



**GEO-ENVIRONMENTAL
GROUND INVESTIGATION ASSESSMENT
AT PB LEINERS (PB GELATINS), 'A18',
CF37 5TN**

**Pb Gelatins UK Ltd
Gwaelod-Y-Garth Rd,
Pontypridd
CF37 5TN**



**ECL Ref: ECL.109.01.01/GIR
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GEOENVIRONMENTAL ASSESSMENT AT PB LEINERS, CARDIFF

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ACRONYMS / TERMS USED IN THIS REPORT

BH	Borehole
C4SLs	Category 4 Screening Levels
CIEH	Chartered Institute of Environmental Health
CLEA	Contaminated Land Assessment Criteria
CLR 11	Model Procedures for the Management of Land Contamination
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
ECL	Environmental Compliance Limited
GAC	Generic Assessment Criteria
GQRA	Generic Quantitative Risk Assessment
HDP	Hand-Dug Pit
LOD	Limit of Detection
mbgl	Meters Below Ground Level
NaOH	Sodium hydroxide
NRW	Natural Resources Wales
S4ULs	Suitable 4 Use Levels
SGV	Soil Guideline Value
SSV	Site Screening Value
VOC	Volatile Organic Compounds
sVOC	Semi-Volatile Organic Compound

1. BACKGROUND

1.1. Overview

- 1.1.1. Environmental Compliance Limited (“ECL”) have been commissioned by PB Gelatins (PB Leiner) to undertake a site investigation at the PB Gelatins site, ‘A18’, located off Gwaelod-Y-Garth Rd, Pontypridd, CF37 5TN; following an environmental incident involving the spillage of sodium hydroxide on the 26th May 2020. The approximate location of the spill is outlined in Figure 1, below.
- 1.1.2. It is ECL’s understanding that the incident on the 26th May 2020 involved the accidental release of approximately 14 tonnes of (liquid) sodium hydroxide (“NaOH”) from a bulk storage container, onto the concrete apron surrounding the storage vessel and into the Farm drainage system, following the delivery of 20 tonnes of NaOH.
- 1.1.3. Immediate measures have been taken as follows; the bulk storage tank has been manually isolated at the outlet valve and all auto valves have been shut off, preventing any further call on the bulk storage vessel. The concrete apron was washed down with water, which was discharged into the sites drainage system. It is understood that all discharge to Welsh Water was within agreed discharge consent limits.
- 1.1.4. Following inspection of the Chemiguard unit, it was found that the pipework within the unit at the pump side was not connected. It was also noted that only 5.9tonnes of NaOH remained within the bulk storage vessel, following the 20tonne delivery.
- 1.1.5. The purpose of this ground investigation is to obtain environmental (soil) samples from beneath the concrete pad in order to ascertain the level of contamination and satisfy ‘Action 4’ of Compliance Assessment Report ID: CAR_NRW0036724 (dated 22/06/2020).

Figure 1: Approximate Spill Location



1.2. Scope of Works

- 1.2.1. The works undertaken as part of this report are presented below;
- A Geoenvironmental assessment, based on the findings of an intrusive investigation. Outlining the concentrations of contamination encountered, associated with the recent spill, and assessing the potential to cause harm to human health and controlled waters using the relevant threshold values.
- 1.2.2. This assessment would be undertaken, where possible, in accordance with current guidance, such as LCRM – ‘Land contamination: risk management’ (Environment Agency, 2020), CLR 11 and ‘Model Procedures for the Management of Land Contamination’ (Environment Agency, 2004), BS10175-A2:2017 (Investigation of potentially contaminated sites, code of practice), BS5930-A3:2015 (Code of practice for site investigation), BS ISO 5667-11:2009 ‘Guidance on sampling of groundwaters’.
- 1.2.3. As per the specified requirements of BS10175, a desk study must be undertaken. This has been conducted by Integral Geotechnique (Wales) Limited, report reference 12588/PB/20/SCR, and ECL’s conceptual understanding of the site is based on the information contained therein.

1.3. Existing Site Conditions

- 1.3.1. From previous intrusive site investigation undertaken by Integral Geotechnique (Wales) Limited – Site Investigation Report 10299/GNS/09, it is understood the site is underlain by relatively homogenous ‘Made Ground’ comprising hardcore like materials and anthropogenic materials including brick, ash, clinker, metal, concrete and pottery. The presence of cobbles and boulders was noted in the Made Ground. It is understood the Made Ground extends to a greatest depth of 1.6mbgl.
- 1.3.2. Soil sampling and laboratory analysis identified a number of contaminants including metals, semi-metals, PAHs and hydrocarbon compounds. These were however considered unlikely to migrate and affect controlled waters. The desk study has indicated previous site use included metal alloy works and heavy and light industrial uses including Gelatin manufacture.
- 1.3.3. Groundwater was first encountered at a depth of 3.2mbgl in BH1, however in both BH1 and BH2 groundwater fell to 10.6m following completion of the drilling. Groundwater flow direction is anticipated to be north/easterly toward the River Taff. The site is underlain by shallow Secondary A aquifer and deeper secondary A bedrock aquifer (permeable layers capable of supporting water supplies at a local rather than strategic scale).
- 1.3.4. The Made Ground was immediately underlain by a thin mantle of superficial clay which was in turn underlain by superficial deposits comprising sands, gravels and cobbles. These variable, but predominantly cohesive alluvial soils were recorded to a proven depth of between 19.7 to 27mbgl.

2. INVESTIGATION AND SAMPLING STRATEGY

2.1. General

- 2.1.1. A Dynamic Sampling (window sampling) rig was utilised to obtain the necessary soil samples from beneath the concrete pad in order to ascertain the level of contamination and satisfy **'Action 4'** of Compliance Assessment Report ID: **CAR_NRW0036724** (dated 22/06/2020). Soil geo-chemical analyses were scheduled on samples obtained from within the spill impacted area and one location (HDP1), not known to have been impacted by the spillage of NaOH.
- 2.1.2. All works were undertaken on the 27th November 2020 in accordance with BS5930:2015, BS10175:A2 (2017) and the methodology outlined in document reference *'ECL.109.01.01. Method Statement'*, approved by Natural Resources Wales ("NRW") on the 23rd November 2020. All works were supervised by suitably experienced personnel from ECL.
- 2.1.3. All boreholes were backfilled and reinstated with concrete at ground surface in order to prevent the creation of potential pathways for contaminants to migrate through the concrete hardstanding to deeper strata and groundwater. The concrete hardstanding across the investigated site area was noted to be in good condition with no visible cracks or deterioration.
- 2.1.4. No shallow groundwater body was encountered during the progression of 3No. boreholes within the spill impacted area on the 27th November 2020. The greatest depth achieved by the window sampling rig was 3.1mbgl before refusal on cobble sized gravels of the superficial deposits. As such, no groundwater monitoring standpipes were installed and no groundwater sampling was undertaken.
- 2.1.5. A site baseline condition, against which samples from the spill impacted area are to be compared against, has been established through the geochemical analysis of soils from location 'HDP1', not known to have been impacted by the spill. Supported by information on soil pH contained within previous intrusive site investigation Report 10299/GNS/09.
- 2.1.6. The intrusive investigations location plan is provided as Appendix I of this report with the rationale behind each intrusive location presented in Table 1 below.

Table 1: Exploratory Hole Rationale

Location	Notes	Location Rationale
WS01	Spill impacted area (western area)	Boreholes progressed for the collection of environmental samples from beneath the concrete slab in order to satisfy 'Action 4' of Compliance Assessment Report ID: CAR_NRW0036724.
WS02	Spill impacted area (central)	
WS03	Spill impacted area (eastern area)	
HDP1	'Upgradient' site area not known to have been impacted by the spill. East of the spill area	Hand-dug trial pit, in the nearest suitable location not known to have been impacted by the spill, for the collection of environmental samples in order to support the determination of a site baseline condition, against which relevant contaminant concentrations will be compared.

- 2.1.8. A 'quick check' field test using a 'Digital Instruments' Lutron PH-220S soil pH meter was conducted to gain a preliminary understanding of the soil pH and depth to which soils may have been contaminated by NaOH. Readings within the range of pH 7.4 - 7.9 were measured across all intrusive locations, indicating the sub-concrete slab soils are not likely to have been impacted by the NaOH spill. Whilst the field measurement was useful for a 'quick-check' method, soil pH values measured by the UKAS/MCERTS accredited laboratory will be utilised for the purposed of this assessment.
- 2.1.9. Disturbed soil samples were collected from the recovered cores using a stainless-steel trowel, wiped clean between sampling locations. The near surface soil sample of HDP1 was collected using a stainless-steel hand auger. Soil samples were collected directly into pre-labelled sample containers. Care was taken to minimise head space of the sample containers. Once filled sample containers were placed within cool boxes containing ice packs to maintain as cool a temperature as possible, nominally 4°C, and stored in a refrigerator until collected by courier.
- 2.1.10. Samples were collected by courier, on the 30th November 2020, and delivered to the i2 Analytical UKAS/MCERTS accredited laboratory on the 1st December 2020. Geochemical testing was conducted in accordance with ISO17025 and MCERTS accredited. All samples were accompanied by detailed chain of custody sheets.

- 2.1.11. A summary of the analytical suites is as follows;
- **Soils Suite:** Screening for heavy metals, semi-metals, pH, phenols, cyanide, sulphide, speciated polycyclic aromatic hydrocarbons (“PAHs”), mineral oil, total petroleum hydrocarbons (“TPH”) including product ID, asbestos screen, VOC and sVOC.
 - **Leachate Suite:** Screening for heavy metals, semi metals, pH, cyanide, sulphide, speciated polycyclic aromatic hydrocarbons (“PAHs”), total petroleum hydrocarbons (“TPH: CWG”), VOC, sVOC. Calcium, magnesium, potassium and sodium are covered by this analytical suite.

2.1.12. All certificates of analysis are presented in Appendix III.

2.2. Encountered materials summary

2.2.1. The encountered materials were predominantly made ground underlain by superficial deposits comprising sands, silts and gravels. The generalised ground profile encountered at the site is summarised in Table 2 below. Multiple perched water strikes were encountered within the silty sands. Groundwater was encountered in BH03, rising to a depth of 1.89mbgl following completion of drilling.

Table 2: Generalised Ground Profile

Depth (mbgl)	Encountered Material
0.0 – 0.28	<p>Concrete Hardstanding: An impermeable concrete hardstanding of medium to coarse aggregate, with a sealed drainage system is present across the entire investigated site area (chemical bulk storage container area). The hardstanding was observed to be in good condition with no visible cracks or deterioration.</p> <p>The hardstanding was approximately 30cm thick across WS2 and WS3, but was encountered to be 83cm thick at WS1.</p>
1.1 greatest encountered depth. Varied thickness.	<p>Made Ground: Reddish-brown to dark brown-black, clayey, medium sand with medium to coarse angular gravel of various lithologies with infrequent red-brick fragments. ‘Hardcore’ like materials.</p>
1.1 – 2.6	<p>Silty Sand: Loose to medium dense, yellowish brown, reddish-brown in places, slightly silty, clayey fine to medium sand with infrequent fine to medium gravel of sandstone and mudstone.</p>
3.6 - 4.7	<p>Sandy Gravel: Medium dense, grey-ish brown coarse sub-rounded to rounded gravel of various lithologies (Sandstone, Limestone, Chert, Mudstone) with occasional cobble fragments and infill of coarse, slightly silty sand.</p>

2.2.2. All borehole logs are enclosed within Appendix II of this report.

3. CONTAMINATION CHARACTERISATION

3.1. Legislation

3.1.1. Contaminated Land is defined in Part IIA of the Environmental Protection Act (1990) as: “Any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reasons of substances in, on or under the land that:

- Significant harm is being caused or there is a significant possibility of such harm being caused; or
- *significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused.”

3.1.2. **Section 86 of the Water Act 2003 amends section 78A of Environmental Protection Act 1990 for Controlled Waters.*

3.2. Generic Quantitative Risk Assessment

3.2.1. Identified Potential Receptors and Pathways

3.2.2. Potential receptors identified as part of the generic risk assessment are:

- Current/future site users; and
- Controlled waters (Groundwaters and the River Taff).

3.2.3. Potential contaminant pathways identified as part of the generic risk assessment include:

- Dermal contact – contact with soil, dust or water;
- Ingestion - ingestion of soil, dust or water;
- Inhalation – inhalation of soil, dust or vapours; and
- Vertical and horizontal migration of contaminants through the unsaturated and saturated zones – contaminants leached from ground materials by infiltrated rainwater, migrating along preferential pathways.

Human Health Screening

3.2.4. Current legislation and guidance on the assessment of contaminated land promotes a tiered risk approach (LCRM). The generic quantitative risk assessment (“GQRA”) approach comprises a screening of identified contaminants against generic guideline values that are appropriate to the site setting and the receptors concerned. For risks to human health the basis for these generic guideline values are the methodologies set out by the Environment Agency’s Contaminated Land Exposure Assessment (“CLEA”) guidelines.

3.2.5. The following regulatory and industry guidance has been utilised for the selection of Generic Assessment Criteria (“GAC”) utilised as part of the GQRA. The order of the guidance listed is in terms of hierarchy for selection of GACs (where the land uses and parameters are considered most applicable).

- Category 4 Screen Levels (C4SLs) – DEFRA (2014);
- Soil Guidance Values (SGVs) – Environment Agency (2009);

- Suitable for Use Levels (“S4UIs”) – LQM/CIEH (2015); and
- CL:AIRE Generic Assessment Criteria (“GAC”) (2009)

- 3.2.6. In the absence of a published UK derived GAC for cyanide, the GQRA for total cyanide is based upon comparison of recorded values against the Dutch Intervention Value for free cyanide (VROM 2000).
- 3.2.7. The current site use is industrial. Therefore, the standard land use for the site, for use in the assessment has been defined as “Commercial” in accordance with current guidance. The human health screening assessment spreadsheets are contained within Appendix IV of this report.

Controlled Waters Screening

- 3.2.8. Risks to controlled waters have been assessed following current Environment Agency guidance such as “Remedial Targets Methodology – Hydrological Risk Assessment for Land Contamination”. This guidance describes a tiered approach to the assessment and, if necessary, derivation of remedial targets for soils and groundwater with the emphasis on the protection of controlled waters.
- 3.2.9. In accordance with EA guidance a Level 2 soil (leachability) screening assessment has been undertaken, to identify the contaminants of concern that may pose a risk to controlled waters namely groundwaters and the River Taff. This assessment has been undertaken by the comparison of soil leachate contaminant concentrations with criteria applicable to the long-term protection of water quality.
- 3.2.10. Analytical results have been assessed against Environment Agency EQSs for surface waters as presented within H1 Annex D1: Assessment of Hazardous Pollutants within Surface Water Discharges V2.0 (October 2014), River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) 2010, where available. Where such standards are not available, analytical results have been assessed against The Water Supply (Water Quality) Regulations 2010.

