



Phase II Ground Investigation

Penzance Harbour Modernisation Scheme

19 January 2023

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EXECUTIVE SUMMARY

	Objectives			
Wheal Jane Consultan Ltd to undertake an int	Wheal Jane Consultancy was commissioned by Ward Williams Associates on behalf of MWJV Ltd to undertake an intrusive investigation on the site of a proposed development.			
	Site Investigation			
Previous Investigations	A Phase I Desk Study was undertaken by WSP in April 2018 (Ref: 70028692). The desk study concluded the site was historically used as a historic harbour. It was concluded that an investigation would be required involving soil sampling and testing as well as ground gas and groundwater monitoring.			
Site WorksSamples were taken during an intrusive investigation from three (3 No.) boreholes.				
Ground Conditions	Full ground profiles were obtained, showing a distinct presence of made ground, overlying Mudstone and Blue Elvan.			
Groundwater	Groundwater was encountered during the site investigation between 1.37mBGL and 3.76mBGL.			

Conclusions

- It can be concluded that all contaminants tested are below the relevant generic acceptance criteria. The site is likely to be suitable for its intended use.
- It is considered that conventional strip foundations will not be appropriate at the site, due to the extent and geotechnical properties of the Made Ground and historic harbour wall across the site.
- Based on the site observations, In-situ and laboratory testing, it is considered that a piled foundation solution is appropriate, with end-bearing piles driven through the Made Ground/harbour wall and socketed a minimum of 3.00m into the competent bedrock, the underlying Mylor Slate Formation/Blue Elvan.

Recommendations

- As the site is situated in an area where between 10-30% of the properties are above the action level, it is recommended that full radon protective measures are installed on any proposed building.
- Suitable safety measures should be taken by those working on site to mitigate the risks associated with contaminated media including undertaking the appropriate risk assessments and ensuring all workers are wearing the correct PPE.
- Waste removed from site shall be disposed of at a suitable facility with the appropriate Waste Transfer Notices obtained for future records. Asbestos waste should be handled by a suitable waste contractor



1 INTRODUCTION

1.1 Instruction

- 1.1.1 Wheal Jane Consultancy (WJC) was commissioned by Ward Williams Associates on behalf of MWJV Ltd, to undertake a Phase II Ground Investigation at the site known as 'Penzance Harbour'.
- 1.1.2 This report has been prepared by Wheal Jane Consultancy solely for the benefit of the client. It shall not be relied upon or transferred to any third party without the prior written authorisation of WJC.

1.2 **Scope and Objectives**

- 1.2.1 The objective of this investigation is to quantify any land contamination based on in-situ data collected from the actual site which will then be interpreted and evaluated.
- 1.2.2 This investigation was developed to target the possible contamination related to the sites historic use and/or natural geology.
- 1.2.3 The objective of this investigation is also to evaluate the geotechnical parameters of the sub-surface material in order to aid foundation design.
- 1.2.4 The conclusions and recommendations of this report are valid for a period of 12 months from the date of issue. Outside of this time frame the report will require reviewing by a suitably qualified geoenvironmental engineer / environmental scientist, to ensure that the report complies with any changes to industry standards, policies and/or guidelines.
- 1.2.5 It is recommended that a copy of this report be submitted to the local authority for checking, prior to commissioning any further work which may be required.
- 1.2.6 This assessment has been undertaken with guidance from BS10175:2011 and Environment Agency report CLR11, and as such represents a Phase II Ground Investigation.

1.3 Limitations

- 1.3.1 Field work consisted of discrete sampling across the site, to assess the character and degree of contamination. Conditions of the ground at locations not included within the investigation may be different from the tested locations.
- 1.3.2 This report considers site conditions at the time of the ground investigation, but ground conditions may change with time. If future work discovers ground conditions that vary



significantly from the findings available in this report, the conclusions should be reviewed in the context of the new information.

- 1.3.3 Findings were assessed in the context of standards and methodology current at the time of reporting.
- 1.3.4 The findings and conclusions in this report are based upon information derived from a variety of sources. WJC cannot accept liability for the accuracy or completeness of any information derived from third party sources.



2 THE SITE

2.1 Site Location and Layout

- 2.1.1 The site is located at Penzance Harbour approximately 0.50km to the south east of the town centre. The site is approximately centred on National Grid Reference SW 47672 30016.
- 2.1.2 The site is irregular in shape and covers an area of approximately 0.25ha.
- 2.1.3 A site location plan (SLP) is contained in Figure 2.1, to the rear of the report.
- 2.1.4 The current site plan is contained in Figure 2.2, to the rear of the report.

2.2 Surrounding area

Direction	Land Use
North	Harbour
East	Harbour
South	Commercial
West	Commercial

2.3 **Proposed Development**

- 2.3.1 It is proposed to demolish the existing buildings and modernise the harbour.
- 2.3.2 A proposed development plan was not available at the time of completing this investigation.



3 SITE INVESTIGATION

3.1 Phase I Findings

- 3.1.1 A Phase I Desk Study was undertaken by WSP in April 2018 (Ref: 70028692).
- 3.1.2 The desk study concluded the site was historically used as a historic harbour. It was concluded that an investigation would be required involving soil sampling and testing as well as ground gas and groundwater monitoring.

3.2 Site Works

- 3.2.1 An intrusive site investigation was conducted from 5th to 10th October 2022. The investigation was overseen by a geoenvironmental engineer from Wheal Jane Consultancy.
- 3.2.2 The following table summarises the intrusive investigation techniques employed during the site investigation;

 Table 3.1: Site Works

Exploratory Hole Type	Exploratory Hole ID	Hole Depths (mBGL)	Comments
Rotary Coring	RC01 – RC03	9.00 - 10.30	Undertaken for site coverage.

3.2.3 Exploratory hole logs are included as Appendix A.

3.2.4 A plan showing the location of the exploratory holes is provided as Figure 3.1.



3.3 Rotary Coring

- 3.3.1 Three (3 No) Rotary Boreholes, designated BH01 BH03 inclusive, were advanced to depths of between 9.00 10.30mBGL using a Comacchio 205 drilling rig on 5th 10th October 2022.
- 3.3.2 All boreholes were advanced using rotary percussive techniques until refusal, at which point rotary coring commenced.
- 3.3.3 The drilling equipment on this particular contract utilised air-mist as the flushing medium.
- 3.3.4 The locations of all Rotary Boreholes can be seen on the exploratory hole location plan, contained as Figure 3.1.
- 3.3.5 Logs are contained within Appendix A, and core Photographs are contained as Appendix B.
- 3.3.6 All boreholes were backfilled with bentonite.

3.4 Installations and Monitoring

3.4.1 Gas and groundwater monitoring standpipes were installed in the following exploratory holes in order to allow long term monitoring;

 Table 3.2: Borehole Installations

Exploratory Hole	Seal (mBGL)	Filter Zone (mBGL)
RC01	0.00 – 1.00	1.00 - 9.00
RC02	0.00 – 1.00	1.00 – 9.20
RC03	0.00 – 1.00	1.00 – 10.30

- 3.4.2 Gas and Groundwater monitoring commenced on the 18th October 2022, with further visits on the 24th October, 1st November and 7th November.
- 3.4.3 In addition to groundwater levels, the following parameters were measured and recorded using a G505363 ground gas meter:
 - % Vol of; O₂, H₂S, CO₂, CH₄, CO
 - Flow Rate
 - Barometric pressure



3.4.1 The results are included as Appendix C.

3.5 Geotechnical Sampling and Testing

- 3.5.1 Samples were dispatched to an accredited geotechnical laboratory in order to classify the geotechnical properties of the soils. The following tests were scheduled:
 - Point Lode
 - UCS
 - pH & Water-Soluble Sulphate
- 3.5.2 All testing was carried out in accordance with the procedures set out in BS EN ISO/IEC 17025:2005.
- 3.5.3 All samples were tested by a UKAS accredited laboratory.
- 3.5.4 The results are included as Appendix D.

3.6 **Chemical Sampling and Testing**

- 3.6.1 The proposed end use of the site is for commercial use and the subsequent data analysis will be conducted using this setting to test for levels of contaminants against generic assessment criteria.
- 3.6.2 The Phase I report highlighted heavy metals, sulphates, pH, total petroleum hydrocarbons and polycyclic aromatic hydrocarbons as the primary contaminants of concern.
- 3.6.3 All retrieved samples were logged in accordance with BS5930;2015 and BS EN ISO 14689. Collection of media for environmental testing was obtained, stored in plastic tubs and glass jars and kept within a temperature controlled cool box before being dispatched for testing.
- 3.6.4 Samples were taken at varying depths and tested for potential contaminants including the following;
 - Heavy Metals (As, B, Cd, Cr, Cu, Hg, Pb, Ni, Se, Zn)
 - Sulphates
 - Polyaromatic Hydrocarbons
 - pH
 - Total Petroleum Hydrocarbons
 - Asbestos
 - 3.6.1 All samples were tested by a UKAS and MCERT accredited laboratory.
 - 3.6.2 The results are included as Appendix D.



4 GROUND CONDITIONS

4.1 General

4.1.1 The BGS 1:50,000-scale bedrock geological map Sheet 351 & 358, Penzance of the area shows the site to be underlain by the Mylor Slate Formation. Superficial marine beach deposits are also present on site. An Unnamed Igneous Intrusion, Devonian - Metagabbro and metamicrogabbro. Metamorphic bedrock formed between 419.2 and 358.9 million years ago during the Devonian period is also mapped nearby. This is often locally referred to as 'Blue Elvan'.

4.1.2 The following table represents a summary of the strata encountered beneath the site; **Table 4.1:** Ground Conditions

Strata	Depth Encountered (mBGL)		Typical Thickness	Brief Description &
	From	То	(m)	Commoniy
Made Ground (Surfacing)	0.00	0.18 – 0.35	0.276	Tarmac, concrete or cut Granite cobbles
Made Ground				Grey and brown clayey, sandy GRAVEL of MUDSTONE
(Fill)	0.18 – 0.35	3.20 – 3.70	3.43	&
				Very sandy, very gravelly CLAY
Superficial Deposits	3.20 – 3.70	5.20 – 6.10	2.13	Brown and dark grey slightly clayey, very sandy GRAVEL of MUDSTONE
				Highly weathered, light blueish grey MUDSTONE
Mylor Slate Formation	5.20 – 5.40	7.70 – 9.00	Unproven	&
				Clayey, sandy GRAVEL of MUDSTONE
Blue Elvan	6.10 – 7.70	9.20 - 10.30	Unproven	Slightly weathered BLUE ELVAN

4.2 Strength Classification Tests

4.2.1 Point load tests were completed at regular intervals within the unit to ascertain the Uniaxial Compressive Strength (UCS) and thus the strength of the material. Conversion



factors are available (for example as outlined in *Tomlinson*, Foundation Design and Construction, Table 1.4), however since UCS testing was completed on the same material, a site-specific conversion factor of 21 was deduced.

Table 4.2: Strength Classifications

Borehole	Depth (mBGL)	Test Method	Uniaxial Compressive Strength (Mpa)	Strength Classification (BS5930 & BS EN ISO 14689-1)	Strata
BH01	6.7-6.8	Point Load	1.89	Very Weak	Mylor Slate Formation
BH01	7.4-7.5	Point Load	4.41	Very Weak	Mylor Slate Formation
BH01	8-8.06	Point Load	2.52	Very Weak	Mylor Slate Formation
BH01	8.2-8.3	Point Load	8.40	Weak	Mylor Slate Formation
BH01	8.9-9.0	Point Load	1.68	Very Weak	Mylor Slate Formation
BH02	5.9-6.0	Point Load	2.31	Very Weak	Mylor Slate Formation
BH02	6.4-6.5	Point Load	36.75	Medium Strong	Mylor Slate Formation
BH02	7.0-7.1	Point Load	32.55	Medium Strong	Mylor Slate Formation
BH02	7.7-7.8	Point Load	107.1	Very Strong	Blue Elvan
BH02	9.1-9.2	Point Load	127.47	Very Strong	Blue Elvan
BH03	6.25-6.35	Point Load	7.35	Weak	Blue Elvan
BH03	6.45-6.6	Point Load	3.36	Very Weak	Blue Elvan
BH03	7.6-7.7	Point Load	5.46	Weak	Blue Elvan
BH03	9.2-9.3	Point Load	5.88	Weak	Blue Elvan
BH04	9.9-10.0	Point Load	2.10	Very Weak	Blue Elvan
BH02	8.20-8.50	UCS	64.5	Strong	Blue Elvan

4.3 Made Ground

4.3.1 All holes encountered horizons made ground of surface horizons of tarmac, concrete or cut granite cobbles between 0.18m and 0.35mBGL. Surface horizons of made ground were underlain by subsequent horizons of made ground, consisting of grey and brown



clayey, sandy GRAVEL of Mudstone and very sandy, very gravelly CLAY between 0.18m and 3.70mBGL.

