected finds. All site personnel are to be aware of their responsibilities under the unexpected finds protocol and are to report any potential signs of contamination to the site manager immediately. Potential signs of contamination may include (but are not limited to):

- Any PACM observed within soil, e.g. fibrous cement sheeting or piping (intact or fragmented);
- Any unnatural material or fill material not previously identified;
- Any uncovered anthropogenic material within soil not previously identified;
- Any fuel or oil spills;
- Any unnatural soil staining or odours within excavated soil.

In the event the contractor uncovers unexpected finds during remedial works, the following steps are to be undertaken:

1. Cease all work in the area and notify site foreman / manager and environmental consultant.
2. Notify any relevant authorities (e.g. fire brigade) if an emergency response is required.
3. Construct temporary barricading to prevent worker / public access to any unexpected and / or unknown substances.
4. Install appropriate stormwater diversion and sediment controls as required.
5. Notify relevant authorities that the contractor is legally required to notify (e.g. EPA and / or Council).
6. Site foreman / manager is to arrange site inspection by the environmental consultant to assess the unexpected find and determine if any sampling or remedial action is required in the area.

The environmental consultant shall prepare an assessment outlining the nature and extent of contamination, and remediation or management procedures required to address the unexpected find. If remedial action

is required, written validation of each unexpected find is to be prepared by MA and provided to the contractor prior to the recommencing of works ceased as a result of the unexpected find.