3.3. Soil Analysis – Human Health

- 3.3.1. Soil samples were collected and analysed from both made ground and natural soils. Certificates of analysis for the samples are contained within Appendix III.
- 3.3.2. Current guidance for the statistical assessment of environmental data within a contaminated land context is detailed within the CIEH and CL:AIRE joint publication titled ‘Guidance on Comparing Soil Concentration Data with a Critical Concentration’ (2008). However, as judgemental sampling has been undertaken, statistical assessment as detailed in CL:AIRE (2008) has not been carried out as part of this assessment. Therefore, to identify Contaminants of Potential Concern (“COPC”) as part of this assessment, the analytical results for the ground materials sampled have been assessed by the screening of individual analyses against the relevant Tier 1 Site Screening Values (SSVs) adopted.
- 3.3.3. For generic assessment purposes, SSVs have been conservatively selected, where

appropriate, based upon a sandy soil and Soil Organic Matter (SOM) of 1%.

Site Background Data

- 3.3.4. The site baseline conditions, against which samples from the spill impacted area are to be compared against, have been determined through the analysis of one sample (sample HDP1) from the nearest suitable site area, not known to have been impacted by the spillage of NaOH. Supported by information on soil pH contained within previous intrusive site investigation Report 10299/GNS/09.
- 3.3.5. It should be noted that no exceedances of the relevant threshold values, for the protection of human health, were identified within HDP1, when screening against a 'commercial' land use. The certificate of analysis is enclosed within Appendix III.
- 3.3.6. Table 3 summarises the measured background concentrations of sodium and pH, parameters utilised to identify materials that have been contaminated by NaOH.

Table 3: Site Background Soil Concentration Values – HDP1

Determinand	Location	Depth (mbgl)	Measured value	Comment
pH			9.0	
Sodium			290 mg/kg	
Magnesium	HDP1	0.0 – 0.4	6,7000 mg/kg	Background concentration
Potassium			540 mg/kg	
Calcium			260,000 mg/kg	

- 3.3.7. Information on soil pH contained within previous intrusive site investigation Report 10299/GNS/09 is presented below as Table 4.
- 3.3.8. It should be noted that only a hard copy of report reference 10299/GNS/09 is available at this time, held by PB Leiner. Certificates of chemical analysis for 'TP01', 'TP2' and 'TP3' have been provided to ECL as scanned copies, which have been enclosed within appendix V of this report. Should any additional information be required by NRW, scanned copies would be provided by PB Leiner.

Table 4: Report 10299/GNS/09 - pH analysys summary

Determinand	Location	Depth (mbgl)	Measured value	Comment
pH	TP1	1.2	8.6	2008 measured concentration
	TP2	0.5	9.7	
	TP3	0.4	9.1	

- 3.3.9. The 2008 analytical data is noted to be broadly in line with the pH value measured in soils of HDP1 on the 27th November 2020. The pH value of 9 is taken to be the site background concentration for the remainder of this assessment.

Sodium hydroxide Spill Area

- 3.3.10. 9No. Soil samples from within the spill impacted area were scheduled for chemical testing. The full certificates of analysis are enclosed within Appendix III. A summary of the parameters utilised to identify materials that have been contaminated by NaOH is presented within Table 5.
- 3.3.11. It should be noted that no exceedances of the relevant threshold values, for the protection of human health, were identified when screening against a ‘commercial’ land use.

Table 5: Soil Analysis Summary – Sodium Hydroxide Spill Area

	WS1a	WS1b	WS1c	WS1d	WS2a	WS2b	WS2c	WS3a	WS3b
Determinand	<i>0.83-1 (mbgl)</i>	<i>1.1-1.2 (mbgl)</i>	<i>1.9-2.0 (mbgl)</i>	<i>2.3-2.4 (mbgl)</i>	<i>0.52-0.92 (mbgl)</i>	<i>1.2-1.4 (mbgl)</i>	<i>2.3-2.6 (mbgl)</i>	<i>0.5-0.7 (mbgl)</i>	<i>1.1-1.3 (mbgl)</i>
pH	10.1	8.1	8.2	7.9	7.9	7.7	7.8	7.8	7.6
Sodium (mg/kg)	170	110	90	150	120	90	110	160	88
Magnesium (mg/kg)	6,200	1,500	1,600	2,000	6,800	1,500	1,600	3,400	2,200
Potassium (mg/kg)	2,000	640	450	560	2,100	520	460	1,500	540
Calcium (mg/kg)	49,000	4,100	3,600	3,200	44,000	2,500	2,500	27,000	6,000

- 3.3.12. If released to soil, sodium hydroxide will separate into sodium cations and hydroxide anions when it comes into contact with moisture, ultimately increasing pH values (decreasing the acidity of the soil). When compared to the measured site background value of pH 9, all samples analysed from within the spill impacted area (with the exception of sample WS1a) are noted to be within the neutral to slightly alkaline range and unlikely to have been impacted by the highly basic NaOH. All sodium concentrations are not noted to be elevated when compared to the site background concentration.
- 3.3.13. Sample WS1a is noted to have a slightly increased pH when compared to the other measured values, however the sodium concentration is not noted to be elevated, suggesting the pH value is not resultant of soil contact with NaOH, but influenced by other pre-existing ground conditions. The concrete hardstanding at location WS1 was measured to be 83cm thick and in good condition, with no observed immediate pathways for spilled NaOH at surface to reach the ground materials.
- 3.3.14. The ammonium (as NH₄) concentration within sample WS1a (concentration of 0.8mg/kg), is noted to be elevated when compared to the remaining soil samples, with all remaining concentrations (with the exception of sample WS1d - 6.3 mg/kg), being recorded as below the Laboratory Limit of Detection (“LOD”). The ammonium concentrations may potentially be contributing to the slightly more alkaline pH value. Leachate tests on sample WS1a

(sample WS1-LC, see Table 6), confirm the presence of ammonium (as NH₄), in concentrations of 280µg/l. The background concentration (measured concentration of HDP1-LC) is observed to be 29µg/l.

3.4. Soil Analysis - Controlled Waters (Leachability)

3.4.1. In absence of groundwater samples being obtained from the spill impacted area, 2No. soil samples were scheduled for a leachability analysis with an additional 3rd leachate test being carried out on the soils of HDP1, in order to obtain site background values. The certificates of analysis are enclosed within Appendix III of this report, with a summary of the parameters utilised to identify materials that have been contaminated by NaOH presented below in Table 6.

Table 6: Soil Leachability Analysis

Determinand	WS1-LC	WS2-LC	HDP1-LC (background)
	0.83-1.03 (mbgl)	0.27-0.42 (mbgl)	0.0-0.4 (mbgl)
Electrical Conductivity	240 (µS/cm)	250 (µS/cm)	77 (µS/cm)
Sodium (dissolved)	3.4	4.1	1.7
Calcium (dissolved)	48	38	9.5
Magnesium (dissolved)	0.57	0.48	2.3
Potassium (dissolved)	7	9.4	1

3.4.2. Sodium hydroxide separates in water to sodium cations (positively charged sodium atoms) and hydroxide anions (negatively charged oxygen and hydrogen atoms), which ultimately decrease the acidity of the water. However, sodium concentrations within the analysed leachate are not noted to be significantly elevated when compared to the HDP1 background value; and whilst the electrical conductivity measurements within the spill impacted area are far higher than the background value, it is noted that calcium (dissolved) concentrations are also significantly higher within the analysed leachate, potentially influencing the leachate electrical conductivity readings.

4. CONTAMINATION SUMMARY

4.1. Summary

- 4.1.1. 9No. Soil samples from within the spill impacted area were scheduled for chemical testing, in order to ascertain the level of contamination and satisfy **'Action 4'** of Compliance Assessment Report ID: **CAR_NRW0036724** (dated 22/06/2020). No evidence of NaOH contamination was observed beneath the concrete hardstanding present within the investigated site area. The concrete hardstanding was measured to be approximately 28cm thick (83cm at location WS1) and in good condition.
- 4.1.2. With the exception of sample WS1a, all soil pH values were observed to be within the neutral to slightly alkaline range and below the site background measurement of pH 9. Additionally, sodium concentrations within all samples were not noted to be elevated when compared to the site background concentration, indicating that the soils are not likely to have been impacted by the highly basic NaOH spillage.
- 4.1.3. Additionally, no exceedances of the threshold values, for the protection of human health, were identified when screening soil determinands against a 'commercial' land use.
- 4.1.4. The slightly increased pH value of 10.1 within sample WS1a is potentially resultant of pre-existing ground conditions and not as a direct consequence of the recent NaOH spillage. The sodium concentration within sample WS1a was not noted to be elevated when compared to the site background. The sample however did display a marginally elevated ammonium (as NH₄) concentration, when compared to other intrusive localities, potentially contributing to the slightly more alkaline pH value.
- 4.1.5. 2No. leachate tests were also undertaken on the sub-concrete ground materials, in the absence of groundwater within the shallow ground materials. Sodium concentrations within the analysed leachate were not noted to be significantly elevated when compared to the background value; and whilst the electrical conductivity measurements within the spill impacted site area were noted to be higher than the background value, calcium (dissolved) concentrations were also significantly higher, potentially influencing the leachate electrical conductivity readings.

4.2. Conclusion

- 4.2.1. The analysed soil samples, from beneath the concrete hardstanding, do not show evidence of impact from the NaOH spillage. The concrete hardstanding and drainage system, within the investigated site area, was observed to be in good condition with no visible cracks or other immediate pathways for contaminants at ground surface to reach ground materials below; pipework and services from the bulk storage containers were noted to run above ground.
- 4.2.2. Based on the undertaken analysis of soil samples from beneath the concrete hardstanding and observations of the impervious hardstanding, it is considered that the sub-slab ground materials have not been impacted by the spillage of sodium hydroxide.

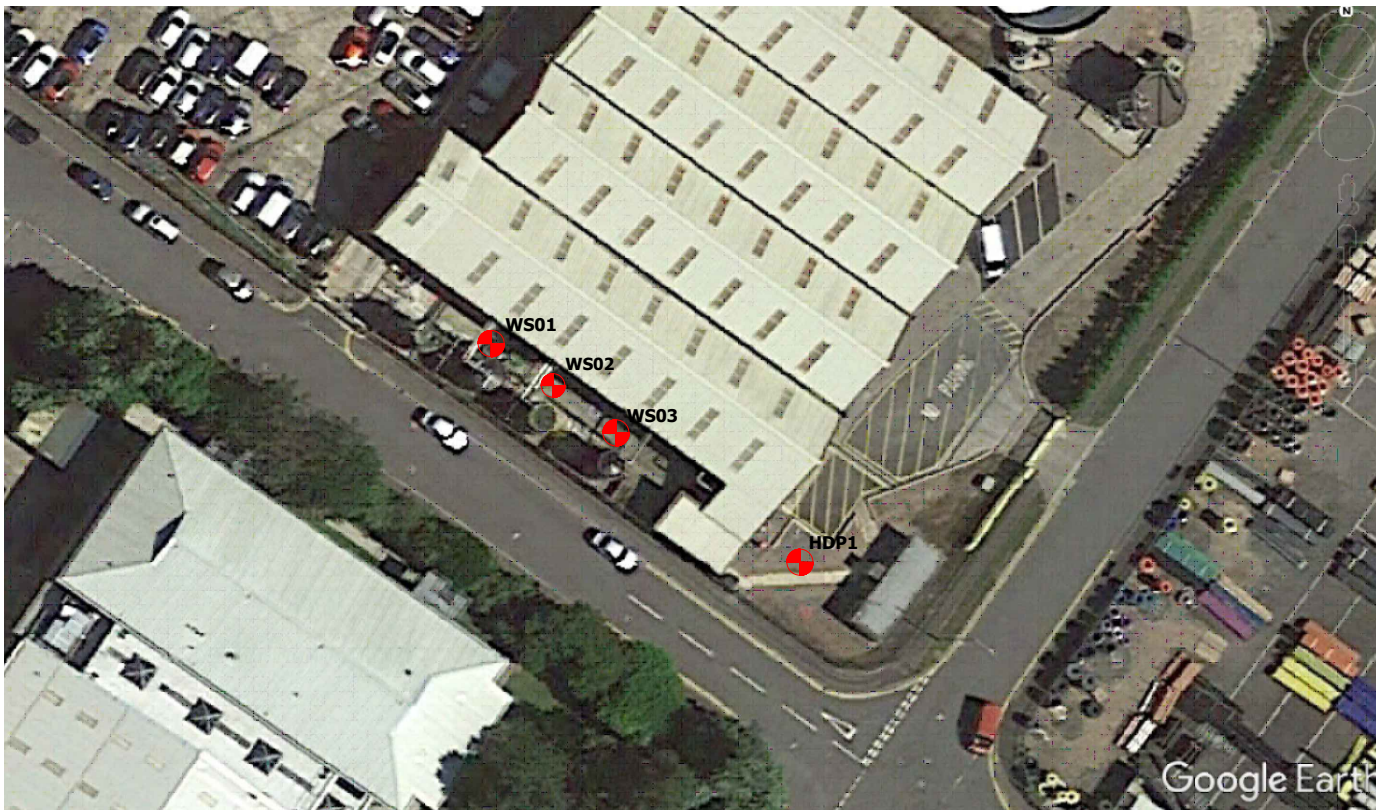
4.3. References

- BS10175 British Standards Institute (2011+A2:2017) Investigation of Potentially Contaminated Land - Code of Practice.
- BS5930 British Standards Institute (2015) Code of Practice for Site Investigation.
- CIEH & CL:AIRE (2008) Guidance on Comparing Soil Contamination Data with a Critical Concentration.
- CL:AIRE, AGS & EIC (2009) The Soil Generic Assessment Criteria for Human Health Risk Assessment.
- DEFRA & Environment Agency (2004). Model Procedures for the Management of Land Contamination. R&D Publication CLR11.
- DEFRA (2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (March 2014).
- Department for the Environment (1995/1996) DOE Industry Profiles.
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- Environment Agency (2013) Groundwater Protection: Principles and Practice (GP3) Version 1.1.
- Environment Agency (2019) LCRM - Land contamination: risk management
- LQM & CIEH (2015) The LQM/CIEH S4ULs for Human Health Risk Assessment.
- Environment Agency (2009) Human health toxicological assessment of contaminants in soil. Science Report SC050021/SR2. Bristol: Environment Agency.
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APPENDIX I - INTRUSIVE INVESTIGATION LOCATIONS PLAN

Exploratory Hole Location:

*Locations are Approximate



Rev	Date	Details	Chkd
-----	------	---------	------

Environmental Compliance Ltd.