4.3.2 No anthropogenic components were noted within the material. It is likely that this is imported fill material, used to increase the surface level behind harbour walls.

4.4 Superficial Deposits

- 4.4.1 Material described as Superficial Deposits were encountered across the site to depths of up to 6.10mBGL.
- 4.4.2 The unit may be generally described as brown and dark grey slightly clayey, very sandy GRAVEL of MUDSTONE.

4.5 Weathered Mylor Slate Formation

- 4.5.1 Material described as Weathered Mylor Slate Formation was encountered across the site to depths of up to 9.00mBGL. The typical thickness of this unit is unproven.
- 4.5.2 The unit may be generally described as highly weathered, light blueish grey MUDSTONE with frequent horizons of non-intact, clayey, sandy GRAVEL of MUDSTONE.

4.6 Weathered Blue Elvan

- 4.6.1 Material described as Weathered Blue Elvan was encountered across the site to depths of up to 10.30mBGL. The typical thickness of this unit is unproven.
- 4.6.2 The unit may be generally described as slightly weathered BLUE ELVAN.

4.7 Standard Penetration Tests (SPTs)

4.7.1 Standard Penetration Tests (SPTs) were completed during window sampling, prior to rotary coring in all boreholes (RC01 – RC03) at regular intervals within the Made Ground, Superficial Deposits, Weathered Mylor Slate Formation and Weathered Blue Elvan, and can be summarised below;

Depth (mBGL)	SPT 'N' Value			
	Min	Max	Average	
1.20	2	4	3.3	
2.20	5	6	5.3	
3.20	7	13	9.7	
4.20	14	29	19.0	
5.20	22	50	36.0	

 Table 4.3: Standard Penetration Tests within the Weathered Mylor Slate Formation



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5.50	50	50	50.0
6.20	48	48	48.0

4.8 Groundwater

4.8.1 Groundwater was encountered the following exploratory holes:

 Table 4.4: Groundwater Encountered

Exploratory Hole	Groundwater Level (mBGL)	Stratum
RC01	1.90	Made Ground
RC02	1.45	Made Ground
RC03	3.10	Made Ground



5 GEOTECHNICAL ASSESSMENT

5.1 Introduction

- 5.1.1 It is proposed to demolish the existing structures and replace with modern buildings. Exact development proposal were not yet finalised at the time of completing this report.
- 5.1.2 At the time of writing this report, no definitive structural loads have been provided by the client.

5.2 **Foundation Options**

- 5.2.1 Based on the ground conditions encountered it is considered that conventional strip foundations will likely not be suitable to support the proposed new structures due to the significant depth to bedrock, presence of Made Ground with variable strength and location of the site area on the harbour wall which also overlies the historic harbour wall.
- 5.2.2 A piled foundation solution could be considered, with end-bearing piles driven through the Made Ground/Harbour wall and socketed within the underlying Mylor Slate Formation/Blue Elvan. It is considered that a socket of approximately 3m into the competent bedrock strata would be sufficient. It is recommended a local piling contractor should be contacted and available piling methods considered to ensure the minimum amount of vibrations so as not to damage the existing site area.

5.3 Floor Slabs

- 5.3.1 Based on the results of laboratory testing and on-site observations, it is considered that a ground bearing floor slab seated within the Made Ground would not be appropriate. Suspended floor slabs should therefore be considered.
- 5.3.2 Full radon protection should be incorporated into the floor slab in accordance with BRE guidelines.

5.4 **Excavations and Earthworks**

- 5.4.1 Excavations to at least 1.20m should be readily achievable with conventional soil excavating machinery. Excavations to this depth are unlikely to stand unsupported in the short term due to the presence of Made Ground.
- 5.4.2 Any excavations to greater than 1.20m which require personnel to enter should be supported.
- 5.4.3 Due to the fines content of the fill material, excavations should be covered during periods of inclement weather to prevent wetting and subsequent degradation.



5.4.4 It is considered that groundwater will not be encountered in shallow excavations.

5.5 Chemical Attack on Buried Concrete

- 5.5.1 Chemical testing indicates water soluble sulphate contents of 115-1720mg/l, with pH values of 7.5-8.2.
- 5.5.2 Based on the above results the site may be classified as falling into the Design Sulphate Class DS-1. The Aggressive Chemical Environment for Concrete (ACEC) class is based upon the pH and mobility of groundwater. The results indicate that the soils on site fall into class AC-1.



6 CONTAMINATION ASSESSMENT

6.1 Comparison with Generic Assessment Criteria (GACs)

- 6.1.1 The laboratory results are contained as Appendix D.
- 6.1.2 Results from the environmental testing can be compared against Generic Assessment Criteria (GAC) to form the basis of a GQRA. The GAC's used are taken from the LQM/CIEH 'Suitable 4 Use Levels' publication. In the absence of a suitable S4UL value (such as Lead), reference has been made to DEFRA's Category 4 Screening Levels (C4SL) where deemed justifiable. Given the proposed land use for this site, the commercial setting has been chosen for the appropriate set of criteria. A comparison table can be found below.

Contaminant	GAC's: S4UL's - Commercial (unless stated)	Minimum	Maximum	Exceedances							
Metals											
Arsenic	Arsenic 640 17 140										
Boron	240000	0.7	8.3	0							
Cadmium	190	<0.2	<0.2	0							
Chromium (III)	8600	23	73	0							
Chromium (VI)	33	<1.8	<1.8	0							
Copper	68000	49	310	0							
Mercury (inorganic)	1100	<0.3	<0.3	0							
Nickel	980	80 27		0							
Lead	2300	17	150	0							
Selenium	12000	<1.0	<1.0	0							
Zinc	730000	73	870	0							
	Genero	al									
Asbestos	N/A	None D	etected	0							
рН	N/A	7.5	8.2	-							

Table 6.1: Comparison of soil results against GAC's (Commercial 2.5% organic matter; based on the average value recorded – all values in mg/kg unless stated)



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Organic Matter %	N/A	0.60	7.3	-								
Sulphates (water soluble, g/l)	N/A	0.11	1.70	-								
Cyanide (total)	23 (USEPA)	<1.00	<1.00	-								
Phenols	380	<1.00	<1.00	0								
Organics												
Polycyclic Aromatic Hydrocarbons (PAH, 16)												
Acenaphthene	97000	<0.05	0.25	0								
Acenaphthylene	97000	<0.05	0.60	0								
Anthracene	540000	<0.05	2.30	0								
Benzo(a)anthracene	170	0.19	7.10	0								
Benzo(a)pyrene	35	0.18	7.40	0								
Benzo(b)fluoranthene	44	0.15	6.90	0								
Benzo(ghi)perylene	4000	0.12	3.20	0								
Benzo(k)fluoranthene	1200	0.09	7.40	0								
Chrysene	350	0.16	7.30	0								
Dibenzo(ah)anthracene	3.6	<0.05	0.84	0								
Fluoranthene	23000	0.26	18.0	0								
Fluorene	68000	<0.05	0.67	0								
Indeno (123-cd) pyrene	510	0.09	3.00	0								
Naphthalene	460	<0.05	0.44	0								
Phenanthrene	22000	0.13	9.00	0								
Pyrene	54000	0.23	15.00	0								
PAH (Total 16)	N/A	1.71	89	-								
	Total Petroleum Hyd	drocarbons (TPH)										
Benzene	110000	<1.00	<1.00	0								
Toluene	13000	<1.00	<1.00	0								
Ethylbenzene	15000	<1.00	<1.00	0								
o-xylene	14000	<1.00	<1.00	0								



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m & p-xylene	14000	<1.00	<1.00	0
Methyl Tertiary Butyl Ether (MTBE)	14000	<1.00	<1.00	0
Aliphatic >C5-C6	5900	<0.001	<0.001	0
Aliphatic >C6-C8	17000	<0.001	<0.001	0
Aliphatic >C8-C10	4800	<0.001	<0.001	0
Aliphatic >C10-C12	23000	<1.0	2.2	0
Aliphatic >C12-C16	82000	<2.0	7	0
Aliphatic >C16-C21	1700000	<8.0	13	0
Aliphatic >C21-C35	1700000	<8.0	9.4 70	0
Aromatic >C5-C7	46000	<0.001	<0.001	0
Aromatic >C7-C8	110000	<0.001	<0.001	0
Aromatic >C8-C10	8100	<0.001	<0.001	0
Aromatic >C10-C12	28000	<1.0	1.6	0
Aromatic >C12-C16	37000	<2.0	6.1	0
Aromatic >C16-C21	28000	<10	39	0
Aromatic >C21-C35	28000	<10	47	0
Aromatic >C35-C44	28000	<10	37	0
Total TPH	N/A	35	110	0



- 6.1.3 Soil pH values ranged from 7.50 to 8.20 with an average of 7.90.
- 6.1.4 Soil Organic Matter (SOM) testing was undertaken on 7 samples. An average value of 2.4% was calculated, resulting in a value of 2.5% SOM being adopted.
- 6.1.5 No asbestos was recorded during testing.
- 6.1.6 No elevated levels of VOCs, SVOCs, TPH or PAH were recorded.

6.2 Ground Gas Risk

- 6.2.1 To access the risk posed by ground gases at the site four rounds of gas monitoring were undertaken following the intrusive investigation at one-week intervals.
- 6.2.2 Concentrations of CH4, CO2, CO, H2S and O2 were recorded using a G505363 gas extraction monitor.
- 6.2.3 The measured concentrations of potential ground gases (volume in air) and flow rates (I/hr) have been used to calculate Gas Screening Values (GSVs). These have also been compared to CIRIA Report 665.
- 6.2.4 It is recommended that the gas risk should be assessed by the consideration of pathways as follows:
 - Gas ingress into the property through the substructure and building up to hazardous levels.
 - Future site user's exposure in garden areas, including any extensions, outbuildings or excavations for garden features.
- 6.2.5 The following table tabulates the ground gas parameters that have been recorded over 4nr rounds of gas monitoring. Full results are contained in Appendix C.

Table 6.2: Minimum and Maximum values taken from the 4nr gas monitoring visits.

	Minimum	Maximum
Flow rate (I/hr)	0.1	0.10
CH₄ (%∨/∨)	ND	ND
CO ₂ (%v/v)	0.10	0.40
CO (ppmv)	ND	2.00
H ₂ S (%v/v)	ND	ND
O ₂ (%v/v)	19.20	21.10



- 6.2.6 The maximum concentrations observed at the site were used to calculate the Gas Screening Value using the formula:
- 6.2.7 GSV (I/hr) = concentration of gas (% v/v converted to decimal) * flow rate (I/hr)
- 6.2.8 Carbon dioxide: 0.004 * 0.10 = 0.0004/hr (where flow rate is recorded as zero use limit of detection)
- 6.2.9 No concentration was observed for methane or hydrogen sulphide.
- 6.2.10 Concentrations of carbon monoxide (2ppmv) were encountered during the second and third monitoring visits only (24th October and 1st November) by Cormac Consultancy. No Carbon Monoxide was encountered during the first and final visits.
- 6.2.11 The type of development proposed is commercial, according to the CIRIA guidance document (C659, 'Assessing risks posed by hazardous ground gases to buildings'). A clear ventilated underfloor void is likely to be included in the building plans. Situation B, is for low rise developments with a ventilated underfloor void. Using the gas screening value obtained above and the typical maximum gas concentrations (carbon monoxide and carbon dioxide) the site should be categorised as 'green'.





6.3 **Refined Conceptual Site Model**

 Table 6.3: Refined Conceptual Model

Preli	Preliminary Conceptual Model											
	Source(s)	Contaminant(s)	Pathway(s)	Receptor(s)	Probability	Consequence	Risk Assessment					
		Radon gas	Ingress into proposed buildings	Future site users	High	Severe	High Risk – Development is within an area where between 10-30% of properties are affected.					
	Natural		Dermal contact	Future site users								
	Geology	Heavy Metals	ingestion and	Site workers	Unlikely	Medium	Low Risk – Levels of all heavy metals were below the relevant generic assessment					
			inhalation Ground & surface waters	Site flora and fauna	ormicoly		criteria for commercial end use.					
On Site		Heavy Metals (Arsenic, cadmium, copper, lead, zinc)	Dermal contact	Future site users	Unlikely							
			Soil and dust	Site workers		Medium	below the relevant generic assessment					
			inhalation	Site flora and fauna	/		criteria for commercial end use.					
				Future site users								
	Historic	Polycyclic Aromatic	Dermal contact	Site workers	Unlikely	Medium	Low Risk – Levels of all PAHs were below the relevant generic assessment criteria					
	Harbour	Hydrocarbons	ingestion	Site flora and fauna	/		for commercial end use.					
			Dermal contact	Future site users								
		Asbestos	Soil and dust	Site workers	Unlikely	Medium	Low Risk - Asbestos was not identified in					
		inhalation	Site flora and fauna			any of the samples tested.						