Unit G1
The Willowford
Main Avenue
Treforest Industrial Estate
Pontypridd,
CF37 5YL

Tel: 01443 841760
Fax: 01443 841761
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Client

PB Gelatins/PB Leiner UK Ltd

Date	Scale	Drawn by	Checked by	Approved by
03/12/2020	NTS	FT	SB	SB

Drawing Status

Issue 1

Project Title

Ground Investigation at PB Gelatins (PB Leiner), 'The Farm', CF37 5TN

Drawing Title

Intrusive Investigation Locations Plan

Drawing Number	Rev
ECL.109.01.01-01	-

APPENDIX II – BOREHOLE LOGS

PROJECT NUMBER 109.01.01	DRILLING DATE 27/11/2020	Approx. Coordinates (X,Y) 310348, 186861
PROJECT NAME PB Gelatin (PB Leiner) - 'A18'	TOTAL DEPTH 3.10mbgl	
CLIENT PB Leiner	INSTALL DEPTH -	
ADDRESS CF37 5SQ	SCREEN -	
	GROUNDWATER	

COMMENTS	LOGGED BY FT
	CHECKED BY SB - CB

Samples	Sample Type	Depth (m)	Graphic Log	Material Description	Additional Observations	
		0.2		CONCRETE HARDSTANDING: Concrete hardstanding of medium to coarse aggregate		
		0.4				
		0.6		MADE GROUND: Medium dense, reddish-brown to black, clayey, medium sand with medium to coarse angular gravel of limestone and sandstone with infrequent red-brick fragments being observed.		
WS1- LC + WS1a	Soil + Leachate	0.8				
		1.0		SAND: Loose, yellowish-brown, slightly silty, fine to medium sub-rounded sand with occasional medium gravel of sandstone.		
WS1b	Soil	1.2				
		1.4				
		1.6				
		1.8				
WS1c	Soil	2.0		SANDY GRAVEL: Medium dense, grey-ish brown coarse sub-rounded to rounded gravel of various lithologies (Sandstone, Limestone, Chert, Mudstone) with occasional cobble fragments and infill of coarse slightly silty sand.		
		2.2				
WS1d	Soil	2.4				
		2.6				
		2.8				
		3.0				
		3.2		Refusal at 3.1mbgl		
		3.4				
		3.6				
		3.8				
		4.0				
		4.2				
		4.4				
		4.6				
		4.8				

PROJECT NUMBER 109.01.01	DRILLING DATE 27/11/2020	Approx. Coordinates (X,Y) 310354, 186857
PROJECT NAME PB Gelatin (PB Leiner) - 'A18'	TOTAL DEPTH 2.8mbgl	
CLIENT PB Leiner	INSTALL DEPTH -	
ADDRESS CF37 5SQ	SCREEN -	
	GROUNDWATER	

COMMENTS	LOGGED BY FT
	CHECKED BY SB

Samples	Sample Type	Depth (m)	Graphic Log	Material Description	Additional Observations
		0.2		CONCRETE HARDSTANDING: Concrete hardstanding of medium to coarse aggregate	
WS2-LC	Leachate	0.4		MADE GROUND: Medium dense, reddish-brown to black, clayey, medium sand with medium to coarse angular gravel of various lithologies with infrequent red-brick fragments.	
WS2a	Soil	0.6		CONCRETE: Old concrete cement, weathered to coarse sand like material	
		0.8		GRAVELLY SAND: Grey mottled yellowish-brown, slightly silty, medium to coarse sand with medium gravel of subangular to subrounded sandstone and limestone.	
		1.0		SANDY GRAVEL: Medium dense, red-brown, with greenish-brown lenses, slightly silty, clayey medium sand with frequent sub-angular cobble fragments sandstone and mudstone.	
WS2b	Soil	1.2		SILTY SAND: Loose to medium dense, reddish brown slightly silty, clayey fine to medium sand with infrequent fine to medium gravel of sandstone	
		1.4			
		1.6			
		1.8			
		2.0			
		2.2			
WS2c	Soil	2.4		SANDY GRAVEL: Medium dense, grey-ish brown, subrounded to rounded coarse, with frequent cobble fragments, gravel of various lithologies (sandstone, limestone, chert, mudstone) and infill of slightly clayey medium to coarse sand.	
		2.6			
		2.8			
		3.0		Refusal at 2.8mbgl on cobbles.	
		3.2			
		3.4			
		3.6			
		3.8			
		4.0			
		4.2			
		4.4			
		4.6			
		4.8			

PROJECT NUMBER 109.01.01	DRILLING DATE 27/11/2020	Approx. Coordinates (X,Y) 310360, 186851
PROJECT NAME PB Gelatin (PB Leiner) - 'A18'	TOTAL DEPTH 2.9mbgl	
CLIENT PB Leiner	INSTALL DEPTH -	
ADDRESS CF37 5SQ	SCREEN -	
	GROUNDWATER	


COMMENTS	LOGGED BY FT
	CHECKED BY SB

Samples	Sample Type	Depth (m)	Graphic Log	Material Description	Additional Observations
		0.2		CONCRETE HARDSTANDING: Concrete hardstanding of medium to coarse aggregate	
WS3a	Soil	0.4		MADE GROUND: Medium dense, reddish-brown to black, clayey, medium sand with medium to coarse angular gravel of various lithologies.	
		0.6			
		0.8		GRAVEL: Very stiff, very dense, coarse, reddish brown, angular GRAVEL of mudstone and limestone with infill of slightly silty, clayey, fine to medium sand.	
WS3b	Soil	1.0			
		1.2		SILTY SAND: Loose to medium dense, yellowish brown, reddish-brown in places, slightly silty, clayey fine to medium sand with infrequent fine to medium gravel of sandstone and mudstone.	
		1.4			
		1.6			
		1.8			
		2.0			
		2.2			
		2.4			
		2.6			
		2.8		SANDY GRAVEL: Dense, grey-ish brown, subrounded to rounded coarse gravel of various lithologies (sandstone, limestone, chert, mudstone) with some cobbles and infill of slightly clayey medium to coarse sand.	
		3.0		Refusal at 2.9mbgl on cobbles.	
		3.2			
		3.4			
		3.6			
		3.8			
		4.0			
		4.2			
		4.4			
		4.6			
		4.8			

APPENDIX III – CERTIFICATES OF CHEMICAL ANALYSIS

i2 SAMPLE CHAIN OF CUSTODY RECORD

No 0187156

 Environmental Science	7 Woodshots Meadow Croxley Green Business Pk Watford Herts WD18 8YS t: 01923 225 404 f: 01923 237 404	Client: <i>ECL</i> Address: <i>f.taylor@ecl.world</i> Client e-mail: Project/Site Name: <i>Redditch</i> Project/Site Code: <i>109.01.01</i> Contact Name: <i>FILIP TAYLOR</i> Tel: <i>07778325254</i> Fax:	Unit <i>at</i> The Willowford Main Avenue Imperial Industrial Estate, Poulton CF37 5BJ	Date samples dispatched: <i>30/10/20</i> Samples delivered/collected by: Sampler I.d. <i>FT</i> Turnaround time/date results due:	sheet 1 of 1 one project/ site per sheet please Client PO <i>C1940</i>	
	reception@i2analytical.com				Please indicate the analysis required for each sample by marking the boxes	
					CONTAINER	
					OTHER	

Lab Use	BH or TP or Sample ID (Hole ID)	Other ID (Sample Number)	AGS Type (Sample Type)	Depth (m)		Date Sample taken	Time sample taken	S - soil, W - water, L - leachate, O - other	No of containers	CONTAINER					OTHER					
				Sample Top	Sample Base					PT Tub	AJ 250g	SV 60g	AB 300ml	WV 40ml		TB-Tedlar Bag	CT-Carbon Tube	SB-Swab	PB-Plastic Bottle	BAG - Bag
1	✓ WS1	WS1a	S	0.83	1.0			S	3											
2	✓ WS1	WS1b	S	1.1	1.2			S	3											
3	✓ WS1	WS1c	S	1.9	2.0			S	3											
4	✓ WS1	WS1d	S	2.3	2.4			S	3											
5	✓ WS1	WS1-LC	S	0.83	1.03			L	2											
6	✓ WS2	WS2a	S	0.52	0.92			S	3											
7	✓ WS2	WS2b	S	1.2	1.4			S	3											
8	✓ WS2	WS2c	S	2.3	2.6			S	3											
9	✓ WS2	WS2-LC	S	0.27	0.42			L	2											
10	✓ WS3	WS3a	S	0.5	0.7			S	3											
11	✓ WS3	WS3a	S	1.1	1.3			S	3											
12	✓ HDPI	HDPI	S	0.0	0.4			S	3											
13	✓ HDPI	HDPI-LC	S	0.0	0.4			L	3											

Total no. of samples: 13		possible hazard identification Non-Hazard <input type="checkbox"/> Hazardous <input type="checkbox"/> Unknown <input checked="" type="checkbox"/>		i2 QUOTE No	
special instructions / QC; requirements & comments: <i>ECL</i> <i>FILIP TAYLOR</i>			avg. transport temp. _____ hours in transport _____		<i>13225</i>
Sample disposal (a fee maybe assessed if samples are retained longer than 1 month)		return to client <input type="checkbox"/>	disposal by lab <input checked="" type="checkbox"/>	archive for <input type="checkbox"/>	
LAB USE ONLY			Laboratory notes		
Data received:	time:	by:			
Data instructed:	time:	by:			



Filip Taylor
ECL Civil Engineering Ltd
Unit G1, The Willowford
CF37 5BF

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t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: f.taylor@ecl.world

Analytical Report Number : 20-44756

Project / Site name:	109.01.01	Samples received on:	01/12/2020
Your job number:	109.01.01	Samples instructed on/ Analysis started on:	01/12/2020
Your order number:	C1940	Analysis completed by:	10/12/2020
Report Issue Number:	1	Report issued on:	10/12/2020
Samples Analysed:	3 leachate samples - 10 soil samples		

Signed: _____

Rachel Bradley
Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-44756
 Project / Site name: 109.01.01
 Your Order No: C1940

Lab Sample Number				1702924	1702925	1702926	1702927
Sample Reference				WS1a	WS1b	WS1c	WS1d
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.83-1.00	1.10-1.20	1.90-2.00	2.30-2.40
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	16	12	6.4
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected

General Inorganics

	pH Units	N/A	MCERTS	10.1	8.1	8.2	7.9
pH - Automated							
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	820	480	140	70
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	380	45	32	35
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.19	0.022	0.016	0.018
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	192	22.3	16	17.6
Sulphide	mg/kg	1	MCERTS	1.4	1.2	1.2	2.8
Ammonium as NH4	mg/kg	0.5	MCERTS	0.8	< 0.5	< 0.5	6.3
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.4	1.9	0.8	0.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Speciated PAHs

	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene							
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80

Analytical Report Number: 20-44756
 Project / Site name: 109.01.01
 Your Order No: C1940

Lab Sample Number	1702924	1702925	1702926	1702927
Sample Reference	WS1a	WS1b	WS1c	WS1d
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.83-1.00	1.10-1.20	1.90-2.00	2.30-2.40
Date Sampled	27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Aluminium (aqua regia extractable)	mg/kg	30	ISO 17025	8000	7200	5000	5300
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.3	4.2	2.7	2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.9	17	7.2	5.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	110	20	30
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.95	0.69	0.84	0.61
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.3	0.3	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	15	12	14
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	89	14	15	8.5
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.7	21	11	8.2
Iron (aqua regia extractable)	mg/kg	40	MCERTS	30000	38000	41000	33000
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	32	11	8.7
Lithium (aqua regia extractable)	mg/kg	0.1	NONE	20	14	12	15
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	1200	1600	490	460
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3	0.4	1.2
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.69	0.74	0.55	0.55
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	16	18	20
Phosphorus (aqua regia extractable)	mg/kg	20	ISO 17025	390	770	350	2000
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.4	< 1.0	< 1.0
Tin (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	3	< 1.0	1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	27	18	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40	68	53	57
Calcium (aqua regia extractable)	mg/kg	20	ISO 17025	49000	4100	3600	3200
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	6200	1500	1600	2000
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	2000	640	450	560
Sodium (aqua regia extractable)	mg/kg	20	ISO 17025	170	110	90	150

Analytical Report Number: 20-44756
 Project / Site name: 109.01.01
 Your Order No: C1940

Lab Sample Number	1702924	1702925	1702926	1702927
Sample Reference	WS1a	WS1b	WS1c	WS1d
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.83-1.00	1.10-1.20	1.90-2.00	2.30-2.40
Date Sampled	27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Monoaromatics & Oxygenates

Compound	Units	Limit of detection	Accreditation Status	1702924	1702925	1702926	1702927
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	mg/kg	10	NONE	95	< 10	< 10	< 10
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	2.8	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	8.1	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	13	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	35	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	59	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	39	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	39	< 10	< 10	< 10

VOCs

Compound	Units	Limit of detection	Accreditation Status	1702924	1702925	1702926	1702927
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 20-44756
 Project / Site name: 109.01.01
 Your Order No: C1940

Lab Sample Number				1702924	1702925	1702926	1702927
Sample Reference				WS1a	WS1b	WS1c	WS1d
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.83-1.00	1.10-1.20	1.90-2.00	2.30-2.40
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3

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Lab Sample Number				1702924	1702925	1702926	1702927
Sample Reference				WS1a	WS1b	WS1c	WS1d
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.83-1.00	1.10-1.20	1.90-2.00	2.30-2.40
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05



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Lab Sample Number	1702924	1702925	1702926	1702927
Sample Reference	WS1a	WS1b	WS1c	WS1d
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.83-1.00	1.10-1.20	1.90-2.00	2.30-2.40
Date Sampled	27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Miscellaneous Organics				
Product ID		N/A	NONE	See Appendix
				See Appendix
				See Appendix
				See Appendix

U/S = Unsuitable Sample I/S = Insufficient Sample

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Lab Sample Number	1702928	1702929	1702930	1702931			
Sample Reference	WS2a	WS2b	WS2c	WS3a			
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	0.52-0.92	1.20-1.40	2.30-2.60	None Supplied			
Date Sampled	27/11/2020	27/11/2020	27/11/2020	27/11/2020			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	15	12	14
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	7.7	7.8	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	150	86	320	180
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	76	83	63	2.7
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.038	0.041	0.032	0.0013
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	37.9	41.4	31.6	1.3
Sulphide	mg/kg	1	MCERTS	3.5	< 1.0	< 1.0	< 1.0
Ammonium as NH4	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.5	0.9	1	1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80

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Lab Sample Number				1702928	1702929	1702930	1702931
Sample Reference				WS2a	WS2b	WS2c	WS3a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.52-0.92	1.20-1.40	2.30-2.60	None Supplied
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Heavy Metals / Metalloids							
Aluminium (aqua regia extractable)	mg/kg	30	ISO 17025	5800	6100	4900	7900
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.2	3.4	3.9	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	11	6.7	8.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	180	60	29	140
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.6	0.51	0.87	0.89
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	< 0.2	0.9
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	12	13	180
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	10	10	11	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	16	9.3	24
Iron (aqua regia extractable)	mg/kg	40	MCERTS	27000	36000	40000	29000
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19	14	11	43
Lithium (aqua regia extractable)	mg/kg	0.1	NONE	9	13	12	18
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	2800	940	820	1000
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	1.3	0.86	0.49	0.77
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	14	17	23
Phosphorus (aqua regia extractable)	mg/kg	20	ISO 17025	490	450	440	1600
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tin (aqua regia extractable)	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	1.7
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	17	16	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40	45	53	91
Calcium (aqua regia extractable)	mg/kg	20	ISO 17025	44000	2500	2500	27000
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	6800	1500	1600	3400
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	2100	520	460	1500
Sodium (aqua regia extractable)	mg/kg	20	ISO 17025	120	90	110	160