	VOCs & SVOCs	Dermal contact Soil and dust ingestion and inhalation	Future site users Site workers Site flora and fauna	Unlikely	Medium	Low Risk – Levels of all SVOCs & VOCs were below the relevant generic assessment criteria for commercial end use
_	Total Petroleum Hydrocarbons	Dermal contact Soil and dust ingestion and inhalation Ground & surface waters	Future site users Site workers Site flora and fauna	Unlikely	Medium	Low Risk – Levels of all TPHs were below the relevant generic assessment criteria for commercial end use.
	Ground Gas	Ingress into proposed buildings	Future site users	Unlikely	Medium	Low Risk – No concentration was observed for methane or hydrogen sulphide. Concentrations of carbon monoxide (2ppmv) were encountered during the second and third monitoring visits only (24th October and 1st November) by Cormac Consultancy. No Carbon Monoxide was encountered during the first and final visits. The type of development proposed is commercial, according to the CIRIA guidance document (C659, 'Assessing risks posed by hazardous ground gases to buildings'). A clear ventilated underfloor void is likely to be included in the building plans. Situation B, is for low rise developments with a ventilated underfloor void. Using the gas screening value obtained above and the typical maximum gas concentrations (carbon monoxide and carbon dioxide) the site should be categorised as 'green'.



7 CONCLUSIONS

- 7.1.1 The site was subject to a Phase II Ground Investigation to determine the level and risk of potential contamination, as well as the stability and geotechnical parameters of the underlying material.
- 7.1.2 It can be concluded that all contaminants tested are below the relevant generic acceptance criteria. The site is likely to be suitable for its intended use.
- 7.1.3 It is considered that conventional strip foundations will not be appropriate at the site, due to the extent and geotechnical properties of the Made Ground and historic harbour wall across the site.
- 7.1.4 Based on the site observations, In-situ and laboratory testing, it is considered that a piled foundation solution is appropriate, with end-bearing piles driven through the Made Ground/harbour wall and socketed a minimum of 3.00m into the competent bedrock, the underlying Mylor Slate Formation/Blue Elvan.

8 **RECOMMENDATIONS**

- 8.1.1 As the site is situated in an area where between 10-30% of the properties are above the action level, it is recommended that full radon protective measures are installed on any proposed building.
- 8.1.2 Suitable safety measures should be taken by those working on site to mitigate the risks associated with contaminated media including undertaking the appropriate risk assessments and ensuring all workers are wearing the correct PPE.
- 8.1.3 Waste removed from site shall be disposed of at a suitable facility with the appropriate Waste Transfer Notices obtained for future records. Asbestos waste should be handled by a suitable waste contractor.



9 **REFERENCE LIST**

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- 9.1.3 British Research Establishment (BRE) (2005) Special Digest 1 Concrete in Aggressive Ground. 3rd edn. Watford, BRE
- 9.1.4 Chartered Institute of Environmental Health (CIEH) and Contaminated Land: Applications in Real Environments (CL:AIRE) (2008) Guidance on Comparing Soil Contamination Data with a Critical Concentration. London, CIEH
- 9.1.5 CIRIA (2001) CIRIA C552 Contaminated land risk assessment: A guide to good practice. London, CIRIA
- 9.1.6 CIRIA (2007) CIRIA C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings. London, CIRIA
- 9.1.7 Contaminated Land: Applications in Real Environments (CL:AIRE), Association of Geotechnical and Geo-environmental Specialists (AGS) and The Environmental Industries Commission (EIC) (2010) Soil Generic Assessment Criteria for Human Health Risk Assessment. London, CL:AIRE
- 9.1.8 Contaminated Land: Applications in Real Environments (CL:AIRE) (2012) A Pragmatic Approach to Ground Gas Risk Assessment. Research Bulletin 17
- 9.1.9 Contaminated Land: Applications in Real Environments (CL:AIRE) (2016) CAR SOIL: Control of Asbestos Regulations 2012. Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials.
- 9.1.10 Environment Agency (2004) Contaminated Land Report 11 Model Procedures for the Management of Land Contamination. Bristol, Environment Agency
- 9.1.11 Environment Agency (2009) Updated Technical Background to the CLEA Model. Science Report SC050021/SR3. Bristol: Environment Agency
- 9.1.12 Environment Agency (2009) Human Health Toxicological Assessment of Contaminants in Soil. Science Report SC050021/SR2. Bristol: Environment Agency
- 9.1.13 Great Britain. Environmental Protection Act (1990). London, The Stationery Office
- 9.1.14 Great Britain. Water Act (2003) London, The Stationery Office
- 9.1.15 Great Britain. Environmental Permitting Regulations (2007). London, The Stationery Office
- 9.1.16 Great Britain. Environmental Damage (Prevention and Remediation) Regulations (2009). London, The Stationery Office

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Penzance Harbour Modernisation Scheme

- 9.1.17 Great Britain. The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015. London, The Stationery Office
- 9.1.18 National House Building Council (NHBC), Environment Agency and Chartered Institute of Environmental Health (CIEH) (2008) Research & Development Publication 66: Guidance for the Safe Development of Housing on Land Affected by Contamination. Amersham, NHBC
- 9.1.19 Royal Institution of Chartered Surveyors (RICS) (2012) Japanese Knotweed and Residential Property. Coventry, RICS



10 **NOTES**

- 10.1.1 This report is concerned solely with the property, as defined by this report, or parts thereof examined.
- 10.1.2 The report should not be used in connection with adjacent properties.
- 10.1.3 In respect of site works, Wheal Jane Consultancy cannot accept any liabilities for any additional mine workings found outside the limits of any areas examined.
- 10.1.4 The information supplied by third parties which has been used in compiling this Phase 2 ground investigation report, is derived from a number of statutory and non-statutory sources. While every effort is made by the supplier to ensure accuracy, the supplier cannot guarantee the accuracy or completeness of such information or data, nor to identify all the factors that may be relevant.
- 10.1.5 The conclusions and recommendations relate to the type and extent of development outlined in this report for this specific property only and should not be taken as suitable for any other form or extent of development on this property without further consultation with Wheal Jane Consultancy.
- 10.1.6 This report is confidential to the client, the client's legal and professional advisors, and may not be reproduced or distributed without our permission other than to directly facilitate the sale or development of the property concerned.
- 10.1.7 We have no liability toward any person not party to commissioning this report.
- 10.1.8 Unless otherwise expressly stated, nothing in this report shall create or confer any rights or other benefits pursuant to the Contracts (Rights of Third Parties) Act 1999 in favour of any person other than the person commissioning this report.
- 10.1.9 This report is not an asbestos inspection that may fall within the control of Control of Asbestos Regulations 2006



FIGURES:



Title: Site Location Plan

Project: Penzance Harbour Modernisation

Client: MWJV LTd Report Title: Geo Date: 5-10 October 2022 Ref: 21155







Legend:



Current Site Layout

Project:

Penzance Harbour Modernisation

21155

Client:

MWJV LTd

Date:	5-10 October 2022
Scale:	NTS
Drawn by:	-
Revision:	А
Figure:	2.2







APPENDIX A

Exploratory Hole Logs

Wheal Jane Consultancy Internet Active state							Site Penzance Harbour Modernisation	Borehole Number RC01				
Boring Meth Rotary Core COMMACHI	10d d using GE O	EO 205	Casing	Diamete	Pr	Ground	Level (mOD) 4.50	Client WWA		Job Nur 21		
			Location Penzance Harbour		Harbour	Dates 05	5/10/2022	Engineer Wheal Jane Consultancy			1/5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
							(0.18)	MADE GROUND. Light grey granite cobbles with cement between.		- - -		
						4.32	0.18 	MADE GROUND. Dark grey slightly clayey, very sandy subangular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.				
0.40					ES		(0.37) 					
0.60-1.60					BS	3.95	- 0.55 	MADE GROUND. Very loose, mid brown clayey, very sandy subangular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.				
0.75					ES		-					
							 (1.05) 					
1.20 1.20-1.65					1,1/0,1,0,1 SPT N=2		- - - -					
						2.90	 1.60 	MADEGROUND. Firm to stiff light and mid grey sandy, gravelly CLAY. Gravel is subangular to subrounded fine to coarse of Mudstone. Sand is				
1.70					ES		-	fine to coarse.				
1.80					D Water strike(1) at 1.90m.		(0.40) 			∇ 1		
Remarks									Scale		ogged	
Gas and gro concrete sea Groundwate 5.50 - 6 00m	unwater m al. r encounte BGL > ດາ	ered at 1.9 ered at 1.9	porehole i 0mBGL	nstalled	with round flush cove	r. Gravel b	acktill & slotte	a pipe, tollowed by plain pipe with bentonite &	(approx)	₿ÿ	MJC	
1.20 - 5.50m 0.00 - 1.20m 6.00 - 9.00m	BGL > Wii BGL > Exc BGL > Ro	ndowless cavated w tary cored	sampled ith handto	ols					Figure N	↓ \o .	201	

Wheal Jane Consultancy						Site Penzance Harbour Modernisation	Borehole Number RC01					
Boring Meth Rotary Corec COMMACHI	10d d using GE	EO 205	Casing	Diamete	er	Ground	Level (mOD) 4.50	Client WWA		Job Nui 21		r
			Location Penzance I		Harbour	Dates 05	5/10/2022	Engineer Wheal Jane Consultancy		SI	h eet 2/5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Insti	r
2.00-3.70					BS	2.50	2.00	MADE GROUND. Loose mid brown clayey, very sandy angular to subangular fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.				
2.20 2.20-2.65					1,2/1,1,1,2 SPT N=5							
3.20 3.20-3.65					2,3/3,2,2,2 SPT N=9		-					
3.70-4.00					BS	0.80	- 3.70 (0.50)	Loose becoming medium dense, mid brown claye very sandy angular to subangular fine to coarse GRAVEL of Mudstone. Sand is fine to coarse. Strata shows organisation from this level.				
Remarks Gas and gro concrete sea	unwater m al.	ionitoring	borehole i	nstalled	with round flush cove	r. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx)	L¢ B	ogged y	
5.50 - 6.00m 1.20 - 5.50m 0.00 - 1.20m 6.00 - 9.00m	BGL > Op BGL > Win BGL > Win BGL > Exc BGL > Ro	ened at 1.9 en hole ndowless cavated w tary cored	sampled ith handto	ols					1:10 Figure N 2115	lo. 5.R(MJC	