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Lab Sample Number				1702928	1702929	1702930	1702931
Sample Reference				WS2a	WS2b	WS2c	WS3a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.52-0.92	1.20-1.40	2.30-2.60	None Supplied
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	mg/kg	10	NONE	360	< 10	< 10	< 10
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TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	4	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	33	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	280	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	320	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	76	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	78	< 10	< 10	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

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Lab Sample Number				1702928	1702929	1702930	1702931
Sample Reference				WS2a	WS2b	WS2c	WS3a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.52-0.92	1.20-1.40	2.30-2.60	None Supplied
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3

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Lab Sample Number				1702928	1702929	1702930	1702931
Sample Reference				WS2a	WS2b	WS2c	WS3a
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.52-0.92	1.20-1.40	2.30-2.60	None Supplied
Date Sampled				27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05



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Lab Sample Number		1702928	1702929	1702930	1702931
Sample Reference		WS2a	WS2b	WS2c	WS3a
Sample Number		None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)		0.52-0.92	1.20-1.40	2.30-2.60	None Supplied
Date Sampled		27/11/2020	27/11/2020	27/11/2020	27/11/2020
Time Taken		None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Miscellaneous Organics					
Product ID		N/A	NONE	See Appendix	See Appendix

U/S = Unsuitable Sample I/S = Insufficient Sample

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Lab Sample Number				1702932	1702933
Sample Reference				WS3b	HDP1
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	3.6
Total mass of sample received	kg	0.001	NONE	0.9	0.9

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1
Total Sulphate as SO4	mg/kg	50	MCERTS	840	270
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	140	49
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.07	0.025
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	69.8	24.6
Sulphide	mg/kg	1	MCERTS	< 1.0	13
Ammonium as NH4	mg/kg	0.5	MCERTS	< 0.5	< 0.5
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.3	0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80
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Lab Sample Number				1702932	1702933
Sample Reference				WS3b	HDP1
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids					
Aluminium (aqua regia extractable)	mg/kg	30	ISO 17025	6700	2200
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	1400
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.47	0.33
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	28
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	10	2.8
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	8
Iron (aqua regia extractable)	mg/kg	40	MCERTS	31000	22000
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	32
Lithium (aqua regia extractable)	mg/kg	0.1	NONE	12	8
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	960	1700
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.94	0.87
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	6.8
Phosphorus (aqua regia extractable)	mg/kg	20	ISO 17025	660	210
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.7
Tin (aqua regia extractable)	mg/kg	1	MCERTS	1.4	5
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18	9.6
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	45	73
Calcium (aqua regia extractable)	mg/kg	20	ISO 17025	6000	260000
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	2200	67000
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	540	540
Sodium (aqua regia extractable)	mg/kg	20	ISO 17025	88	290

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Lab Sample Number				1702932	1702933
Sample Reference				WS3b	HDP1
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Monoaromatics & Oxygenates					
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	mg/kg	10	NONE	< 10	< 10
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TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0

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Lab Sample Number				1702932	1702933
Sample Reference				WS3b	HDP1
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3

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Sample Reference				WS3b	HDP1
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05



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Lab Sample Number				1702932	1702933
Sample Reference				WS3b	HDP1
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				27/11/2020	27/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Miscellaneous Organics					
Product ID				N/A	NONE
				See Appendix	See Appendix

U/S = Unsuitable Sample I/S = Insufficient Sample



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Lab Sample Number	1702934	1702935	1702936
Sample Reference	WS1-LC	WS2-LC	HDPI-LC
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	0.83-1.03	None Supplied	None Supplied
Date Sampled	27/11/2020	27/11/2020	27/11/2020
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

General Inorganics

Parameter	Units	Limit of detection	Accreditation Status	1702934	1702935	1702936
Electrical Conductivity	µS/cm	10	ISO 17025	240	250	77
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Complex Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Sulphate as SO4	mg/l	0.1	ISO 17025	29.1	18.2	5.9
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Chloride	mg/l	0.15	ISO 17025	5.2	4.5	3.8
Ammonium as NH4	µg/l	15	NONE	280	92	29
Total Organic Carbon (TOC)	mg/l	0.1	NONE	9.11	6.93	3.51

Speciated PAHs

Parameter	Units	Limit of detection	Accreditation Status	1702934	1702935	1702936
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01

Total PAH

Parameter	Units	Limit of detection	Accreditation Status	1702934	1702935	1702936
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2



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Lab Sample Number	1702934	1702935	1702936
Sample Reference	WS1-LC	WS2-LC	HDPI-LC
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	0.83-1.03	None Supplied	None Supplied
Date Sampled	27/11/2020	27/11/2020	27/11/2020
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

Heavy Metals / Metalloids

Aluminium (dissolved)	mg/l	0.012	ISO 17025	3	2.6	0.71
Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	4.7	9.6	1.5
Barium (dissolved)	µg/l	0.05	ISO 17025	14	13	230
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	47	30	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.4	1.8	1.3
Cobalt (dissolved)	µg/l	0.3	ISO 17025	10	3.5	< 0.3
Copper (dissolved)	µg/l	0.7	ISO 17025	17	23	1.8
Iron (dissolved)	mg/l	0.004	ISO 17025	0.038	0.13	0.11
Lead (dissolved)	µg/l	1	ISO 17025	3	4.1	4
Lithium (dissolved)	µg/l	30	NONE	< 30	< 30	< 30
Manganese (dissolved)	µg/l	0.06	ISO 17025	60	46	190
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	3.6	< 0.4	< 0.4
Nickel (dissolved)	µg/l	0.3	ISO 17025	1	1.1	< 0.3
Phosphorus (dissolved)	µg/l	30	NONE	160	150	190
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Tin (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	9.4	9.9	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	2.2	2.7	6.7

Calcium (dissolved)	mg/l	0.012	ISO 17025	48	38	9.5
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.57	0.48	2.3
Potassium (dissolved)	mg/l	0.025	ISO 17025	7	9.4	1
Sodium (dissolved)	mg/l	0.01	ISO 17025	3.4	4.1	1.7



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Lab Sample Number	1702934	1702935	1702936
Sample Reference	WS1-LC	WS2-LC	HDP1-LC
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	0.83-1.03	None Supplied	None Supplied
Date Sampled	27/11/2020	27/11/2020	27/11/2020
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10
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TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1-dichloroethene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1-dichloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2-dichloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2-dichloropropane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0



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Lab Sample Number	1702934	1702935	1702936			
Sample Reference	WS1-LC	WS2-LC	HDP1-LC			
Sample Number	None Supplied	None Supplied	None Supplied			
Depth (m)	0.83-1.03	None Supplied	None Supplied			
Date Sampled	27/11/2020	27/11/2020	27/11/2020			
Time Taken	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status			
Cis-1,3-dichloropropene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
ter-Butylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,3-dichlorobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
P-Isopropyltoluene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2-dichlorobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,4-dichlorobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	0.1	NONE	< 0.1	< 0.1	< 0.1
1,2,3-Trichlorobenzene	µg/l	1	NONE	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05



Analytical Report Number: 20-44756
Project / Site name: 109.01.01

Your Order No: C1940

Lab Sample Number	1702934	1702935	1702936			
Sample Reference	WS1-LC	WS2-LC	HDP1-LC			
Sample Number	None Supplied	None Supplied	None Supplied			
Depth (m)	0.83-1.03	None Supplied	None Supplied			
Date Sampled	27/11/2020	27/11/2020	27/11/2020			
Time Taken	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status			
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.02	NONE	< 0.02	< 0.02	< 0.02
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01

Miscellaneous

Product ID		N/A	NONE	See Appendix	See Appendix	See Appendix
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U/S = Unsuitable Sample I/S = Insufficient Sample

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1702924	WS1a	None Supplied	0.83-1.00	Brown clay with gravel.
1702925	WS1b	None Supplied	1.10-1.20	Brown loam and clay with gravel and vegetation.
1702926	WS1c	None Supplied	1.90-2.00	Brown loam and sand with gravel.
1702927	WS1d	None Supplied	2.30-2.40	Brown loam and sand with gravel.
1702928	WS2a	None Supplied	0.52-0.92	Brown loam and clay with gravel.
1702929	WS2b	None Supplied	1.20-1.40	Brown loam and clay with gravel.
1702930	WS2c	None Supplied	2.30-2.60	Brown loam and clay with gravel.
1702931	WS3a	None Supplied	None Supplied	Brown loam and clay with gravel.
1702932	WS3b	None Supplied	None Supplied	Brown loam and clay with gravel.
1702933	HDP1	None Supplied	None Supplied	Brown loam and clay with gravel.

Analytical Report Number : 20-44756
Project / Site name: 109.01.01

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Cations in soil by ICP-OES	Determination of cations in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Complex cyanide in leachate	Determination of complex cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L040-PL	W	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Electrical conductivity at 20oC of leachate	Determination of electrical conductivity in leachate by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	ISO 17025
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Mineral Oil (Leachates) C10 - C40	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

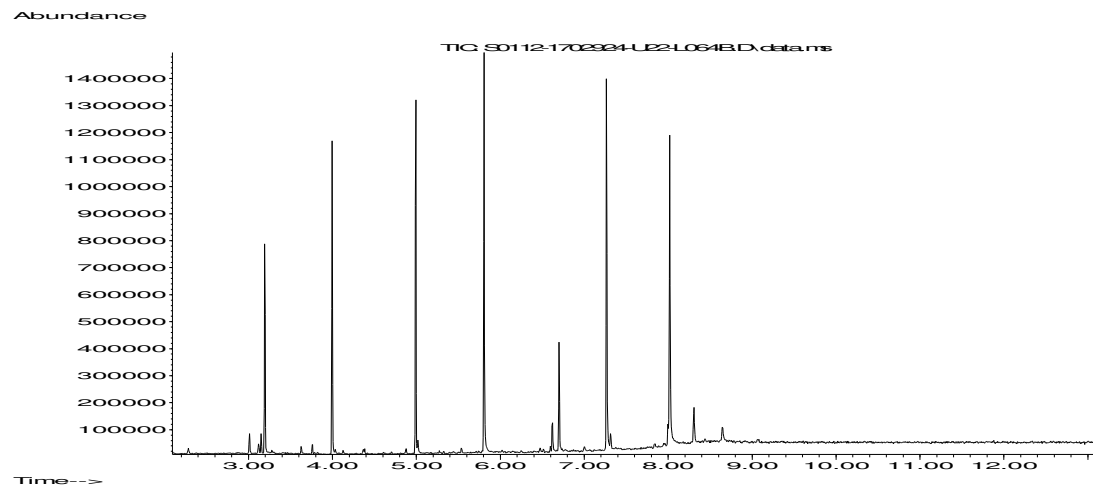
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in leachate	Determination of sulphide in leachate by ion selective electrode.	In-house method	L010-PL	W	NONE
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in leachate	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L070-PL	W	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in leachate	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

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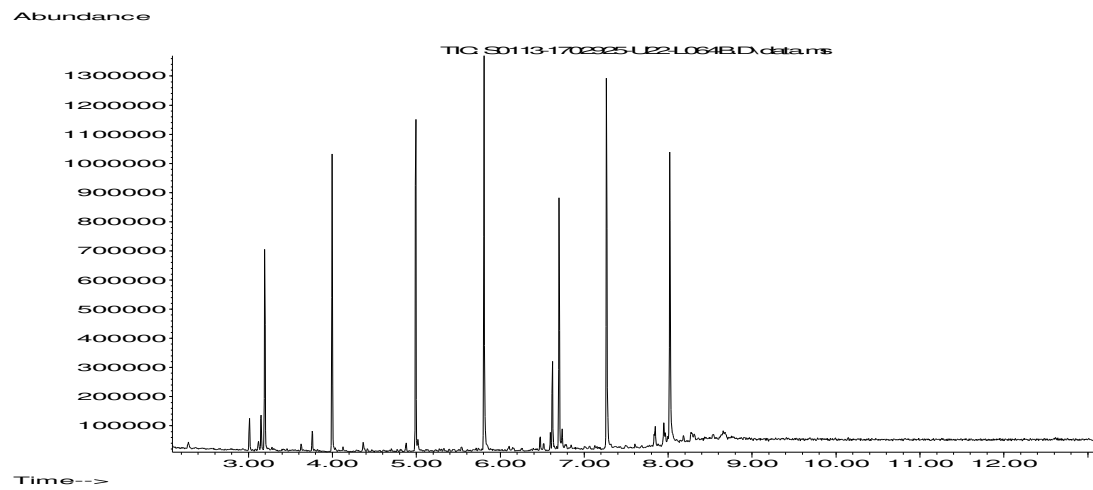
Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in leachate	Determination of volatile organic compounds in leachate by headspace GC-MS	In-house method based on USEPA8260	L073B-PL	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Product ID in soil	Determination of product ID by interpretation against standard chromatograms - Soil.	In-house method	L064-PL/UK	W	NONE
Product ID	Determination against standard chromatograms.	In-house method	L064-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Chloride in leachate	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

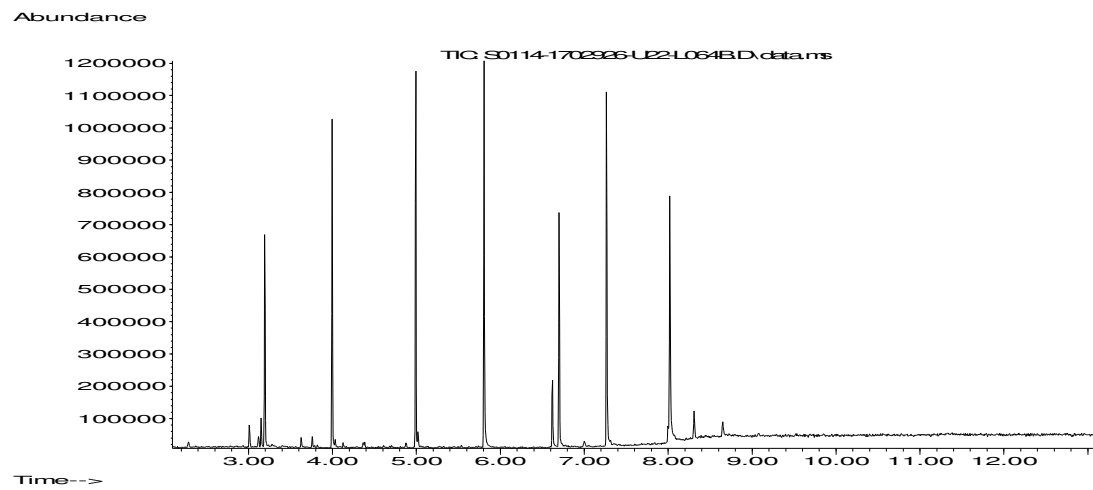
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



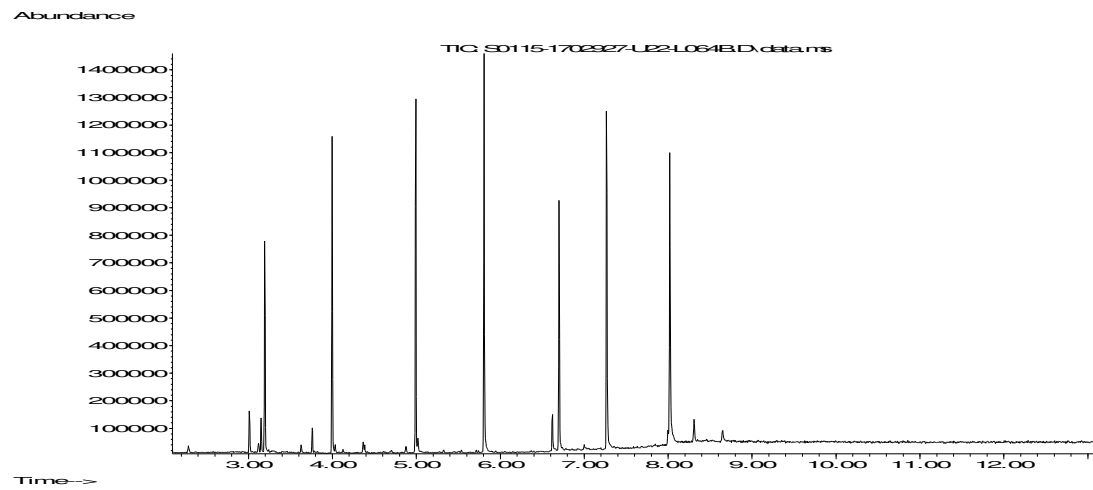
The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.



The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.

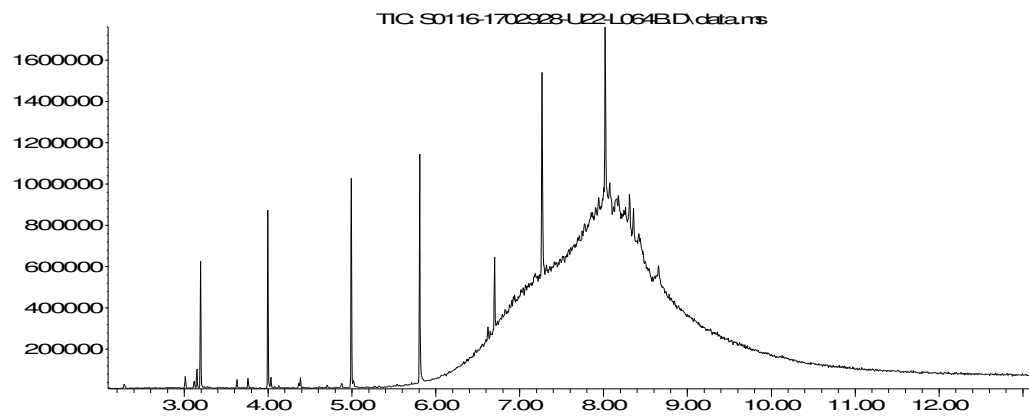


The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.



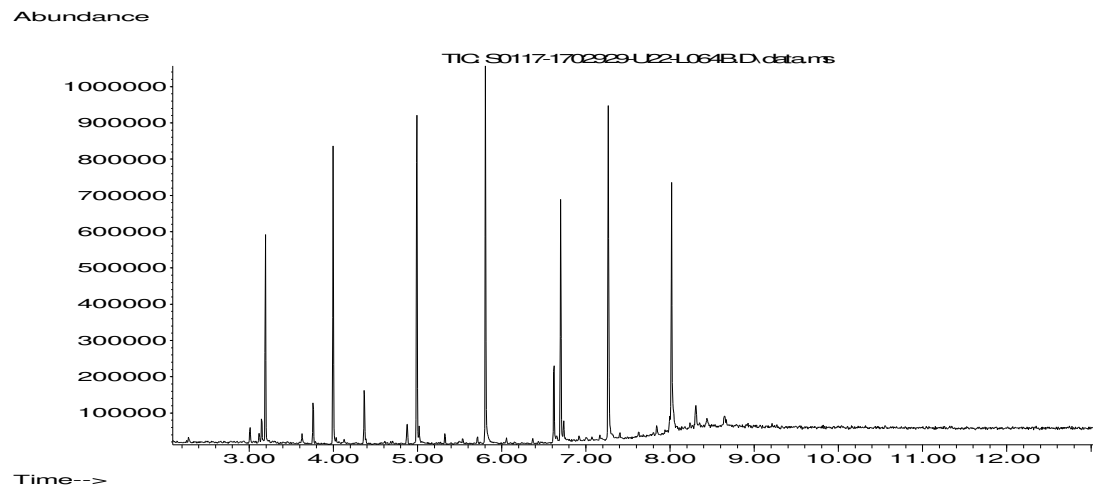
The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.

Abundance

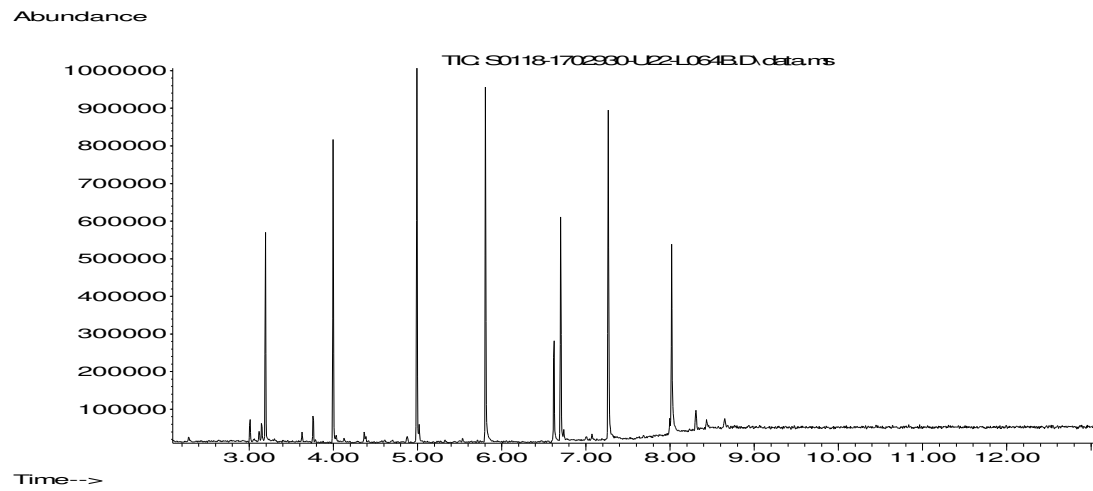


Time-->

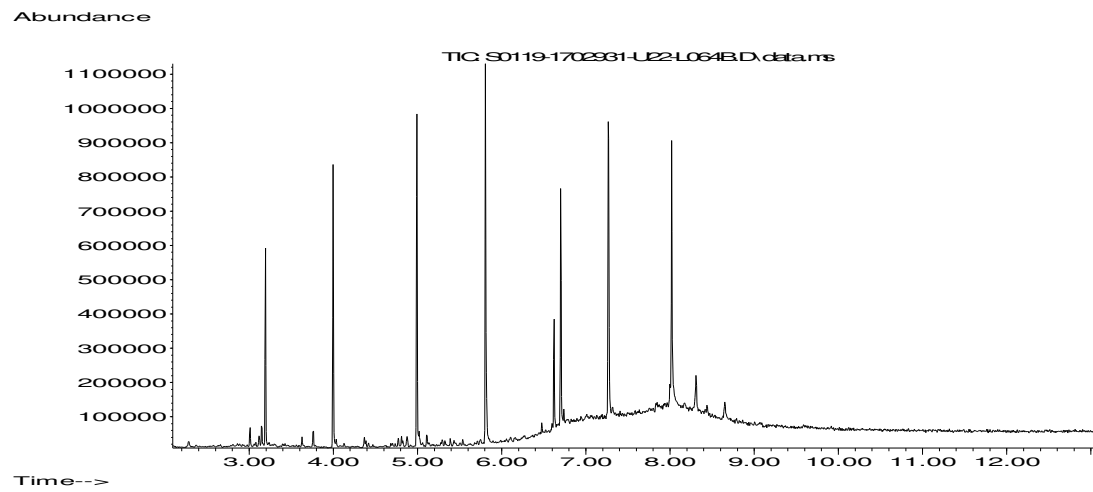
The total ion count (TIC trace) shows a carbon range from C16 to C40.
The sample TIC trace is complex, showing aliphatic and aromatic product sources.
The trace does not match the standard product profiles but is suggestive of lube oil.



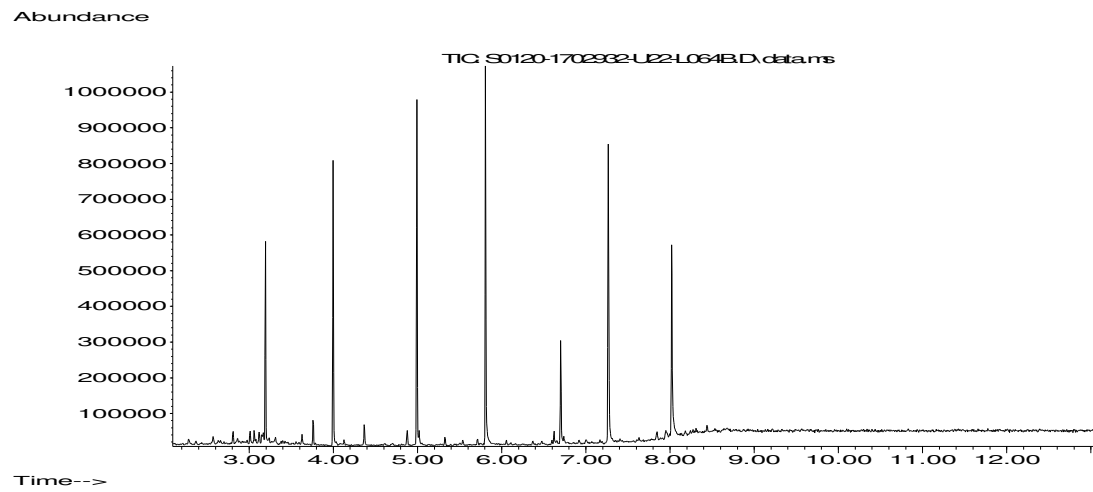
The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.



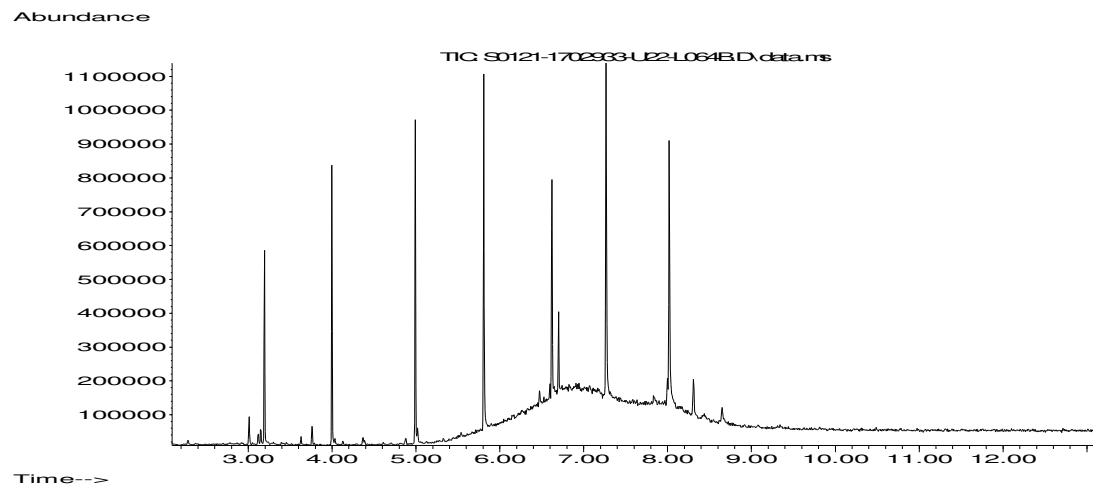
The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.



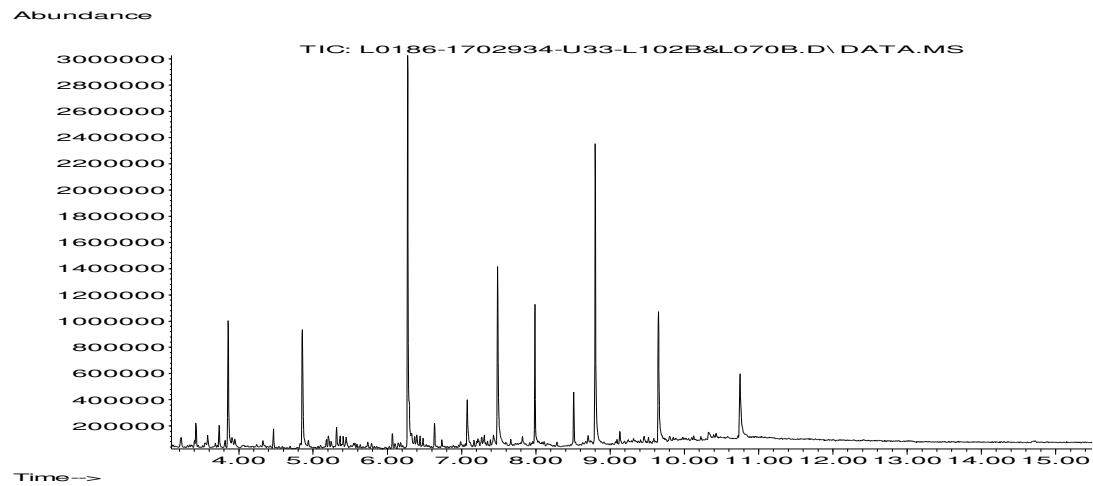
The total ion count (TIC trace) shows a carbon range from C16 to C40.
The sample TIC trace shows some amount of aliphatic product sources.
The trace does not match the standard product profiles.



The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.



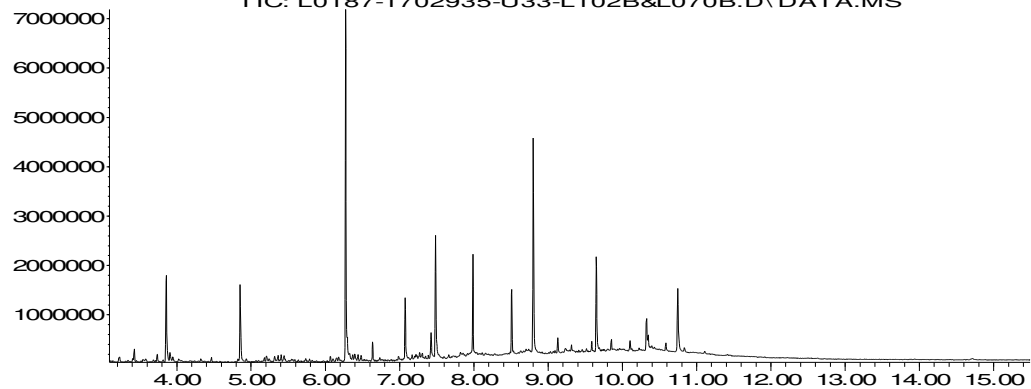
The total ion count (TIC trace) shows a carbon range from C16 to C40.
The sample TIC trace shows some amount of aliphatic product sources.
The trace does not match the standard product profiles.