Wheal Jane Consultancy			Site Penzance Harbour Modernisation	Borehole Number RC01									
	0		0		501								
Rotary Cored using GEO 205 COMMACHIO				4.50	Client WWA			umber 21155					
	Location Penzar	nce Harbour	Dates 05/10/2022		Engineer Wheal Jane Consultancy		She :	et 3/5					
Depth TCR SCR (m) (%) (%)	RQD (%) F	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr					
4.20 4.20-4.65 4.50-5.40		3,5/4,4,3,3 SPT N=14 BS	0.30	- 4.20 - 4.20 	Medium dense dark grey slightly clayey, very sandy angular to subangular fine to coarse GRAVEL of Mudstone. Sand is fine to coarse. Mild organic aroma from this horizon.								
4.90		ES		- (1.20) - - - - - -									
5.20		11,14/18,32 Open hole 5.50 - 6.00mBGL SPT N=50	-0.90 -1.00	- 5.40 - (0.10) - 5.50 	Medium dense light to mid grey angular to subangular medium to coarse GRAVEL of Mudstone. Dense. No recovery.								
6.00 Remarks Gas and grounwater monitoring concrete seal. Groundwater encountered at 1.9 5.50 - 6.00mBGL > Open hole 1.20 - 5.50mBGL > Windowless 0.00 - 1.20mBGL > Excavated w 6.00 - 9.00mBGL > Rotary cored	borehole instal 0mBGL sampled ith handtools	Illed with round flush cover.	. Gravel b	⊨	d pipe, followed by plain pipe with bentonite &	Scale (approx) Logged 1:10 MJC Figure No.							
Wheal Jan Consultant									Site Penzance Harbour Modernisation		B N F	orehol umber RC01	le r
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Boring Meth Rotary Corec COMMACH	i od 1 using GE O	EO 205	Casing	Diamete	er	Ground	Level (mC 4.50)	Client WWA		J	ob umber 21155	r
			Locatio Pe	n nzance	Harbour	Dates	5/10/2022		Engineer Wheal Jane Consultancy		S	heet 4/5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickne	ss)	Description	Legend	Water	Instr	r
6.25				NI		-1.75 -2.03	- 6.2 - (0.2 - 6.4	25 · 28)	Recovered as mid to dark grey, clayey, sandy, angular to subangular fine to coarse GRAVEL of very weathered mudstone. Sand is fine to coarse.				
6.70-6.80	85	45	0	90	со		 (0.2	?7)	to highly weathered, light to dark blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped, rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are reddish dark grey.				
6.80				NI	-	-2.30	6.8 (0.1	80	Recovered as mid to dark grey, clayey, sandy, angular to subangular fine to coarse GRAVEL of very weathered mudstone. Sand is fine to coarse.				
6.98 7.06				90	-	-2.48	6.9 (0.0	98)8) 06	Extremely weak, very thinly laminated, moderately to highly weathered, light to dark blueish grey MUDSTONE. Horizontal to subhorizontal,				
1.00				NI	_	-2.67	(0.1	1)	rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are reddish dark grey.				
7.17				80		-2.84	- (0.1 - 7	7)	angular to subangular fine to coarse GRAVEL of very weathered mudstone. Sand is fine to coarse. Extremely weak, very thinly laminated, moderately to highly weathered, light to dark blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped.				
7.34 7.40-7.50				NI	со	-2.04	(0.1	6)	rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are reddish dark grey. Recovered as mid to dark grey, clayey, sandy, angular to subangular fine to coarse GRAVEL of		•		
7.50				85	-	-3.00	- 7.9 - (0.1	50	very weathered mudstone. Sand is fine to coarse. Extremely weak, very thinly laminated, moderately to highly weathered, light to dark blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped, rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are reddish dark grey.				
7.69				NI	-	-3.19	7.6 (0.1	69 9)	Recovered as mid to dark grey, clayey, sandy, angular to subangular fine to coarse GRAVEL of very weathered mudstone. Sand is fine to coarse.		•		
7.88						-3.38	7.8	88	Extremely weak, very thinly laminated, moderately to highly weathered, light to dark blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped,	· · · · · ·			
Remarks Gas and grou concrete sea Groundwater	unwater m l. · encounte	onitoring	borehole i 00mBGL	nstalled	with round flush cove	r. Gravel b	ackfill & slo	otteo	d pipe, followed by plain pipe with bentonite &	Scale (approx)	B	ogged y	
1.20 - 5.50m 0.00 - 1.20m 6.00 - 9.00m	BGL > Wi BGL > Exc BGL > Ro	ndowless cavated w tary cored	sampled ith handto l	ols						Figure N 2115	lo. 5.R	C01	

Wheal Jan Consultan								Site Penzance Harbour Modernisation		Bo Ni F	orehole umber RC01
Boring Meth Rotary Corec COMMACHI	10d d using GE O	EO 205	Casing	Diamete	r	Ground	Level (mOD) 4.50	Client WWA		Jo Ni 2	ob umber 21155
			Locatio Pe	n nzance ł	Harbour	Dates 05	5/10/2022	Engineer Wheal Jane Consultancy		SI	n eet 5/5
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
8.00-8.06 8.20-8.30	100	51	0	70	со		(0.52) 	rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are reddish dark grey.			
8.40					-	-3.90	- 8.40	Recovered as mid to dark grey, clayey, sandy,			
8.48	NI 90			-	-3.98	8.48	ery weathered mudstone. Sand is fine to coarse Extremely weath, very thinly laminated, moderately to biably weathered, light to dark blueich areve				
8.61				90	_	-4.11	- (0.13) - 8.61	MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped rough and slightly infiled with clayey, sandy,			
				NI			- - - (0.39)	gravel. Fracture surfaces are reddish dark grey. Recovered as mid to dark grey, clayey, sandy, angular to subangular fine to coarse GRAVEL of very weathered mudstone. Sand is fine to coarse.			
8.90-9.00					со		_				
9.00						-4.50	- 9.00	Complete at 9.00m			
Remarks Gas and gro concrete sea Groundwate	unwater m al. r encounte	onitoring t red at 1.9	oorehole i 0mBGL	nstalled	with round flush cover	r. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx)	Lo B	ogged V
5.50 - 6.00m 1.20 - 5.50m 0.00 - 1.20m 6.00 - 9.00m	BGL > Op BGL > Wir BGL > Exc BGL > Rot	en hole ndowless s cavated wi tary cored	sampled th handto	ols					1:10 Figure N 2115	 Io. 5.R(MJC C01

Wheal Jan Consultan								Site Penzance Harbour Modernisation		B N F	orehole umber RC02
Boring Meth Rotary Core COMMACHI	10d d using GE	EO 205	Casing	Diamete	er	Ground	Level (mOD) 4.50	Client WWA		J	ob umber 21155
			Locatio Pe	n nzance	Harbour	Dates 06	6/10/2022	Engineer Wheal Jane Consultancy		S	heet 1/5
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						4.44 4.24 4.20	- (0.06) - 0.06 - (0.20) - 0.26 - (0.04) - 0.30 	MADE GROUND. Dark grey tarmac. MADE GROUND. Light grey granite cobbles with cement between. MADE GROUND. Light grey concrete. MADE GROUND. Mid brown, slightly orangish brown and dark grey, clayey, sandy subangular to subrounded fine to coarse GRAVEL of Mudstone Sand is fine to coarse.			
0.60					ES						
0.80-2.90					BS	3.70	- 0.80 	MADE GROUND. Very loose becoming loose dar grey, clayey, sandy subangular to subrounded fin to coarse GRAVEL of Mudstone. Sand is fine to coarse.	k a		
1.20 1.20-1.65 1.20					0,1/1,0,2,1 SPT N=4 ES Water strike(1) at 1.45m.		- - - - - -			∑1	
1.60					D		 (2.10) 				
Remarks 5.80 - 9.20m 0.00 - 1.20m 1.20 - 5 20m	⊔ IBGL > Ro IBGL > Exi IBGL > Wi	tary cored cavated w	l vith handto	ols	1	1		1	Scale (approx)	B	ogged y
5.20 - 5.80m Groundwate Gas and gro concrete sea	BGL > Op r encounte unwater m al.	en hole ered at 1.4 nonitoring	5mBGL borehole i	nstalled	with round flush cove	r. Gravel b	ackfill & slotte	ed pipe, followed by plain pipe with bentonite &	1:10 Figure M 2115	lo. 5.R	MJC

Wheal Jan Consultan								Site Penzance Harbour Modernisation		B N F	oreho umbe	ole er 2
Boring Meth Rotary Corec COMMACH	10d d using GE O	EO 205	Casing	Diamete	r	Ground	Level (mOD) 4.50	Client WWA		Jo	ob umbe 21158	er 5
			Locatio Pe	n enzance l	Harbour	Dates 06	6/10/2022	Engineer Wheal Jane Consultancy		S	heet 2/5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Ins	str
2.20 2.20-2.65 2.90-3.20					1,1/1,2,1,1 SPT N=5	1.60	- - - - - - - - - - - - - - - - - - -	MADE GROUND. Loose becoming medium dens orangish brown, clayey, sandy subangular to subrounded fine to coarse GRAVEL of Mudstone	e			
							- (0.30) -	Sand is fine to coarse.				
3.20 3.20-3.65 3.20-4.95					2,2/2,1,2,2 SPT N=7 BS	1.30	- 3.20 - - - -	Medium dense, mid brown and mid grey clayey, very sandy angular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.				
3.50					ES		-					
Remarks 5.80 - 9.20m 0.00 - 1.20m 1.20 - 5.20m 5.20 - 5.80m	BGL > Ro BGL > Exc BGL > Win BGL > Op	tary cored cavated w ndowless en hole	ith handto sampled	ols					Scale (approx) 1:10	B	ogge y MJC	d
Groundwater Gas and gro concrete sea	r encounte unwater m al.	ered at 1.4 ionitoring l	omBGL borehole i	nstalled	with round flush cover	r. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Figure N 2115	10. 55.R	C01	

Wheal Jan Consultan								Site Penzance Harbour Modernisation		B N F	oreh umb RC(iole er)2
Boring Meth Rotary Corec COMMACH	10d d using GE O	EO 205	Casing	Diamet	er	Ground	i Level (mOD) 4.50	Client WWA		Jo N	ob umb 2115	er 5
			Locatio Pe	o n enzance	Harbour	Dates 0	6/10/2022	Engineer Wheal Jane Consultancy		S	heet 3/5	;
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Ins	str
4.20 4.20-4.65 5.00 5.10 5.20 5.20-5.65					3,3/3,4,4,3 SPT N=14 D ES 10,11/24,26 SPT N=50	-0.45	(11.75) - (1.75) (1.75) 	Firm to stiff dark grey and black sandy, gravelly CLAY, Gravel is angular to subangular fine to coarse of Mudstone. Sand is fine to coarse. Occasional fragments of wood. Mild organic aroma from this horizon. Extremely weak to very weak, very thinly laminated, moderately to highly weathered, light blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities				
5.80 5.90-6.00 Remarks 5.80 - 9.20m 0.00 - 1.20m 1.20 - 5.20m 5.20 - 5.80m	BGL > Ro BGL > Ex BGL > Wi BGL > Wi BGL > Wi	tary cored cavated w ndowless en hole	l ith handtc sampled	pols	со			subhorizontal, extremely close discontinuities which are stepped, rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are dark grey and orangish grey.	Scale (approx) 1:10	LB	ogge Y	
Groundwater Gas and gro concrete sea	r encounte unwater m al.	ered at 1.4 nonitoring	5mBGL borehole i	installed	with round flush cove	er. Gravel I	backfill & slotte	d pipe, followed by plain pipe with bentonite &	Figure N 2115	 io. 5.R(C01	

Wheal Jan Consultant	IE CU mikeline wieke							Site Penzance Harbour Modernisation		B N F	ore um RC	ho be 02	ole r 2
Boring Meth Rotary Corec COMMACHI	i od d using GE O	EO 205	Casing	Diamete	r	Ground	Level (mOD) 4.50	Client WWA		J	ob um 211	be 55	r
			Locatio Pe	n nzance ł	Harbour	Dates 06	6/10/2022	Engineer Wheal Jane Consultancy		S	hee 4/	t 5	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Ir	ıst	(r
6.30 6.40-6.50	90	61	0	80	со	-1.80	- - - - - - - - - - - - - - - - - - -	Medium strong to strong, very thinly laminated, moderately weathered, whiteish light blue and ligh grey MUDSTONE and QUARTZ. Horizontal to subhorizontal, extremely close discontinuities which are stepped, rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are dark grey and orangish grey.	t			ا الله من عند به مسا با هم ها مسا با هم ها است با هم ها است الله عنه است. الاستها من السابل هذه السال الاشته ال المركز المركز المركز الركز المركز ا	
6.80 6.90 7.00-7.10 7.04 7.17 7.23	80	15	0	NI 50 150	со	-2.40 -2.54 -2.67 -2.73 -3.20	- 6.90 - (0.14) - 7.04 - (0.13) - 7.17 - (0.06) - 7.23 - (0.47) - 7.70 - 7.70	Extremely weak to very weak, very thinly laminated, moderately to highly weathered, light blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped, rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are dark grey and orangish grey. Recovered as mid to dark grey, slightly clayey, sandy, angular to subangular fine to coarse GRAVEL of very weathered mudstone. Sand is fine to coarse. Very weak to weak, very thinly laminated, moderately to hightly weathered, light blueish grey MUDSTONE. Horizontal to subhorizontal, extremely close discontinuities which are stepped rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are dark grey and orangish grey. Medium strong to strong, very thinly laminated, moderately weathered, whiteish light blue and ligf grey MUDSTONE and QUARTZ. Horizontal to subhorizontal, extremely close discontinuities which are stepped, rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are dark grey and orangish grey. Strong to extremely strong, very thinly laminated, slightly weathered, whiteish grey to dark blueish grey BLUE ELVAN. Horizontal to subhorizontal, extremely close discontinuities which are stepped rough and slightly infilled with clayey, sandy, gravel. Fracture surfaces are dark grey and orangish grey.					
Remarks 5.80 - 9.20m 0.00 - 1.20m 1.20 - 5.20m 5.20 - 5.80m Groundwater Gas and grou concrete sea	BGL > Rot BGL > Exc BGL > Wir BGL > Op r encounte unwater m Il.	tary cored cavated w ndowless en hole red at 1.4 onitoring l	ith handto sampled 5mBGL borehole i	ols nstalled v	with round flush cover	r. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx) 1:10 Figure N 2115	lo.	MJ(jed C	1