The total ion count (TIC trace) shows no detectable hydrocarbons. No Product is present.

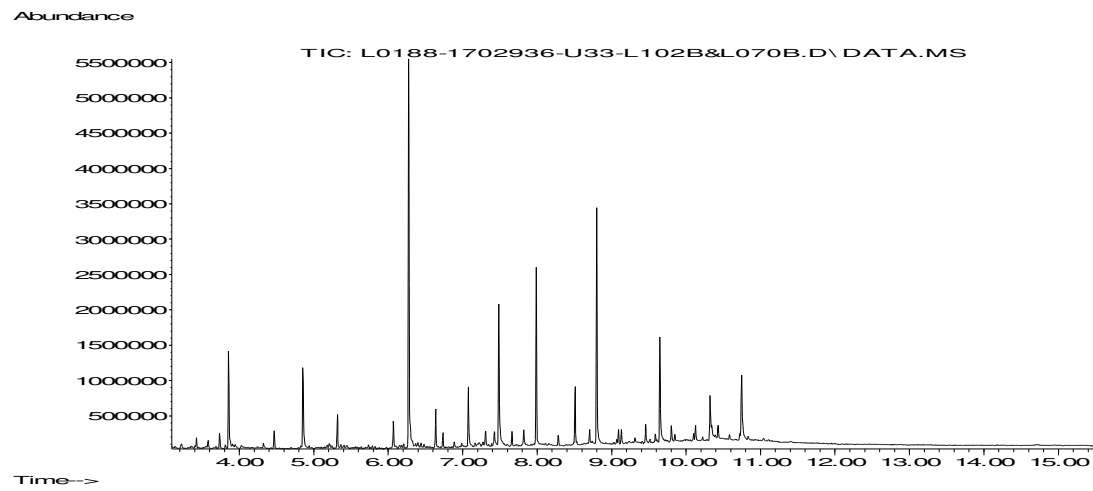
Abundance

TIC: L0187-1702935-U33-L102B&L070B.D\DATA.MS



Time-->

The total ion count (TIC trace) shows no detectable hydrocarbons. No Product is present.



The total ion count (TIC trace) shows no detectable hydrocarbons. No Product is present.

APPENDIX IV – HUMAN HEALTH SCREENING ASSESSMENT

Determinands not encountered

Natural Ground Materials	Made Ground Materials	Leachate
<i>Determinands not encountered (below LOD)</i>	<i>Determinands not encountered (below LOD)</i>	<i>Determinands not encountered (below LOD)</i>
Asbestos Total, Complex and Free Cyanide Total Phenols Speciated PAHs Chromium (Hexavalent) Monoaromatics and Oxygenates TPH-CWG - Aliphatic EC5 - EC6 TPH-CWG - Aliphatic EC6 - EC8 TPH-CWG - Aliphatic EC8 - EC10 TPH-CWG - Aliphatic EC10 - EC12 TPH-CWG - Aromatic EC5 - EC7 TPH-CWG - Aromatic EC7 - EC8 TPH-CWG - Aromatic EC8 - EC10 TPH-CWG - Aromatic EC10 - EC12 TPH-CWG - Aromatic EC12 - EC16 TPH-CWG - Aromatic EC16 - EC21 VOCs sVOCs	Asbestos Total, Complex and Free Cyanide Total Phenols (monohydric) Speciated PAHs Chromium (Hexavalent) Monoaromatics and Oxygenates TPH-CWG - Aliphatic EC5 - EC6 TPH-CWG - Aliphatic EC6 - EC8 TPH-CWG - Aliphatic EC8 - EC10 TPH-CWG - Aromatic EC5 - EC7 TPH-CWG - Aromatic EC7 - EC8 TPH-CWG - Aromatic EC8 - EC10 TPH-CWG - Aromatic EC10 - EC12 TPH-CWG - Aromatic EC12 - EC16 TPH-CWG - Aromatic EC16 - EC21 VOCs sVOCs	Total, Complex and Free Cyanide Sulphide Speciated PAHs Total PAHs Antimony Beryllium Cadmium Chromium Lithium Mercury Selenium Tin Monoaromatics and Oxygenates Petroleum Hydrocarbons TPH-CWG Aliphatic or Aromatic VOCs sVOCs

References:

Natural and Made Ground:

- DEFRA C4SLs (2014) based on "Commercial" end use
- Environment Agency SGVs (2009) based on "Commercial" end use
- LQM/CIEH S4ULs (2015) based on "Commercial" end use
- CL:AIRE, AGS & EIS (2009) based on "Commercial" end use
- Dutch Intervention Value for free cyanide (VROM 2000)

Leachate:

- EQS for Surface Waters (Environment Agency 'H1 Annex D1: Assessment of Hazardous Pollutants within Surface Water Discharges V2.0' (October 2014))
- Water Supply (Water Quality Regulations) 2018
- Guidelines for Drinking-water Quality (WHO) 2011
- SSV based upon Groundwater Threshold Values from The Water Framework Directive (England and Wales)(2010), unless otherwise stated.
- Annual Average ("AA") and Maximum Allowable Concentration ("MAC")

Analytical Report Number: 20-44756

Project / Site name: 109.01.01

Lab Sample Number

Sample Reference

Depth (m)

Date Sampled

1702924	1702931	1702933
WS1a	WS3a	HDP1
0.83-1.00	None Supplied	None Supplied
27/11/2020	27/11/2020	27/11/2020

Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				MIN	MAX	Mean	SSV (mg/kg)	Ref.	No. of Exceedences
Moisture Content	%	0.01	NONE	16	14	3.6	3.6	16	11.2	-	-	-
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9	0.9	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.1	7.8	9	7.80	10.10	8.97	-	-	-
Total Sulphate as SO4	mg/kg	50	MCERTS	820	180	270	180.00	820.00	423.33	-	-	-
Sulphide	mg/kg	1	MCERTS	1.4	< 1.0	13	1.40	13.00	7.20	-	-	-
Ammonium as NH4	mg/kg	0.5	MCERTS	0.8	< 0.5	< 0.5	0.80	0.80	0.80	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.4	1	0.5	0.40	1.00	0.63	-	-	-

Heavy Metals / Metalloids

Aluminium (aqua regia extractable)	mg/kg	30	ISO 17025	8000	7900	2200	2200	8000	6033	-	-	-
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.3	< 1.0	< 1.0	2.30	2.30	2.30	7500	(d)	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.9	8.9	6	6.00	8.90	7.27	640	(c)	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	140	1400	120	1400	553	22000	(d)	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.95	0.89	0.33	0.33	0.95	0.72	12	(c)	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	< 0.2	< 0.2	0.50	0.50	0.50	240000	(c)	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.9	0.4	0.30	0.90	0.53	190	(c)	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	180	28	18.00	180.00	75.33	8600	(c)	-
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	89	14	2.8	2.80	89.00	35.27	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.7	24	8	8.00	24.00	13.90	68000	(c)	-
Iron (aqua regia extractable)	mg/kg	40	MCERTS	30000	29000	22000	22000	30000	27000	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	43	32	13.00	43.00	29.33	2300	(a)	-
Lithium (aqua regia extractable)	mg/kg	0.1	NONE	20	18	8	8.00	20.00	15.33	-	-	-
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	1200	1000	1700	1000	1700	1300	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3	< 0.3	0.60	0.60	0.60	1100	(c)	-
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.69	0.77	0.87	0.69	0.87	0.78	17000	(d)	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	23	6.8	6.80	23.00	17.27	980	(c)	-
Phosphorus (aqua regia extractable)	mg/kg	20	ISO 17025	390	1600	210	210	1600	733	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.7	1.70	1.70	1.70	12000	(c)	-
Tin (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.7	5	1.70	5.00	3.35	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	25	9.6	9.60	30.00	21.53	9000	(c)	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	40	91	73	40.00	91.00	68.00	730000	(c)	-

Calcium (aqua regia extractable)	mg/kg	20	ISO 17025	49000	27000	260000	27000	260000	112000	-	-	-
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	6200	3400	67000	3400	67000	25533	-	-	-
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	2000	1500	540	540	2000	1347	-	-	-
Sodium (aqua regia extractable)	mg/kg	20	ISO 17025	170	160	290	160	290	207	-	-	-

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	mg/kg	10	NONE	95	< 10	< 10	95.00	95.00	95.00	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	2.8	< 1.0	< 1.0	<1.0	2.80	2.80	9700	(c)	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	8.1	< 2.0	< 2.0	<2.0	8.10	8.10	9700	(c)	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	13	< 8.0	< 8.0	<8.0	13.00	13.00	9700	(c)	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	35	< 8.0	< 8.0	<8.0	35.00	35.00	9700	(c)	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	59	< 10	< 10	<10	59.00	59.00	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	39	< 10	< 10	<10	39.00	39.00	16000	(c)	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	39	< 10	< 10	<10	39.00	39.00	-	-	-

Miscellaneous Organics

Product ID	
WS1a	The total ion count (TIC trace) shows no detectable hydrocarbons due to the low levels present. No Product is present.
WS3a	The total ion count (TIC trace) shows a carbon range from C16 to C40. The sample TIC trace shows some amount of aliphatic product sources. The trace does not match the standard product profiles.
HDP1	The total ion count (TIC trace) shows a carbon range from C16 to C40. The sample TIC trace shows some amount of aliphatic product sources. The trace does not match the standard product profiles.

Analytical Report Number: 20-44756

Project / Site name: 109.01.01

Lab Sample Number

Sample Reference

Depth (m)

Date Sampled

1702925	1702926	1702927	1702928	1702929	1702930	1702932
WS1b	WS1c	WS1d	WS2a	WS2b	WS2c	WS3b
1.10-1.20	1.90-2.00	2.30-2.40	0.52-0.92	1.20-1.40	2.30-2.60	None Supplied
27/11/2020	27/11/2020	27/11/2020	27/11/2020	27/11/2020	27/11/2020	27/11/2020

Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	1702925	1702926	1702927	1702928	1702929	1702930	1702932	MIN	MAX	Mean	SSV (mg/kg)	Ref.	No. of Exceedences
Moisture Content	%	0.01	NONE	16	12	6.4	12	15	12	16	6.4	16	12.8	-	-	-
Total mass of sample received	kg	0.001	NONE	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected	-	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	8.2	7.9	7.9	7.7	7.8	7.6	7.6	8.2	7.89	-	-	-
Total Sulphate as SO4	mg/kg	50	MCERTS	480	140	70	150	86	320	840	70	840	298	-	-	-
Sulphide	mg/kg	1	MCERTS	1.2	1.2	2.8	3.5	< 1.0	< 1.0	< 1.0	1.2	3.5	2.18	-	-	-
Ammonium as NH4	mg/kg	0.5	MCERTS	< 0.5	< 0.5	6.3	< 0.5	< 0.5	< 0.5	< 0.5	6.3	6.3	6.3	-	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.9	0.8	0.3	0.5	0.9	1	1.3	0.3	1.9	0.96	-	-	-

Heavy Metals / Metalloids

Aluminium (aqua regia extractable)	mg/kg	30	ISO 17025	7200	5000	5300	5800	6100	4900	6700	4900	7200	5857	-	-	-
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.2	2.7	2	3.2	3.4	3.9	3	2	4.2	3.2	7500	(d)	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	7.2	5.7	11	11	6.7	11	5.7	17	9.94	640	(c)	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	20	30	180	60	29	110	20	180	77	22000	(d)	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.69	0.84	0.61	1.6	0.51	0.87	0.47	0.47	1.6	0.80	12	(c)	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.3	< 0.2	0.3	< 0.2	< 0.2	< 0.2	0.3	0.3	0.3	240000	(c)	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.4	< 0.2	< 0.2	< 0.2	0.4	0.4	0.4	190	(c)	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	12	14	14	12	13	16	12	16	13.7	8600	(c)	-
Cobalt (aqua regia extractable)	mg/kg	0.15	MCERTS	14	15	8.5	10	10	11	10	8.5	15	11.2	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	11	8.2	14	16	9.3	15	8.2	21	13.5	68000	(c)	-
Iron (aqua regia extractable)	mg/kg	40	MCERTS	38000	41000	33000	27000	36000	40000	31000	27000	41000	35143	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	32	11	8.7	19	14	11	18	8.7	32	16.24	2300	(a)	-
Lithium (aqua regia extractable)	mg/kg	0.1	NONE	14	12	15	9	13	12	12	9	15	12.43	-	-	-
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	1600	490	460	2800	940	820	960	460	2800	1153	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	1.2	< 0.3	< 0.3	< 0.3	< 0.3	0.4	1.2	0.8	1100	(c)	-
Molybdenum (aqua regia extractable)	mg/kg	0.25	MCERTS	0.74	0.55	0.55	1.3	0.86	0.49	0.94	0.49	1.3	0.78	17000	(d)	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	18	20	19	14	17	12	12	20	16.57	980	(c)	-
Phosphorus (aqua regia extractable)	mg/kg	20	ISO 17025	770	350	2000	490	450	440	660	350	2000	737	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.4	1.4	1.4	12000	(c)	-
Tin (aqua regia extractable)	mg/kg	1	MCERTS	3	< 1.0	1	1.4	< 1.0	< 1.0	1.4	1	3	1.7	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	18	14	21	17	16	18	14	27	18.7	9000	(c)	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	53	57	40	45	53	45	40	68	51.6	730000	(c)	-

Calcium (aqua regia extractable)	mg/kg	20	ISO 17025	4100	3600	3200	44000	2500	2500	6000	2500	44000	9414	-	-	-
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	1500	1600	2000	6800	1500	1600	2200	1500	6800	2457	-	-	-
Potassium (aqua regia extractable)	mg/kg	20	ISO 17025	640	450	560	2100	520	460	540	450	2100	753	-	-	-
Sodium (aqua regia extractable)	mg/kg	20	ISO 17025	110	90	150	120	90	110	88	88	150	108	-	-	-

Petroleum Hydrocarbons

Mineral Oil (C10 - C40)	mg/kg	10	NONE	< 10	< 10	< 10	360	< 10	< 10	< 10	360	360	360	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	4	< 2.0	< 2.0	< 2.0	4	4	4	9700	(c)	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	33	< 8.0	< 8.0	< 8.0	33	33	33	9700	(c)	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	280	< 8.0	< 8.0	< 8.0	280	280	280	9700	(c)	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	320	< 10	< 10	< 10	320	320	320	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	76	< 10	< 10	< 10	76	76	76	16000	(c)	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	78	< 10	< 10	< 10	78	78	78	-	-	-

Miscellaneous Organics

Product ID	ws2a	The total ion count (TIC trace) shows a carbon range from C16 to C40. The sample TIC trace is complex, showing aliphatic and aromatic product sources. The trace does not match the standard product profiles but is suggestive of lube oil.														