Wheal Jar Consultan								Site Penzance Harbour Modernisatic	n		B N F	orehole lumber RC02
Boring Met Rotary Core COMMACH	hod d using GE IO	O 205	Casing	Diamete	er	Ground	I Level (mOD) 4.50	Client WWA			J	ob lumber 21155
			Locatio Pe	n enzance	Harbour	Dates	6/10/2022	Engineer Wheal Jane Consultancy			S	heet 5/5
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	 	Legend	Water	Instr
8.20-8.50	100	87	44	210	со		 					
8.95 9.03 9.10-9.20 9.20				NI 60	со	-4.70	- - - - - - - - - - - - - - - - - - -	Complete at 9.20m				
Remarks 5.80 - 9.20m 0.00 - 1.20m 1.20 - 5.20m 5.20 - 5.80m Groundwate Gas and gro concrete sea	nBGL > Rot nBGL > Exc nBGL > Wir nBGL > Oper er encounte punwater m al.	ary cored avated w adowless en hole red at 1.4 onitoring	l itth handto sampled I5mBGL borehole i	ools	with round flush cove	er. Gravel b		d pipe, followed by plain pipe with	bentonite &	Scale (approx) 1:10 Figure N	L B No.	ogged MJC

Wheal Jan Consultan	TE CU							Site Penzance Harbour Modernisation		B N F	orehole lumber RC03
Boring Meth	nod		Casing	Diamete	r	Ground	Level (mOD)	Client		J	ob
Rotary Core COMMACHI	d using GE O	EO 205					4.50	WWA		N	umber 21155
			Locatio Pe	n Inzance I	Harbour	Dates 07 10	7/10/2022- 0/10/2022	Engineer Wheal Jane Consultancy		S	heet 1/6
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						4.15	- - - - - - - - - - - - - - - - - - -	MADE GROUND. Light grey concrete.			
						375	- (0.40) - 0.75	of Mudstone. Sand is fine to coarse.			
0.75-1.50					ES	0.70	 (0.75)	MADE GROUND. Very loose greyish brown, and dark grey, slightly clayey, very sandy subangular subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.			
1.20					1,1/1,1,1,1 SPT N=4	3.00					
1.50-3.00					BS		- - - - - - - -	involute GROUND. Loose dark grey and orangish brown clayey, sandy subangular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.			
Remarks Gas and gro concrete sea	unwater m al.	nonitoring	borehole i	nstalled	with round flush cover	r. Gravel b	backfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx)	B	ogged y
Groundwate 6.80 - 7.20m 1.20 - 6.80m 0.00 - 1.20m 7.20 - 10.20r	r encounte IBGL > Op IBGL > Wil IBGL > Exc mBGL > Re	ered at 3.1 en hole ndowless cavated w otary core	umBGL sampled ith handto d	ols					1:10 Figure I 2115	No. 55.R	MJC C01

Wheal Jar Consultar								Site Penzance Harbour Modernisation		B N F	oreh umbe	ole er
Baring Mat	had		Casing	Diamata		Cround		Oliant				-
Rotary Core COMMACH	noa ed using GE IO	EO 205	Casing	Diamete	2F	Ground	4.50	WWA		N	umbe 2115	er 5
			Locatio Pe	n nzance l	Harbour	Dates 07 10	7/10/2022- D/10/2022	Engineer Wheal Jane Consultancy		S	heet 2/6	i
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Ins	str
2.00					D	2.50	2.00 	MADE GROUND. Firm to stiff orangish brown and grey very sandy, very gravelly CLAY. Gravel is subangular to subrounded fine to coarse of Mudstone. Sand is fine to coarse.	i	2		
2.20 2.20-2.65					2,1/2,1,1,2 SPT N=6		- - - - - - - - - - - - - - - - - - -					
3.00-3.40					BS Water strike(1) at 3.10m.	1.50	3.00 	MADE GROUND. Medium dense dark grey and orangish brown clayey, sandy subangular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.		∑ 1		
3.20 3.20-3.65					2,2/3,3,3,4 SPT N=13		(0.40) 					
3.40-4.20					BS	1.10	- 3.40 	Medium dense becoming dense mid grey and dar grey, very clayey, very sandy subangular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse.				
Remarks Gas and gro concrete sea Groundwate	ounwater m al. er encounte	onitoring ered at 3.1	borehole i 0mBGL	nstalled	with round flush cover	. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx)	B	ogge y	d
6.80 - 7.20m 1.20 - 6.80m 0.00 - 1.20m 7.20 - 10.20	าBGL > Op าBGL > Wir าBGL > Exc mBGL > Ro	en hole ndowless cavated w otary core	sampled ith handto d	ols					1:10 Figure N	lo .		

Wheal Jar Consultan								Site Penzance Harbour Modernisation		B N F	orel umb RC(nole ber 03
Boring Meth Rotary Core COMMACHI	10d d using GE	EO 205	Casing	Diamet	er	Ground	Level (mOD) 4.50	Client WWA		J	ob umt 2118)er 55
			Locatio Pe	n Inzance	Harbour	Dates 07 10	7/10/2022- 0/10/2022	Engineer Wheal Jane Consultancy		S	heet 3/6	t 3
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	In	str
4.20 4.20-4.65 4.20-5.20					5,5/6,9,7,7 SPT N=29 BS							
5.20 5.20-5.65 5.20-5.80					10,10/8,4,5,5 SPT N=22 BS	-1.30	- (2.40) - (2.4	Dark grey, slightly clayey, sandy subangular to subrounded fine to coarse GRAVEL of Mudstone. Sand is fine to coarse. Mild organic aroma from this horizon.				
Remarks Gas and gro concrete sea Groundwate 6.80 - 7.20m 1.20 - 6.80m 0.00 - 1.20m 7.20 - 10.200	unwater m al. r encounte IBGL > Op IBGL > Wi IBGL > Exe mBGL > R	nonitoring ered at 3.1 en hole ndowless cavated w otary core	borehole i 0mBGL sampled rith handto	nstalled	with round flush cove	r. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx) 1:10 Figure N	Io.	ogg y MJC	ed

Wheal Jan Consultan	ne cy							Site Penzance Harbour Modernisation		B	oreł umt	iole ber
	en k ministratieke											
Boring Meth Rotary Core COMMACHI	1 od d using GE IO	O 205	Casing	Diamete	۶r	Ground	Level (mOD) 4.50	Client WWA		Jo N	סט umb 2115)er 55
			Locatio Pe	n enzance	Harbour	Dates 07 10	7/10/2022-)/10/2022	Engineer Wheal Jane Consultancy		SI	heet 4/(t 3
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	In	str
6.00					ES	-1.60	- 6.10 -	Extremely weak to strong, very thinly laminated, slightly weathered, whiteish grey to dark blueish grey BLUE ELVAN. Verticle to subverticle, extremely close discontinuities which are stepped, rouch and slightly infilled with clavey sandy				
6.20-6.65 6.25-6.35					CO		-	gravel. Fracture surfaces are dark grey and orangish grey.				
6.45-6.60					СО		-					
6.80				-			- - - - - -					
7.20												
7.60-7.70				80	со							
Remarks	100	77	8	installed		Gravel h	ackfill & clotto	d nine followed by plain nine with bostonits ?			ogg	ed
Gas and gro concrete sea Groundwate 6.80 - 7.20m 1.20 - 6.80m 0.00 - 1 20m	al. r encounte BGL > Ope BGL > Wir BGL > Fro	red at 3.1 en hole idowless	0mBGL sampled	ols	waa roono nush covel	. Glavel D	aunii a siule	a pipe, ronowed by plain pipe with bentonite &	(approx) 1:10		y MJC	;
7.20 - 10.20	mBGL > Rc	otary core	ed	015					Figure N 2115	10. 5 Pr	C01	

Wheal Jar Consultan								Site Penzance Harbour Modernisation		Be Ni R	orel umb	nole per)3
Boring Meth	nod		Casing	Diamete	r	Ground	Level (mOD)	Client		Jo	b	
Rotary Core COMMACHI	d using GE	O 205					4.50	WWA		Ni 2	umt 211{)er 55
			Locatio Pe	n enzance l	Harbour	Dates 07 10	7/10/2022- 0/10/2022	Engineer Wheal Jane Consultancy		Sł	וee t 5/י	: 3
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m)	Description	Legend	Vater	In	str
							- - -			-		
8.40				20			- - - -					
8.70				NI			- - - -					
8.95 9.20-9.30				85	со		-					
9.30	100	84	14	110			- - - - - -					
9.77 9.82 9.90-10.00				NI	со	-5.27 -5.32	- 9.77 - (0.05) 9.82 -	Recovered as light orangish brown, clayey, sandy angular to subangular fine to coarse GRAVEL of weathered BLUE ELVAN. Sand is fine to coarse. Extremely weak to strong, very thinly laminated, slightly weathered, whiteish grey to dark blueish grey BLUE ELVAN. Verticle to subverticle, extremely close discontinuities which are stepped rough and slightly infilled with clayey, sandy.	,			
Remarks Gas and gro concrete sea Groundwate 6.80 - 7.20m	unwater m al. r encounte BGL > Op	onitoring red at 3.1 en hole	borehole i	nstalled v	i with round flush cover	Gravel b	i line line line line line line line lin	d pipe, followed by plain pipe with bentonite &	Scale (approx)	Lc By	 >gg ∮ MJC	ed
1.20 - 6.80m 0.00 - 1.20m 7.20 - 10.20	ıBGL > Wİı ıBGL > Exc mBGL > R	ndowless cavated w otary core	sampled vith handto ed	ols					Figure N	L 0. 5 P(

Wheal Jane Consultancy								Site Penzance Harbour Modernisation	Borehole Number RC03			
Boring Meth Rotary Cored COMMACHI	10d d using GE O	EO 205	Casing	Diamete	r	Ground Level (mOD) 4.50		Client WWA		J	ob umber 21155	
			Location Penzance Harbour			Dates 07/10/2022- 10/10/2022		Engineer Wheal Jane Consultancy			Sheet 6/6	
Depth (m)	TCR (%)	SCR (%)	RQD (%)	D FI Field Records		Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
10.20				110		-5.80		gravel. Fracture surfaces are dark grey and orangish grey.				
							- - - -					
Remarks Gas and gro concrete sea	unwater m al.	ionitoring t	oorehole ii	nstalled v	vith round flush cover	. Gravel b	ackfill & slotte	d pipe, followed by plain pipe with bentonite &	Scale (approx)	B	ogged y	
6.80 - 7.20m 1.20 - 6.80m 0.00 - 1.20m 7.20 - 10.20r	Groundwater encountered at 3.10mBGL 6.80 - 7.20mBGL > Open hole 1.20 - 6.80mBGL > Windowless sampled 0.00 - 1.20mBGL > Excavated with handtools 7.20 - 10.20mBGL > Rotary cored								1:10 MJC Figure No. 21155.RC01			



APPENDIX B

Core Photographs







Penzance Harbour	21155
Ground Investigation	Core Photographs
MWJV Ltd	October 2022











BH02 0.00-1.20m



Ground Investigation

Core Photographs

MWJV Ltd

October 2022





BH02 1.20-5.20m



Penzance Harbour	21155
Ground Investigation	Core Photographs
MWJV Ltd	October 2022





BH02 5.80-9.20m



Penzance Harbour	21155				
Ground Investigation	Core Photographs				
MWJV Ltd	October 2022				





BH03 0.00-3.20m



Ground Investigation

Core Photographs

MWJV Ltd

October 2022





Core Run: BH03 5.80-9.20m PENZANCE HARBOVR MODERN 21155 BH03 WWA 10/10/22 DEPTH FROM 3.20 M TO 5.20 11 ... BH03 WWP 10/10/22 -1

Penzance Harbour

Ground Investigation

Core Photographs

21155

MWJV Ltd

October 2022





BH03 6.20-10.20m



Penzance Harbour	21155				
Ground Investigation	Core Photographs				
MWJV Ltd	October 2022				



APPENDIX C

Ground Gas Monitoring Results

Penzance Harbour Monitoring

Gas/Groundwater Monitoring Results

Job Ref:

Date: 18/10/2022												
All measurements taken after 120 seconds.												
Borehole	O ₂ %	CO ₂ %	CH4 %	CO ppm	H_2S	Depth to	Depth to	Barometric	Flow rate			
				ppn		water (m bgl) base (r		pressure				
							bgl)					
BH01	21.1	0.1	0	0	0	3.07	8.94	1024	0.1			
BH02	21.0	0.1	0	0	0	1.37	8.25	1025	0.1			
BH03	21.1	0.1	0	0	0	3.76	10.60	1024	0.1			