Analytical Report Number: 20-44756

Project / Site name: 109.01.01

Lab Sample Number

Sample Reference

Depth (m)

Date Sampled

1702934	1702935	1702936
WS1-LC	WS2-LC	HDP1-LC
0.83-1.03	None Supplied	None Supplied
27/11/2020	27/11/2020	27/11/2020

Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status				MIN	MAX	Mean	SSV	Ref.	No. of Exceedences
General Inorganics												
Electrical Conductivity	µS/cm	10	ISO 17025	240	250	77	77	250	189	250	(b)	-
Sulphate as SO4	mg/l	0.1	ISO 17025	29.1	18.2	5.9	5.9	29.1	17.7	250000	(b)	-
Chloride	mg/l	0.15	ISO 17025	5.2	4.5	3.8	3.8	5.2	4.5	250	(b)	-
Ammonium as NH4	µg/l	15	NONE	280	92	29	29	280	134	500	(b)	-
Total Organic Carbon (TOC)	mg/l	0.1	NONE	9.11	6.93	3.51	3.51	9.11	6.52	-	-	-
Heavy Metals / Metalloids												
										<i>SSV in µg/l</i>		
Aluminium (dissolved)	mg/l	0.012	ISO 17025	3	2.6	0.71	0.71	3	2.10	200	(b)	-
Arsenic (dissolved)	µg/l	1	ISO 17025	4.7	9.6	1.5	1.5	9.6	5.27	10	(b)	-
Barium (dissolved)	µg/l	0.05	ISO 17025	14	13	230	13	230	85.67	700	(c)	-
Boron (dissolved)	µg/l	10	ISO 17025	47	30	< 10	30	47	38.5	1000	(b)	-
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.4	1.8	1.3	1.3	1.8	1.5	50	(b)	-
Cobalt (dissolved)	µg/l	0.3	ISO 17025	10	3.5	< 0.3	3.5	10	6.75	3(AA)/100(MAC)	(a)(e)	-
Copper (dissolved)	µg/l	0.7	ISO 17025	17	23	1.8	1.8	23	13.93	2000	(b)	-
Iron (dissolved)	mg/l	0.004	ISO 17025	0.038	0.13	0.11	0.038	0.13	0.09	200	(b)	-
Lead (dissolved)	µg/l	1	ISO 17025	3	4.1	4	3	4.1	3.7	10	(b)	-
Manganese (dissolved)	µg/l	0.06	ISO 17025	60	46	190	46	190	98.7	50	(b)	-
Molybdenum (dissolved)	µg/l	0.4	ISO 17025	3.6	< 0.4	< 0.4	3.6	3.6	3.6	-	-	-
Nickel (dissolved)	µg/l	0.3	ISO 17025	1	1.1	< 0.3	1	1.1	1.05	20	(b)	-
Phosphorus (dissolved)	µg/l	30	NONE	160	150	190	150	190	167	2200	(b)	-
Vanadium (dissolved)	µg/l	1.7	ISO 17025	9.4	9.9	< 1.7	9.4	9.9	9.65	20	(a)	-
Zinc (dissolved)	µg/l	0.4	ISO 17025	2.2	2.7	6.7	2.2	6.7	3.87	10.9	(a)	-
Calcium (dissolved)	mg/l	0.012	ISO 17025	48	38	9.5	9.5	48	32	-	-	-
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.57	0.48	2.3	0.48	2.3	1.12	-	-	-
Potassium (dissolved)	mg/l	0.025	ISO 17025	7	9.4	1	1	9.4	5.8	-	-	-
Sodium (dissolved)	mg/l	0.01	ISO 17025	3.4	4.1	1.7	1.7	4.1	3.1	200,000	(b)	-

APPENDIX V – 110299/GNS/09 CERTIFICATES OF ANALYSIS

Certificate of Analysis



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SEVERN
TRENT

STL

Matrix: **Soil**
 Report Number: **COV/550934/2008** Issue **4**
 Laboratory Number: **10817986** Sample **1** of **7**
 Sample Source: **Integral Geotechnique**
 Sample Point Description: **Integral Geotechnique**
 Sample Description: **TP1 0.40m**
 Visual Description: **Dark brown loam with some stone, occasional ash and clinker.**
 Sample Date: _____ Sample Time: **1** Sample Received: **02 October 2008**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	39	%	07/10/2008		N Mid	Stones
Moisture content at 30C	9.7	%	07/10/2008		N Mid	33A
Arsenic as As, dry weight	12	mg/kg	08/10/2008		M Mid	30/30C
Barium as Ba, hot water sol dw	1.2	mg/kg	08/10/2008		M Mid	6
Cadmium as Cd, dry weight	<0.50	mg/kg	08/10/2008		M Mid	30
Chromium as Cr, dry weight	210	mg/kg	08/10/2008		M Mid	30
Copper as Cu, dry weight	40	mg/kg	08/10/2008		M Mid	30
Lead as Pb, dry weight	48	mg/kg	08/10/2008		M Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	08/10/2008		M Mid	30C
Nickel as Ni, dry weight	16	mg/kg	08/10/2008		M Mid	30
Aluminium as Se, dry weight	0.75	mg/kg	08/10/2008		M Mid	30C
Iron as Zn, dry weight	110	mg/kg	08/10/2008		M Mid	30
Fluoride, Total dry weight	<2.5	mg/kg	09/10/2008		N Mid	14
Aromatic Phenols, Dry Weight	<0.50	mg/kg	06/10/2008		Y Mid	40A
Loss on ignition, dried solids	15	%	09/10/2008		M Mid	337
Sulphate, Total as SO4 dry wei	400	mg/kg	09/10/2008		M Mid	45
Sulphate as SO4, Water Soluble	<0.060	g/l	09/10/2008		Y Mid	46
Ammonia	<7.5	mg/kg	08/10/2008		M Mid	47
Organic Carbon, Total by Ignit	11	%	07/10/2008		N Mid	27
pH	8.6	pH units	07/10/2008		Y Mid	39
Chlorobenzene, Elemental	<100	mg/kg	09/10/2008		M Mid	51
1,2,4-trichlorobenzene	<0.50	mg/kg	10/10/2008		Y Mid	313
1,2,5-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,3,5-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,3-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,3-trichlorobenzene	0.58	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,3-trichlorobenzene	0.52	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	0.54	mg/kg	10/10/2008		M Mid	313
1,2,3-trichlorobenzene	0.92	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,3-trichlorobenzene	0.50	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	0.51	mg/kg	10/10/2008		M Mid	313
1,2,3-trichlorobenzene	<0.50	mg/kg	10/10/2008		M Mid	313
1,2,4-trichlorobenzene	<0.50	mg/kg	10/10/2008		Y Mid	313

Severn Trent Laboratories Ltd.

STL Business Centre, Torrington Avenue, Coventry, CV4 9GU Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis



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SEVERN
TRENT

STL

Matrix: Soil

Report Number: COV/550934/2008

Issue 4

Laboratory Number: 10817987

Sample 2 of 7

Sample Source: Integral Geotechnique

Sample Point Description: Integral Geotechnique

Sample Description: TP1 1.20m

Visual Description: Dark brown loam with many stone.

Sample Time: 2

Sample Received: 02 October 2008

Sample Date:

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	40	%	07/10/2008		N Mid	Stones
Moisture content at 30C	7.1	%	07/10/2008		N Mid	33A
Asbestos as As, dry weight	9.2	mg/kg	08/10/2008		M Mid	30/30C
Barium as B, hot water sol dw	1.3	mg/kg	08/10/2008		M Mid	6
Cadmium as Cd, dry weight	<0.50	mg/kg	08/10/2008		M Mid	30
Chromium as Cr, dry weight	48	mg/kg	08/10/2008		M Mid	30
Copper as Cu, dry weight	20	mg/kg	08/10/2008		M Mid	30
Lead as Pb, dry weight	17	mg/kg	08/10/2008		M Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	08/10/2008		M Mid	30C
Nickel as Ni, dry weight	22	mg/kg	08/10/2008		M Mid	30
Selenium as Se, dry weight	0.36	mg/kg	08/10/2008		M Mid	30C
Zinc as Zn, dry weight	75	mg/kg	08/10/2008		M Mid	30
Cyanide, Total dry weight	<2.5	mg/kg	09/10/2008		N Mid	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	06/10/2008		Y Mid	40A
Loss on ignition, dried solids	4.8	%	09/10/2008		M Mid	337
Sulphate, Total as SO4 dry wei	<240	mg/kg	09/10/2008		M Mid	45
Sulphate as SO4, Water Soluble	<0.060	g/l	09/10/2008		Y Mid	46
Sulphide	<7.5	mg/kg	08/10/2008		M Mid	47
Organic Carbon, Total by Ignit	2.4	%	08/10/2008		N Mid	27
pH	8.6	pH units	07/10/2008		Y Mid	39
Sulphur, Elemental	<100	mg/kg	09/10/2008		M Mid	51
Naphthalene	<0.50	mg/kg	10/10/2008		Y Mid	313
Acenaphthylene	<0.50	mg/kg	10/10/2008		M Mid	313
Acenaphthene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluorene	<0.50	mg/kg	10/10/2008		M Mid	313
Phenanthrene	<0.50	mg/kg	10/10/2008		M Mid	313
Anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(a)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Chrysene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(b)fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(k)fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(a)pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Indeno(1,2,3-c,d)pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Dibenz(a,h)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(g,h,i)perylene	<0.50	mg/kg	10/10/2008		Y Mid	313

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STL

Matrix: **Soil**

Report Number: **COV/550934/2008** Issue **4**

Laboratory Number: **10817987** Sample **2** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **TP1 1.20m**

Visual Description: **Dark brown loam with many stone.**

Sample Date: Sample Time: **2** Sample Received: **02 October 2008**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
PAH, Total of 16 EPA	<5.0	mg/kg	10/10/2008		Y Mid	313

Analyst Comments for 10817987: No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.
 Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.
 For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered. I/S=Insufficient sample

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Matrix: Soil

Report Number: COV/550934/2008

Issue 4

Laboratory Number: 10817988

Sample 3 of 7

Sample Source: Integral Geotechnique

Sample Point Description: Integral Geotechnique

Sample Description: TP2 0.50m

Visual Description: Brown loam with many stone.

Sample Date:

Sample Time:

3

Sample Received: 02 October 2008

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	44	%	07/10/2008		N Mid	Stones
Moisture content at 30C	6.5	%	07/10/2008		N Mid	33A
Arsenic as As, dry weight	6.8	mg/kg	08/10/2008		M Mid	30/30C
Boron as B, hot water sol dw	0.73	mg/kg	08/10/2008		M Mid	6
Cadmium as Cd, dry weight	0.71	mg/kg	08/10/2008		M Mid	30
Chromium as Cr, dry weight	150	mg/kg	08/10/2008		M Mid	30
Copper as Cu, dry weight	2200	mg/kg	08/10/2008		M Mid	30
Lead as Pb, dry weight	85	mg/kg	08/10/2008		M Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	08/10/2008		M Mid	30C
Nickel as Ni, dry weight	21	mg/kg	08/10/2008		M Mid	30
Selenium as Se, dry weight	0.56	mg/kg	08/10/2008		M Mid	30C
Zinc as Zn, dry weight	330	mg/kg	08/10/2008		M Mid	30
Cyanide, Total dry weight	<2.5	mg/kg	09/10/2008		N Mid	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	06/10/2008		Y Mid	40A
Loss on ignition, dried solids	5.2	%	09/10/2008		M Mid	337
Sulphate, Total as SO4 dry wei	470	mg/kg	09/10/2008		M Mid	45
Sulphate as SO4, Water Soluble	0.078	g/l	09/10/2008		Y Mid	46
Sulphide	<7.5	mg/kg	08/10/2008		M Mid	47
Organic Carbon, Total by Ignit	4.0	%	08/10/2008		N Mid	27
pH	9.7	pH units	07/10/2008		Y Mid	39
Sulphur, Elemental	<100	mg/kg	09/10/2008		M Mid	51
Naphthalene	<0.50	mg/kg	10/10/2008		Y Mid	313
Acenaphthylene	<0.50	mg/kg	10/10/2008		M Mid	313
Acenaphthene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluorene	<0.50	mg/kg	10/10/2008		M Mid	313
Phenanthrene	<0.50	mg/kg	10/10/2008		M Mid	313
Anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(a)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Chrysene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(b)fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(k)fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(a)pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Indeno(1,2,3-c,d)pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Dibenz(a,h)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(g,h,i)perylene	<0.50	mg/kg	10/10/2008		Y Mid	313

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STL

Matrix: **Soil**

Report Number: **COV/550934/2008**

Issue **4**

Laboratory Number: **10817988**

Sample **3** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **TP2 0.50m**

Visual Description: **Brown loam with many stone.**

Sample Date:

Sample Time:

3

Sample Received: **02 October 2008**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
PAH, Total of 16 EPA	<5.0	mg/kg	10/10/2008		Y Mid	313

Analyst Comments for 10817988:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.
Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered, I/S=Insufficient sample

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STL

Matrix: **Soil**

Report Number: **COV/550934/2008**

Issue **4**

Laboratory Number: **10817989**

Sample **4** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **TP2 0.90m**

Visual Description: **Brown loam with many stone, occasional ash and clinker.**

Sample Date:

Sample Time:

4

Sample Received: **02 October 2008**

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	36	%	07/10/2008		N Mid	Stones
Moisture content at 30C	8.2	%	07/10/2008		N Mid	33A
MTBE (Methyl-tert-Butyl Ether)	<0.011	mg/kg	07/10/2008		M Mid	304
Benzene	<0.011	mg/kg	07/10/2008		M Mid	304
Toluene	<0.011	mg/kg	07/10/2008		M Mid	304
Ethylbenzene	<0.011	mg/kg	07/10/2008		M Mid	304
m&p-Xylene	<0.011	mg/kg	07/10/2008		M Mid	304
o-xylene	<0.011	mg/kg	07/10/2008		M Mid	304
VPH >C5 - C6, aliphatic	0.25	mg/kg	07/10/2008		M Mid	304
VPH >C6 - C8, aliphatic	<0.11	mg/kg	07/10/2008		M Mid	304
VPH >C8 - C10, aliphatic	0.99	mg/kg	07/10/2008		M Mid	304
EPH >C10 - C12, aliphatic	13	mg/kg	06/10/2008		M Mid	317EPH
EPH >C12 - C16, aliphatic	92	mg/kg	06/10/2008		M Mid	317EPH
EPH >C16 - C35, aliphatic	270	mg/kg	06/10/2008		M Mid	317EPH
EPH >C35 - C44, aliphatic	36	mg/kg	06/10/2008		M Mid	317EPH
EPH >C5 - C44, Total aliphatic	410	mg/kg	07/10/2008		Y Mid	304/317EPH
VPH >C5- C7, aromatic	<0.011	mg/kg	07/10/2008		M Mid	304
VPH >C7 - C8, aromatic	<0.011	mg/kg	07/10/2008		M Mid	304
VPH >C8 - C10, aromatic	0.15	mg/kg	07/10/2008		M Mid	304
EPH >C10 - C12, aromatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C12 - C16, aromatic	16	mg/kg	06/10/2008		M Mid	317EPH
EPH >C16 - C21, aromatic	38	mg/kg	06/10/2008		M Mid	317EPH
EPH >C21 - C35, aromatic	65	mg/kg	06/10/2008		M Mid	317EPH
EPH >C35 - C44, aromatic	35	mg/kg	06/10/2008		M Mid	317EPH
EPH >C5 - C44, Total aromatic	150	mg/kg	07/10/2008		Y Mid	304/317EPH
EPH >C5 - C44, Total	570	mg/kg	07/10/2008		M Mid	304/317EPH

Analyst Comments for 10817989:

No Analyst Comment

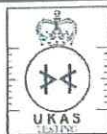
Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.
Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered, I/S=Insufficient sample

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Matrix: Soil

Report Number: COV/550934/2008

Issue 4

Laboratory Number: 10817990

Sample 5 of 7

Sample Source: Integral Geotechnique

Sample Point Description: Integral Geotechnique

Sample Description: TP2 1.70m

Visual Description: Brown loam with many stone and occasional ash.