Date:		24	24/10/2022									
All measurements taken after 120 seconds.												
Borehole	ehole O ₂ % CO		CH₄ %	CO ppm	H₂S	Depth to	Depth to	Barometric	Flow rate			
				ppm		water (m bgl)	water (m bgl) base (m					
							bgl)					
BH01	19.2	0.3	0	2	0	1.55	8.79	1023	0.1			
BH02	20.9	0.3	0	0	0	1.37	8.21	1024	0.1			
BH03	20.7	0.2	0	0	0	2.58	10.65	1024	0.1			

Date:											
All measurements taken after 120 seconds.											
Borehole	O ₂ %	% CO ₂ % CH ₄ %		CO ppm	H_2S	Depth to	Depth to	Flow rate			
					ppm	water (m bgl)	base (m bgl)				
BH01	19.5	0.4	0	2	0	2.13	8.91	0.1			
BH02	20.9	0.2	0	0	0	2.34	9.24	0.1			
BH03	21.0	0.2	0	0	0	2.76	10.92	0.1			

Date:		0	07/11/2022							
All measurem	nents take	en after 1	.20 second	ds.						
Borehole	O2 %	CO2 %	CH4 %	CO ppm	H_2S	Depth to	Depth to	Flow rate		
					ppm	water (m bgl)	base (m bgl)			
BH01	19.6	0.4	0	0	0	1.56	8.77	0.1		
BH02	20.7	0.2	0	0	0	1.71	9.18	0.1		
BH03	20.6	0.1	0	0	0	2.62	10.86	0.1		



APPENDIX D Laboratory Test Results





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- f: 01923 237404
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Preliminary Report Number : 22-93763

Project / Site name:	Penzance Harbour	Samples received on:	19/10/2022
Your job number:	21155	Samples instructed on/ Analysis started on:	01/11/2022
Your order number:	21155	Analysis completed by:	not completed
Report Issue Number:	0	Report issued on:	11/11/2022
Samples Analysed:	10 soil samples		



Joanna Wawrzeczko **Reporting Specialist** 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.

Preliminary reports provided at the request of the client should be considered as incomplete and have not been through the complete quality control procedure.

Results contained in preliminary reports may be subject to change and therefore should not be used as a basis for decision making, except at the risk of the client.

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.





Lab Sample Number				2482721	2482722	2482723	2482724	2482725
Sample Reference				BH01	BH01	BH01	BH01	BH02
Sample Number				None Supplied				
Depth (m)				0.40	0.75	1.70	4.90	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
		Ē		•••			•••	•••
		nit	Acc					
Analytical Parameter	5	ofd	redi					
(Soil Analysis)	t	ete	tat					
		ctio	9					
Stone Content	%	9	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	11	18	13	14
Total mass of sample received	kg	0.001	NONE	0.7	0.7	0.8	0.8	0.8
Total mass of sample received	, ,			0.7	0.7	0.0	0.0	0.0
Ashastas in Sail	Type	N/A	ISO 17025	To follow	_	_	_	To follow
Asbestos Analyst ID	N/A	N/A	N/A	N/A	- N/A	N/A		N/A
Abbestos Analyse 15				11/74	11/14	N/A	11/74	N/A
General Inorganics								
	nH LInits	N/A	MCERTS	9	7.0	_	0.7	75
Total Cyanide	ma/ka	1	MCERTS	8	7.3	< 1.0	< 1.0	7.5
Free Cranide	ma/ka	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	ma/ka	5	NONE	< 5.0	< 5.0	< 1.0	< 5.0	< 5.0
	ma/ka	50	MCERTS	670	1000	1000	2700	2200
		50	HIGERTID	070	1000	1000	2700	2300
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	230	1000	920	2400	570
Water Soluble SO4 16hr extraction (2:1 Leachate	a/l	0.00125	MCEPTS	0.11	0.51	0.46	1.2	0.28
water Soluble SO4 16hr extraction (2:1 Leachate	9/1	0.00125	PICERT3	-				
Equivalent)	mg/l	1.25	MCERTS	115	506	462	1210	283
Sulphide	mg/kg	1	NONE	11	7.8	7.7	230	1.4
Organic Matter (automated)	%	0.1	MCERTS	7.3	0.6	-	1.6	1.3
Total Phenois								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	NONE	0.2	< 0.05	-	0.2	0.44
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	0.15	0.2
Acenaphthene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	0.07	0.25
Fluorene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	0.32	0.67
Phenanthrene	mg/kg	0.05	NONE	0.44	0.13	-	2.1	3.3
Anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	1.1	1.4
Fluoranthene	mg/kg	0.05	NONE	0.32	0.26	-	4.3	6.2
Pyrene	mg/kg	0.05	NONE	0.3	0.23	-	3.9	5.8
Benzo(a)anthracene	mg/kg	0.05	NONE	0.21	0.19	-	2	3.4
Chrysene	mg/kg	0.05	NONE	0.37	0.16	-	1.5	2.3
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.32	0.15	-	2.2	2.7
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.09	0.2	-	0.83	2.2
Benzo(a)pyrene	mg/kg	0.05	NONE	0.19	0.18	-	1.7	2.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.11	0.09	-	0.84	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	0.23	0.34
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.12	0.12	-	0.81	1.3
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	2.67	1.71	-	22.4	34.4