Sample Date:

Sample Time: 5

Sample Received: 02 October 2008

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	47	%	07/10/2008		N Mid	Stones
Moisture content at 30C	5.5	%	07/10/2008		N Mid	33A
MTBE (Methyl-tert-Butyl Ether)	<0.011	mg/kg	07/10/2008		M Mid	304
Benzene	<0.011	mg/kg	07/10/2008		M Mid	304
Toluene	<0.011	mg/kg	07/10/2008		M Mid	304
Ethylbenzene	<0.011	mg/kg	07/10/2008		M Mid	304
m&p-Xylene	<0.011	mg/kg	07/10/2008		M Mid	304
o-xylene	<0.011	mg/kg	07/10/2008		M Mid	304
VPH >C5 - C6, aliphatic	0.39	mg/kg	07/10/2008		M Mid	304
VPH >C6 - C8, aliphatic	<0.11	mg/kg	07/10/2008		M Mid	304
VPH >C8 - C10, aliphatic	<0.11	mg/kg	07/10/2008		M Mid	304
EPH >C10 - C12, aliphatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C12 - C16, aliphatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C16 - C35, aliphatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C35 - C44, aliphatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C5 - C44, Total aliphatic	<5.3	mg/kg	07/10/2008		Y Mid	304/317EPH
VPH >C5- C7, aromatic	<0.011	mg/kg	07/10/2008		M Mid	304
VPH >C7 - C8, aromatic	<0.011	mg/kg	07/10/2008		M Mid	304
VPH >C8 - C10, aromatic	<0.11	mg/kg	07/10/2008		M Mid	304
EPH >C10 - C12, aromatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C12 - C16, aromatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C16 - C21, aromatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C21 - C35, aromatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C35 - C44, aromatic	<1.1	mg/kg	06/10/2008		M Mid	317EPH
EPH >C5 - C44, Total aromatic	<5.3	mg/kg	07/10/2008		Y Mid	304/317EPH
EPH >C5 - C44, Total	<5.3	mg/kg	07/10/2008		M Mid	304/317EPH

Analyst Comments for 10817990:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.
Analysed at: Br = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.
For Microbiological determinands 0 or ND=Not Detected. For Legionella ND=Not Detected in volume of sample filtered. IS=Insufficient sample

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Matrix: Soil

Report Number: COV/550934/2008

Issue 4

Laboratory Number: 10817991

Sample 6 of 7

Sample Source: Integral Geotechnique

Sample Point Description: Integral Geotechnique

Sample Description: TP3 0.40m

Visual Description: Brown loam with many stone, some brick and occasional ash.

Sample Date:

Sample Time:

6

Sample Received:

02 October 2008

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	49	%	07/10/2008		N Mid	Stones
Moisture content at 30C	5.1	%	07/10/2008		N Mid	33A
Arsenic as As, dry weight	10	mg/kg	08/10/2008		M Mid	30/30C
Boron as B, hot water sol dw	0.52	mg/kg	08/10/2008		M Mid	6
Cadmium as Cd, dry weight	<0.50	mg/kg	08/10/2008		M Mid	30
Chromium as Cr, dry weight	90	mg/kg	08/10/2008		M Mid	30
Copper as Cu, dry weight	190	mg/kg	08/10/2008		M Mid	30
Lead as Pb, dry weight	22	mg/kg	08/10/2008		M Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	08/10/2008		M Mid	30C
Nickel as Ni, dry weight	40	mg/kg	08/10/2008		M Mid	30
Selenium as Se, dry weight	0.31	mg/kg	08/10/2008		M Mid	30C
Zinc as Zn, dry weight	80	mg/kg	08/10/2008		M Mid	30
Cyanide, Total dry weight	<2.5	mg/kg	09/10/2008		N Mid	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	06/10/2008		Y Mid	40A
Loss on ignition, dried solids	5.7	%	09/10/2008		M Mid	337
Sulphate, Total as SO4 dry wei	290	mg/kg	09/10/2008		M Mid	45
Sulphate as SO4, Water Soluble	0.067	g/l	09/10/2008		Y Mid	46
Sulphide	<7.5	mg/kg	08/10/2008		M Mid	47
Organic Carbon, Total by Ignit	4.3	%	08/10/2008		N Mid	27
pH	9.1	pH units	07/10/2008		Y Mid	39
Sulphur, Elemental	<100	mg/kg	09/10/2008		M Mid	51
Naphthalene	<0.50	mg/kg	10/10/2008		Y Mid	313
Acenaphthylene	<0.50	mg/kg	10/10/2008		M Mid	313
Acenaphthene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluorene	<0.50	mg/kg	10/10/2008		M Mid	313
Phenanthrene	<0.50	mg/kg	10/10/2008		M Mid	313
Anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(a)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Chrysene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(b)fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(k)fluoranthene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(a)pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Indeno(1,2,3-c,d)pyrene	<0.50	mg/kg	10/10/2008		M Mid	313
Dibenz(a,h)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(g,h,i)perylene	<0.50	mg/kg	10/10/2008		Y Mid	313

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STL

Matrix: Soil

Report Number: COV/550934/2008

Issue 4

Laboratory Number: 10817991

Sample 6 of 7

Sample Source: Integral Geotechnique

Sample Point Description: Integral Geotechnique

Sample Description: TP3 0.40m

Visual Description: Brown loam with many stone, some brick and occasional ash.

Sample Date: Sample Time: 6 Sample Received: 02 October 2008

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
PAH, Total of 16 EPA	<5.0	mg/kg	10/10/2008		Y Mid	313

Analyst Comments for 10817991:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.

Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.

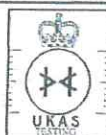
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered, I/S=Insufficient sample

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Matrix: **Soil**

Report Number: **COV/550934/2008**

Issue **4**

Laboratory Number: **10817992**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **TP3 0.80m**

Visual Description: **Brown loam with many stone, some brick and occasional ash.**

Sample Date: Sample Time: **7** Sample Received: **02 October 2008**

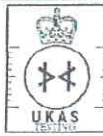
Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
Stones NG Method	41	%	07/10/2008		N Mid	Stones
Moisture content at 30C	12	%	07/10/2008		N Mid	33A
Arsenic as As, dry weight	12	mg/kg	08/10/2008		M Mid	30/30C
Boron as B, hot water sol dw	0.82	mg/kg	08/10/2008		M Mid	6
Cadmium as Cd, dry weight	<0.50	mg/kg	08/10/2008		M Mid	30
Chromium as Cr, dry weight	37	mg/kg	08/10/2008		M Mid	30
Copper as Cu, dry weight	23	mg/kg	08/10/2008		M Mid	30
Lead as Pb, dry weight	220	mg/kg	08/10/2008		M Mid	30
Mercury as Hg, dry weight	<0.25	mg/kg	08/10/2008		M Mid	30C
Nickel as Ni, dry weight	19	mg/kg	08/10/2008		M Mid	30
Selenium as Se, dry weight	0.45	mg/kg	08/10/2008		M Mid	30C
Zinc as Zn, dry weight	56	mg/kg	08/10/2008		M Mid	30
Cyanide, Total dry weight	<2.5	mg/kg	09/10/2008		N Mid	14
Monohydric Phenols, Dry Weight	<0.50	mg/kg	06/10/2008		Y Mid	40A
Loss on ignition, dried solids	8.7	%	09/10/2008		M Mid	337
Sulphate, Total as SO4 dry wei	370	mg/kg	09/10/2008		M Mid	45
Sulphate as SO4, Water Soluble	<0.060	g/l	09/10/2008		Y Mid	46
Sulphide	<7.5	mg/kg	08/10/2008		M Mid	47
Organic Carbon, Total by Ignit	5.8	%	08/10/2008		N Mid	27
pH	8.8	pH units	07/10/2008		Y Mid	39
Sulphur, Elemental	<100	mg/kg	09/10/2008		M Mid	51
Naphthalene	<0.50	mg/kg	10/10/2008		Y Mid	313
Acenaphthylene	<0.50	mg/kg	10/10/2008		M Mid	313
Acenaphthene	<0.50	mg/kg	10/10/2008		M Mid	313
Fluorene	<0.50	mg/kg	10/10/2008		M Mid	313
Phenanthrene	1.9	mg/kg	10/10/2008		M Mid	313
Anthracene	0.53	mg/kg	10/10/2008		M Mid	313
Fluoranthene	3.9	mg/kg	10/10/2008		M Mid	313
Pyrene	3.0	mg/kg	10/10/2008		M Mid	313
Benzo(a)anthracene	2.3	mg/kg	10/10/2008		M Mid	313
Chrysene	1.9	mg/kg	10/10/2008		M Mid	313
Benzo(b)fluoranthene	2.9	mg/kg	10/10/2008		M Mid	313
Benzo(k)fluoranthene	1.0	mg/kg	10/10/2008		M Mid	313
Benzo(a)pyrene	1.9	mg/kg	10/10/2008		M Mid	313
Indeno(1,2,3-c,d)pyrene	1.6	mg/kg	10/10/2008		M Mid	313
Dibenz(a,h)anthracene	<0.50	mg/kg	10/10/2008		M Mid	313
Benzo(g,h,i)perylene	1.3	mg/kg	10/10/2008		Y Mid	313

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Certificate of Analysis



1314
0897
1229
1510

SEVERN
TRENT

STL

Matrix: **Soil**

Report Number: **COV/550934/2008**

Issue **4**

Laboratory Number: **10817992**

Sample **7** of **7**

Sample Source: **Integral Geotechnique**

Sample Point Description: **Integral Geotechnique**

Sample Description: **TP3 0.80m**

Visual Description: **Brown loam with many stone, some brick and occasional ash.**

Sample Date:

Sample Time:

7

Sample Received:

02 October 2008

Test Description	Result	Units	Analysis Date	UoM%	Accreditation	Method
PAH, Total of 16 EPA	22	mg/kg	10/10/2008		Y Mid	313

Analyst Comments for 10817992:

No Analyst Comment

Accreditation Codes: Y = UKAS Accredited, N = Not UKAS Accredited, M = MCERTS, S = Sub-contracted.

Analysed at: Bri = STL Bridgend, Cov = STL Coventry, Mid = STL Midlands, Rea = STL Reading, Run = STL Runcorn.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered, I/S=Insufficient sample

Signed:

Name: **G. Smith**

Date: **13 October 2008**

Title: **Inorg and License Chem Manager**

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Date of Issue :13 October 2008

Method	Statement
14	The cyanides in the sample are determined in two stages. The free cyanide is liberated by heating with pH 4 buffer and the resulting gas collected in sodium hydroxide solution. Complex cyanide is liberated using phosphoric acid under the same conditions. The two portions of sodium hydroxide are then analysed for cyanide content using a discrete autoanalyser.
27	
30	Metals are extracted from land samples by boiling with hydrochloric/nitric acids (3:1 ratio). The measurement of metal concentrations is determined directly on an ICP-OES at defined wavelengths.
30/30C	Metals are extracted from land samples by boiling with hydrochloric/nitric acids (3:1 ratio). For the measurement of metal concentrations is determined on an ICP-OES at defined wavelengths. Where a result is 25mg/kg or above results are obtained directly. Otherwise results are obtained via hydride generation.
304	The method employs the use of Headspace extraction of the volatile hydrocarbons from as received soil samples using a commercial headspace sampler followed by gas chromatograph (GC). The effluent from the chromatographic column is split between a flame ionisation detector (FID) for the determination of total VPH and a mass selective detector (MSD) for the determination of aromatic volatile hydrocarbons.
304/317EPH	Headspace extraction of the compounds from the sample using a commercial headspace sampler followed by separation and quantitative determination of the compounds using gas chromatography with flame ionisation detection/Soil samples are extracted with hexane. The extracts are separated into aliphatic and aromatic fractions using silica solid phase extraction cartridges. The fractionated extracts are then analysed by capillary gas chromatography with flame ionisation detection (GC-FID).
30C	Metals are extracted from land samples by boiling with hydrochloric/nitric acid (3:1 ratio). The measurement of metal concentrations is determined by means of hydride generation / atomic vapour on an ICP-OES at defined wavelengths.
313	PAH?s are extracted from land samples using Dichloromethane, and sonication. An aliquot of the supernatant liquid is then transferred to a separate vial and analysed by GC-MS.
317EPH	A known amount of soil, with a surrogate spike added, is shaken and sonicated in an extraction vial containing hexane and acetone. Water is added to the sample and then centrifuged; a test portion of the resulting hexane layer is transferred to a 2ml vial. The extract can then be analysed by F-C-FID. Fractionation is done by solid phase extraction using an unmodified silica column.
337	The loss on ignition of a pre-weighted portion of soil is determined by gravimetry after 4 hours at 450oC
33A	Moisture Content is the weight difference between an as received sample and the air dried sample at 30 degrees C.
39	The test is carried out by extraction using deionised water with agitation. The pH of this suspension is read directly from an electronic pH meter.
40A	This method determines steam distillable phenolic compounds in land materials. Phenol is extracted from air dried soil using steam distillation. The pH adjusted distillate is measured colorimetrically at a defined wavelength.
45	The sulphates are extracted from land samples using boiling hydrochloric acid solution. After cooling and filtration the determination of sulphate is obtained from an aliquot of solution, via a turbidimetric measurement.
46	Water soluble sulphate content of land samples is extracted by shaking with deionised water. The resultant solution is filtered and the determination of sulphate is obtained turbidimetrically from this filtrate via a reaction with barium chloride.
47	The sulphide content of land samples is determined via extraction with dilute sulphuric acid and steam distillation into zinc acetate solution and sodium hydroxide. The distillate is then titrated against sodium thiosulphate solution using iodine indicator.
51	Elemental sulphur is extracted from land samples using dichloromethane by microwave assisted extraction. Samples are cooled, centrifuged and transferred to separate vials before analysis by HPLC.
6	Boron is extracted from land samples using boiling deionised water followed by vacuum filtration. The measurement of boron in the filtrate is then determined directly by ICP-OES at the defined wavelength.
Stones	The percentage weight of the stones that are naturally occurring and are greater than 10mm in diameter of the total weight of sample.