Lab Sample Number				2482721	2482722	2482723	2482724	2482725		
Sample Reference				BH01	BH01	BH01	BH01	BH02		
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Depth (m)				0.40	0.75	1.70	4.90	0.60		
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating		
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
		Lin								
Analytical Parameter (Soil Analysis)	Units	nit of detection	Accreditation Status							
Heavy Metals / Metalloids	-		8							
Arsenic (agua regia extractable)	mg/kg	1	MCERTS	95	130	17	72	120		
Boron (water soluble)	mg/kg	0.2	MCERTS	2.5	3.3	8.3	4.5	2.4		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2		
Chromium (bexavalent)	ma/ka	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8		
Chromium (agua regia extractable)	ma/ka	1	MCERTS	38	73	40	30	66		
Conner (aqua regia extractable)	ma/ka	1	MCERTS	120	75	49	120	150		
Lead (aqua regia extractable)	ma/ka	1	MCERTS	130	21	15	56	31		
Mercury (aqua regia extractable)	ma/ka	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	ma/ka	1	MCERTS	< 0.5 51	< 0.5 87	33	27	< 0.5 81		
Selenium (aqua regia extractable)	ma/ka	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
	ma/ka	1	MCERTS	140	170	~ 1.0	< 1.0 00	190		
	5, 5			140	170	75	90	160		
Managemetics & Ovyganates										
Ponton of actors & oxygenates	ua/ka	1	NONE		< 1.0			< 1.0		
Teluene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0		
Toldelle	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0		
Euryibenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0		
p & m-xylene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0		
0-xylene MTRE (Mothyl Tortion: Butyl Ethor)	ug/kg	1	NONE	-	< 1.0	-	-	< 1.0		
MIBE (Metriyi Teruary Butyi Etrier)	P9/19	-	HONE	-	< 1.0	-	-	< 1.0		
Petroleum Hydrocarbons										
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL}	mg/kg	10	NONE	37	-	-	35	-		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_ID_TOTAL}	mg/kg	10	NONE	37	-	-	35			
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_ID_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_ID_AL}	mg/kg mg/kg	10 0.001	NONE	37	- < 0.001	-	35	- < 0.001		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_ID_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_ID_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_ID_AL}	mg/kg mg/kg mg/kg	10 0.001 0.001	NONE NONE	37 	- < 0.001 < 0.001	-	35 - -	- < 0.001 < 0.001		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_ID_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_ID_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_ID_AL} TPH-CWG - Aliphatic >EC8 - EC10 _{HS_ID_AL}	mg/kg mg/kg mg/kg	10 0.001 0.001 0.001	NONE NONE NONE	37 - - -	- < 0.001 < 0.001 < 0.001	- - - -	35 - - -	- < 0.001 < 0.001 < 0.001		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC10 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1	NONE NONE NONE NONE	37 - - - -	- < 0.001 < 0.001 < 0.001 < 1.0	- - - - -	35 - - - - -	- < 0.001 < 0.001 < 0.001 To follow		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2	NONE NONE NONE NONE NONE	37 - - - - -	- < 0.001 < 0.001 < 0.001 < 1.0 < 2.0	- - - - -	35 - - - - - -	- < 0.001 < 0.001 < 0.001 To follow To follow		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8	NONE NONE NONE NONE NONE NONE	37 - - - - - - - -	< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0	-	35 - - - - - - - - -	- < 0.001 < 0.001 To follow To follow To follow		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC12 - EC16 _{HC,UD_AL} TPH-CWG - Aliphatic >EC12 - EC16 _{HC,UD_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 8	NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - -	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0	- - - - - - - - - - - -	35 - - - - - - - - - - - -	- < 0.001 < 0.001 To follow To follow To follow To follow		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC16 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC35 _{EH_CU_1D_AL} TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU_1HS_1D_AL}	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 8 10	NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10	- - - - - - - - - - - - - - -	35 	- < 0.001 < 0.001 To follow To follow To follow To follow To follow		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic (EC5 - EC35) _{EH_CU+HS_1D_AL}	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 8 10	NONE NONE NONE NONE NONE NONE NONE	37 	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10	- - - - - - - - - - - - - - - -	35 - - - - - - - - - - - - - -	- < 0.001 < 0.001 To follow To follow To follow To follow To follow		
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_1D_TOTAL} TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC1 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC16 - EC25 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL} TPH-CWG - Aliphatic >EC5 - EC75 _{EH_CU_1B_AL} TPH-CWG - Aliphatic >EC5 - EC35 _{EH_CU_1B_AL} TPH-CWG - Aliphatic >EC5 - EC7 _{HS_1D_AL}	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 8 10	NONE NONE NONE NONE NONE NONE NONE NONE	37 	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001	- - - - - - - - - - - - - -	35 	- < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001		
Petroleum Hydrocarbons TPH C10 - C40 $_{EH,CU,1D,TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC1 - EC1 $_{BL,OL,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EL,OL,D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{BL,OL,D,AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{BL,OL,D,AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{BL,OL,D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EL,OL,D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EL,OL,D,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{BL,OL,BL,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - C8 $_{HS,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 10 0.001 0.001	NONE NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001	- - - - - - - - - - - - - - - - - - -	35 - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 0.001 		
Petroleum Hydrocarbons TPH C10 - C40 $_{EH_CU_1D_TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS_1D_AL}$ TPH-CWG - Aromatic >EC7 - EC3 $_{H_CU_HS_1D_AL}$ TPH-CWG - Aromatic >EC7 - EC7 $_{HS_1D_AR}$ TPH-CWG - Aromatic >EC7 - EC3 $_{H_CU_HS_1D_AL}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 8 10 0.001 0.001 0.001	NONE NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001		35 - - - - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < <li< li=""> < <</li<>		
Petroleum Hydrocarbons TPH C10 - C40 $_{EH_CU_1D_TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC6 - EC10 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS_1D_AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$ TPH-CWG - Aromatic >EC7 - EC3 $_{H_S_1D_AR}$ TPH-CWG - Aromatic >EC7 - EC2 $_{H_S_1D_AR}$ TPH-CWG - Aromatic >EC7 - EC2 $_{H_S_1D_AR}$ TPH-CWG - Aromatic >EC7 - EC2 $_{H_S_1D_AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 8 10 0.001 0.001 0.001 1	NONE NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - - - - - - -	<pre></pre>		35 - - - - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 To follow		
Petroleum Hydrocarbons TPH C10 - C40 $_{EH,CU_1D_1 TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC1 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH,CU_1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,CU_1D,AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{EH,CU_1D,AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{EH,CU_1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EH,CU_1HS,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{EI,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{HC,U,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{EI,CU,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2	NONE NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 2.0 < 8.0 < 10 < 0.001 < 0.		35 - - - - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001		
Petroleum Hydrocarbons TPH C10 - C40 $_{EH,CU,1D,TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EL,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC21 $_{EL,CU,1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{EL,CU,1D,AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{EL,CU,1D,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{EL,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{EL,OL,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10	NONE NONE NONE NONE NONE NONE NONE NONE	37 	- < 0.001 < 0.001 < 0.001 < 2.0 < 8.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 10		35 - - - - - - - - - - - - - - - - - - -			
Petroleum Hydrocarbons TPH C10 - C40 $_{EH,CU,1D,TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC1 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{EH,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC21 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC3 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC35 $_{EH,CU,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC35 $_{EH,CU,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC35 $_{EH,CU,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC35 $_{EH,CU,1D,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC14 $_{H,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC16 $_{H,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC16 $_{H,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC16 $_{H,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC21 $_{H,CU,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE	37 	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 10 < 1.0 < 2.0 < 10 < 1.0 < 1.0 < 2.0 < 1.0 < 1.0 < 2.0 < 1.0 < 1.0 < 1.0 < 1.0 < 2.0 < 1.0 < 1.0 < 1.0 < 1.0 < 2.0 < 1.0 < 1.0 < 2.0 < 8.0 < 1.0 < 1.0 < 1.0 < 1.0 < 2.0 < 1.0 < 1.0 < 2.0 < 1.0 < 1.0 < 1.0 < 2.0 < 1.0 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 0.001 < 1.0 < 0.001 < 1.0 < 0.001 < 1.0 < 0.001 < 1.0 < 1.0		35 			
Petroleum Hydrocarbons TPH C10 - C40 $_{EH,CU,1D,TOTAL}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC1 - EC1 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{HC,0,1D,AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{HC,0,1D,AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{HC,0,1D,AL}$ TPH-CWG - Aliphatic >EC16 - EC3 $_{HC,0,1D,AL}$ TPH-CWG - Aliphatic >EC16 - EC3 $_{HC,0,1D,AL}$ TPH-CWG - Aliphatic >EC2 - EC3 $_{HC,0,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{HC,0,1D,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{HC,0,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 0.001 1 0.001 1 0.001 1 0.001 1 0.001 0.	NONE NONE NONE NONE NONE NONE NONE NONE	37 	- < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 10 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 2.0 < 1.0 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 1.0		35 	- 0.001 < 0.001 To follow To follow To follow To follow To follow Co follow Co follow Co follow Co follow To follow To follow To follow To follow To follow		
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Petroleum Hydrocarbons TPH C10 - C40 $_{\text{EL,CU_1D_TOTAL}}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{\text{HS,1D,AL}}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{\text{HS,1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,CU,1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,O,1D,AL}}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{\text{EL,O,1D,AL}}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{\text{EL,O,1D,AL}}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{\text{EL,O,1D,AL}}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC5 - EC7 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC7 - C8 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL,OL,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{H, CU, 1D, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{H, CU, 1D, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{H, CU, 1D, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{H, CU, 1D, AR}$ TPH-CWG - Aromatic >EC12 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic (EC5 - EC35) $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic (EC5 - EC35) $_{\text$	mg/kg jug/kg jug/kg jug/kg jug/kg	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10 10 10 1 1 1 1 1 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - - - - - - -	- < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 0.001 < 0.00 < 0.001 < 0.001 < 0.00 < 0.001 < 0.00 < 0.001 < 0.001 < 0.00 < 0.001 < 0.00 < 0.001 < 0.00 < 0.00		35 - - - - - - - - - - - - - - - - - - -			
Petroleum Hydrocarbons TPH C10 - C40 $_{\text{EL,CU_1D_TOTAL}}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{\text{HS,1D,AL}}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{\text{HS,1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,CU_1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,CU_1D,AL}}$ TPH-CWG - Aliphatic >EC16 - EC3 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC16 - EC3 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC16 - EC35 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC5 - EC35 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aniphatic >EC5 - EC7 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC5 - EC7 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC7 - EC8 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC35 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic (EC5 - EC35) $_{\text{EL,OU,HS,1D,AR}}$ VOCs Endomethane <td>mg/kg mg/kg mg/kg<!--</td--><td>10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 1 2 10 10 10 10 10 10 11 1 1 1 1 1 1 1 1 1 1 1 1</td><td>NONE NONE NONE NONE NONE NONE NONE NONE</td><td>37 - - - - - - - - - - - - - - - - - - -</td><td><pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 1.0 < 10 < 10 < 10 < 1.0 < < <</pre></td><td></td><td>35 </td><td></td></td>	mg/kg mg/kg </td <td>10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 1 2 10 10 10 10 10 10 11 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>NONE NONE NONE NONE NONE NONE NONE NONE</td> <td>37 - - - - - - - - - - - - - - - - - - -</td> <td><pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 1.0 < 10 < 10 < 10 < 1.0 < < <</pre></td> <td></td> <td>35 </td> <td></td>	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 1 2 10 10 10 10 10 10 11 1 1 1 1 1 1 1 1 1 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE	37 - - - - - - - - - - - - - - - - - - -	<pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 1.0 < 10 < 10 < 10 < 1.0 < < <</pre>		35 			
Petroleum Hydrocarbons TPH C10 - C40 $_{\text{EL,CU_1D_TOTAL}}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{\text{HS,1D,AL}}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{\text{HS,1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC16 - EC3 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{\text{EL,OU,1D,AL}}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC5 - EC7 $_{\text{HS,1D,AR}}$ TPH-CWG - Aromatic >EC7 - EC3 $_{\text{H_CU,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL,OU,1D,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic (EC5 - EC35) $_{\text{EL,OU,1D,AR}}$ TPH-CWG - Aromatic (EC5 - EC35) $_{EL,OU,1D,$	mg/kg mg/kg </td <td>10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 1 2 10 10 10 10 10 10 10 10 10 10</td> <td>NONE NONE NONE NONE NONE NONE NONE NONE</td> <td>37 </td> <td><pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 10 < 10 < 10 < 1.0 < 1.</pre></td> <td></td> <td>35 </td> <td></td>	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 1 2 10 10 10 10 10 10 10 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE	37 	<pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 10 < 10 < 10 < 1.0 < 1.</pre>		35 			
Petroleum Hydrocarbons TPH C10 - C40 $_{\text{EL,CU_1D_TOTAL}}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{\text{HS, 1D, AL}}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{\text{HS, 1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, OU, 1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, OU, 1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, OU, 1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, OU, 1D, AL}}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{\text{EL, OU, 1D, AL}}$ TPH-CWG - Aliphatic >EC2 - EC3 $_{\text{EL, OU, 1D, AL}}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{\text{HS, 1D, AR}}$ TPH-CWG - Aromatic >EC5 - EC7 $_{\text{HS, 1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU, 1D, AR}$	mg/kg µg/kg µg/kg </td <td>10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 0.001 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td>NONE NONE NONE NONE NONE NONE NONE NONE</td> <td>37 </td> <td><pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 10 < 10 < 10 < 10 < 1.0 < 1.0</pre></td> <td></td> <td>35 </td> <td>- < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001</td> < 0.001	10 0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 0.001 1 1 1 1 1 1 1 1 1 1 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE	37 	<pre> < 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 10 < 10 < 10 < 10 < 1.0 < 1.0</pre>		35 	- < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001		
Petroleum Hydrocarbons TPH C10 - C40 $_{\text{EL,CU_1D_TOTAL}}$ TPH-CWG - Aliphatic >EC5 - EC6 $_{\text{HS, 1D, AL}}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{\text{HS, 1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, CU_1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, CU_1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, CU_1D, AL}}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{\text{EL, CU_1D, AL}}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{\text{EL, CU_1D, AL}}$ TPH-CWG - Aliphatic >EC2 - EC3 $_{\text{EL, CU_1D, AL}}$ TPH-CWG - Aromatic >EC5 - EC7 $_{\text{HS, 1D, AR}}$ TPH-CWG - Aromatic >EC7 - EC8 $_{\text{HS, 1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU_1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU_1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU_1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU_1D, AR}}$ TPH-CWG - Aromatic >EC10 - EC12 $_{\text{EL, CU_1D, AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU_1D, AR}}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU_1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU_1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU_1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU_1D, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{\text{EL, CU_1D, AR}$ TPH-CWG	mg/kg pg/kg pg/kg </td <td>10 0.001 0.001 1 2 8 8 10 0.001 0.001 1 0.001 1 2 10 10 10 10 10 10 10 10 10 10</td> <td>NONE NONE NONE NONE NONE NONE NONE NONE</td> <td>37 </td> <td><pre></pre></td> <td></td> <td>35 </td> <td></td>	10 0.001 0.001 1 2 8 8 10 0.001 0.001 1 0.001 1 2 10 10 10 10 10 10 10 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE	37 	<pre></pre>		35 			





Lab Sample Number		2482721	2482722	2482723	2482724	2482725		
Sample Reference				BH01	BH01	BH01	BH01	BH02
Sample Number				None Supplied				
Depth (m)				0.40	0.75	1.70	4.90	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
		Ľ,						
		nit	Acc					
Analytical Parameter	u.	ofd	stat					
(Soil Analysis)	ts	ete	tati					
		럆	ion i					
		ň						
2,2-Dichloropropane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trichloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Benzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Tetrachloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Dibromomethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Bromodichloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Toluene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,3-Dichloropropane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Dibromochloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1.2-Dibromoethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Chlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1.1.1.2-Tetrachloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Ethylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
p & m-Xvlene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Styrene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
o-Xvlene	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
1 1 2 2-Tetrachloroethane	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
Bromohenzene	ua/ka	1	NONE	-	< 1.0	_	-	< 1.0
n-Bropylbonzono	ug/kg	1	NONE	_	< 1.0	_	_	< 1.0
2 Chlorotoluono	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,3,5-Trimetnyibenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2,4-Trimethylbenzene	µу/ку	1	NONE	-	< 1.0	-	-	< 1.0
sec-Butylbenzene	µу/ку	1	NONE	-	< 1.0	-	-	< 1.0
1,3-Dichlorobenzene	µg/кд	1	NONE	-	< 1.0	-	-	< 1.0
p-Isopropyltoluene	µg/кд	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1.2.3-Trichlorohenzene	µq/kq	1	NONE	-	< 1.0	-	-	< 10

SVOCs

Aniline	mg/kg	0.1	NONE	-	0.3	-	-	1.1
Phenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	NONE	-	0.3	-	-	0.3





Lab Camala Number		2402721	2402722	2402722	2402724	2402725		
				2482721	2482722	2482723	2482724	2482725
Sample Reference				BHUI	BHUI	BHUI	BHUI	BHU2
Sample Number				None Supplied				
Depth (m)				0.40	0.75	1.70	4.90	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken		-		None Supplied				
		Limi	A					
Analytical Parameter	c	tof	St					
(Soil Analysis)	nits	det	dita					
		ect	s					
		ion	1					
1,2-Dichlorobenzene	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	NONE	-	< 0.05	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Isophorone	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
1.2.4-Trichlorobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Naphthalene	ma/ka	0.05	NONE	-	< 0.05	-	-	0.44
2 4-Dichlorophenol	ma/ka	0.3	NONE	_	< 0.3	_	_	< 0.3
4-Chloroaniline	ma/ka	0.1	NONE	-	< 0.1	-	-	< 0.5
Hexachlorobutadiene	ma/ka	0.1	NONE	-	< 0.1	-	-	< 0.1
1-Chloro-3-mothylphonol	ma/ka	0.1	NONE	_	< 0.1	_	_	< 0.1
2.4.6-Trichlerophonol	ma/ka	0.1	NONE		< 0.1	-	-	< 0.1
2.4.5-Trichlorophonol	mg/kg	0.1	NONE		< 0.1	-	-	< 0.1
	mg/kg	0.1	NONE	-	< 0.2	-	-	0.2
	mg/kg	0.1	NONE	-	< 0.1	-	-	0.7
2-Chloronaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	NONE	-	< 0.05	-	-	0.2
Acenaphthene	mg/kg	0.03	NONE	-	< 0.05	-	-	0.25
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Dibenzoruran	mg/kg	0.2	NONE	-	< 0.2	-	-	0.4
4-Chlorophenyl phenyl ether	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Diethyl phthalate	тід/кд	0.2	NONE	-	< 0.2	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Fluorene	mg/kg	0.05	NONE	-	< 0.05	-	-	0.67
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Phenanthrene	mg/kg	0.05	NONE	-	0.13	-	-	3.3
Anthracene	mg/kg	0.05	NONE	-	< 0.05	-	-	1.4
Carbazole	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Fluoranthene	mg/kg	0.05	NONE	-	0.26	-	-	6.2
Pyrene	mg/kg	0.05	NONE	-	0.23	-	-	5.8
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	NONE	-	0.19	-	-	3.4
Chrysene	mg/kg	0.05	NONE	-	0.16	-	-	2.3
Benzo(b)fluoranthene	mg/kg	0.05	NONE	-	0.15	-	-	2.7
Benzo(k)fluoranthene	mg/kg	0.05	NONE	-	0.2	-	-	2.2
Benzo(a)pyrene	mg/kg	0.05	NONE	-	0.18	-	-	2.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	-	0.09	-	-	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	-	< 0.05	-	-	0.34
Benzo(ghi)perylene	mg/kg	0.05	NONE	-	0.12	-	-	1.3

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





Lab Sample Number				2482726	2482727	2482728	2482729	2482730
Sample Reference				BH02	BH02	BH02	BH03	BH03
Sample Number				None Supplied				
Depth (m)				1.20	3.50	5.10	0.85	6.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
		Lin	1					
		nito	lo cr					
Analytical Parameter	Uni	ofd	edi					
(Soil Analysis)	ts S	etec	tati us					
		tio	on					
Stone Contant	0/2	3	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	12	10	< 0.1	11
Total mass of sample received	ka	0.001	NONE	15	15	19	9.0	11
Total mass of sample received	9			0.0	0.7	0.0	0.0	0.0
	Tune	NI/A	100 17025					
Asbestos In Soli	N/A	N/A	130 17023 N/A	-	-	-	-	-
Aspestos Analyst ID	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	-	8	7.6	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thiocyanate as SCN	mg/kg	5	NONE	-	-	< 5.0	< 5.0	< 5.0
Total Sulphate as SO4	mg/kg	50	MCERTS	15000	920	3800	1800	2200
Water Soluble Sulphate as SO4 16br extraction (2:1)	ma/ka	2.5	MCERTS	300	750	3400	1100	1600
water Soluble S04 16nr extraction (2:1) Leachate		2.15	HOLIND					
Equivalent)	g/l	0.00125	MCERTS	0.15	0.38	1.7	0.56	0.82
Water Soluble SO4 16hr extraction (2:1 Leachate		1.25	MCEDIC	152	377	1720	564	818
	mg/i	1.25	NONE			200	551	2100
Sulphide	mg/kg %	0.1	MCERTS	36	14	200	5.9	2100
Organic Matter (automated)	70	0.1	HIGERTS	-	-	3.8	0.9	1.2
Total Disease								
Total Phenois	ma/ka	1	MCEDTS					
Total Phenois (mononydric)	iiig/kg	1	HCER13	-	-	< 1.0	< 1.0	< 1.0
Speciated PAHs		0.05	NONE					
Naphthalene	mg/kg	0.05	NONE	-	-	< 0.05	0.19	0.25
Acenaphthylene	mg/kg	0.05	NONE	-	-	< 0.05	0.23	0.6
Acenaphthene	mg/kg	0.05	NONE	-	-	< 0.05	0.1	0.14
Fluorene	mg/kg	0.05	NONE	-	-	< 0.05	0.28	0.54
Phenanthrene	mg/kg	0.05	NONE	-	-	0.24	3.4	9
Anthracene	mg/kg	0.05	NONE	-	-	0.09	1.1	2.3
Fluoranthene	mg/kg	0.05	NONE	-	-	0.73	7.6	18
Pyrene	mg/kg	0.05	NONE	-	-	0.71	7.2	15
Benzo(a)anthracene	mg/kg	0.05	NONE	-	-	0.43	4.1	7.1
Chrysene	mg/kg	0.05	NONE	-	-	0.6	3.1	7.3
Benzo(b)fluoranthene	mg/kg	0.05	NONE	-	-	0.52	4.5	6.9
Benzo(k)fluoranthene	mg/kg	0.05	NONE	-	-	0.41	2.4	7.4
Benzo(a)pyrene	mg/kg	0.05	NONE	-	-	0.52	4.1	7.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	-	-	0.24	2	3
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	-	-	< 0.05	0.47	0.84
Benzo(ghi)perylene	mg/kg	0.05	NONE	-	-	0.31	2.1	3.2
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	-	-	4.8	42.8	89





Lab Canada Namban		2402726	2402727	2402720	2402720	2402720		
Lab Sample Number				2482726	2482727	2482728	2482729	2482730
Sample Reference				BH02	BH02	BH02	BH03	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	3.50	5.10	0.85	6.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken	-	-		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids		,						
	ma/ka	1	MCEDITC	42	110	120	07	140
	mg/kg	1	MCEDTS	42	110	120	97	140
Boron (water soluble)	mg/kg	0.2	MCEDTS	1	6./	7.8	0.7	4./
Cadmium (aqua regia extractable)	mg/kg	1.0	MCEDTC	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (nexavalent)	mg/kg	1.6	MCEDITC	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCEDITC	23	43	44	42	38
Copper (aqua regia extractable)	mg/kg	1	MCERTS	140	150	210	120	330
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	46	120	83	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCEDIC	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	46	78	54	64	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	320	200	250	870
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Toluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
p & m-xylene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
o-xylene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_ID_TOTAL}	mg/kg	10	NONE					110
				-	-		-	110
				_	-		_	110
TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg mg/kg	0.001	NONE	-	-	< 0.001 < 0.001	< 0.001 < 0.001	-
TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg mg/kg mg/kg	0.001 0.001 0.001	NONE NONE NONE	-	- - -	< 0.001 < 0.001 < 0.001	< 0.001 < 0.001 < 0.001	- - -
TPH-CWG - Aliphatic >EC5 - EC6 _{HS_1D_AL} TPH-CWG - Aliphatic >EC6 - EC8 _{HS_1D_AL} TPH-CWG - Aliphatic >EC8 - EC10 _{HS_1D_AL} TPH-CWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg mg/kg mg/kg mg/kg	0.001 0.001 0.001 1	NONE NONE NONE	- - - -	- - - - -	< 0.001 < 0.001 < 0.001 < 1.0	< 0.001 < 0.001 < 0.001 To follow	
TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL TPH-CWG - Aliphatic >EC10 - EC12 HL_QU_1D_AL TPH-CWG - Aliphatic >EC12 - EC16 HL_QU_1D_AL	mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 0.001 1 2	NONE NONE NONE NONE	- - - - - -	- - - - - -	< 0.001 < 0.001 < 0.001 < 1.0 < 2.0	< 0.001 < 0.001 < 0.001 To follow To follow	- - - - -
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H_CU_1D_AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H_CU_1D_AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H_CU_1D_AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{H_CU_1D_AL}$	mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8	NONE NONE NONE NONE NONE	- - - - - - -	- - - - - - -	< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0	< 0.001 < 0.001 < 0.001 To follow To follow To follow	
$\label{eq:transformation} \begin{array}{l} \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC5} - \mbox{EC6} + \mbox{EC8} + \mbox{S}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC8} + \mbox{EC10} + \mbox{B}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC10} - \mbox{BC12} + \mbox{B}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC12} - \mbox{EC16} + \mbox{B}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC12} - \mbox{EC16} + \mbox{B}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC16} - \mbox{EC21} + \mbox{D}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC12} - \mbox{EC16} + \mbox{B}_{.1D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC12} + \mbox{EC35} + \mbox{B}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC21} - \mbox{EC35} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC21} - \mbox{EC35} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC21} - \mbox{EC35} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC21} - \mbox{EC35} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC21} - \mbox{EC35} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC21} - \mbox{EC35} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{EC4} + \mbox{C}_{.U}, \mbox{D}, \mbox{AL} \\ \mbox{TPH-CWG} - \mbox{Aliphatic} > \mbox{TPH-CWG} - \mbo$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8	NONE NONE NONE NONE NONE NONE		-	< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0	< 0.001 < 0.001 To follow To follow To follow To follow	
$\label{eq:constraint} \begin{array}{l} \mbox{TPH-CWG} - \mbox{Aliphatic} > EC5 - EC6 $_{HS_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC8 - EC10 $_{HS_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC10 - EC12 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC10 - EC16 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC10 - EC21 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC10 - EC21 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC10 - EC21 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC10 - EC21 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} > EC21 - EC35 $_{H_CU_1D_AL}$ \\ \hline \mbox{TPH-CWG} - \mbox{Aliphatic} (EC5 - EC35) $_{H_CU_HS_1D_AL}$ \\ \hline \end{tabular}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10	NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10	< 0.001 < 0.001 To follow To follow To follow To follow To follow	
$\label{eq:constraint} \begin{array}{l} \mbox{TPH-CWG} - Aliphatic > EC5 - EC6 _ HS1DAL \\ \hline TPH-CWG - Aliphatic > EC8 - EC10 _ HS1DAL \\ \hline TPH-CWG - Aliphatic > EC10 - EC12 _ HCU_1DAL \\ \hline TPH-CWG - Aliphatic > EC12 - EC16 _ HCU_1DAL \\ \hline TPH-CWG - Aliphatic > EC14 - EC21 _ HCU_1DAL \\ \hline TPH-CWG - Aliphatic > EC21 - EC35 _ HCU_1DAL \\ \hline TPH-CWG - Aliphatic (EC5 - EC35) _ EHCU+HS1DAL \\ \hline TPH-CWG - Aliphatic (EC5 - EC35) _ EHCU+HS1DAL \\ \hline \end{array}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 10	NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10	< 0.001 < 0.001 To follow To follow To follow To follow To follow	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic >EC21 - EC23 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic (EC5 - EC35) $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic (EC5 - EC35) $_{H, CU+HS, ID, AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H, CU+HS, ID, AL}$ TPH-CWG - Aliphatic (EC5 - EC35) $_{H, CU+HS, ID, AL}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10	NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 < 0.001	< 0.001 < 0.001 To follow To follow To follow To follow To follow To follow	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC3 - EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic >EC21 - EC23 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic (EC5 - EC35 $_{H, Q, ID, AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS, ID, AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS, ID, AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001	NONE NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 8.0 10 < 0.001 < 0.001	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow To follow < 0.001 < 0.001 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC10 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC15 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H1,CU,H4S,1D,AL}$ TPH-CWG - Aliphatic (EC5 - EC35) $_{H1,CU+H5,1D,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{H5,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 0.001	NONE NONE NONE NONE NONE NONE NONE NONE			<pre>< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 < 8.0 10 </pre>	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC10 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC15 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC3 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC3 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC3 $_{H5,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1	NONE NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 < 0.001 < 0.001 < 1.0	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,0J,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H,0J,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC35 $_{H,0J,1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H,0J,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC75 $_{H,0J,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS,1D,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,0J,1D,AR}$ TPH-CWG - Aromatic >EC12 - EC16 $_{H,0J,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 0.001 1 2	NONE NONE NONE NONE NONE NONE NONE NONE			<pre>< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 < 0.001 < 0.001 < 0.001 < 1.0 4.8</pre>	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 To follow To follow 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC16 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC13 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC35 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC1 - EC35 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H,CU,1D,AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H,CU,1D,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CU,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 0.001 1 2 10	NONE NONE NONE NONE NONE NONE NONE NONE			<pre>< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 < 0.001 < 0.001 < 0.001 < 1.0 4.8 39</pre>	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 /ul>	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H, CU, ID, AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H, CU, ID, AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{H, CU, ID, AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{H, CU, ID, AL}$ TPH-CWG - Aliphatic >EC1 - EC35 $_{H, CU, HS, ID, AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC5 - EC1 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC16 $_{H, CU, ID, AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 1 2 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE			<pre>< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 </pre> < 0.001 < 0.001 < 0.001 < 1.0 4.8 39 47	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow To follow 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H, (Q, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC16 $_{H, (Q, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC13 $_{H, (Q, ID, AL}$ TPH-CWG - Aliphatic >EC1 - EC35 $_{H, (Q, ID, AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H, (Q, ID, AL}$ TPH-CWG - Aliphatic >EC2 - EC3 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, (Q, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, (Q, ID, AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 0.001 1 2 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE				 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 To follow To follow To follow To follow To follow To follow To follow To follow To follow	
$\label{eq:constraint} \begin{array}{l} \label{eq:constraint} TPH-CWG - Aliphatic > EC5 - EC6 _ EC8 _ HS_1D_AL \\ TPH-CWG - Aliphatic > EC10 - EC10 _ HS_1D_AL \\ TPH-CWG - Aliphatic > EC10 - EC12 _ BL_O_1D_AL \\ TPH-CWG - Aliphatic > EC12 - EC16 _ BL_O_1D_AL \\ TPH-CWG - Aliphatic > EC12 - EC16 _ BL_O_1D_AL \\ TPH-CWG - Aliphatic > EC21 - EC35 _ BL_O_1D_AL \\ TPH-CWG - Aliphatic > EC21 - EC35 _ BL_O_1D_AL \\ TPH-CWG - Aliphatic > EC21 - EC35 _ BL_O_1D_AL \\ TPH-CWG - Aliphatic > EC5 - EC7 _ HS_1D_AR \\ TPH-CWG - Aromatic > EC5 - EC7 _ HS_1D_AR \\ TPH-CWG - Aromatic > EC7 - EC8 _ HS_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC12 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC16 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC16 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC1 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC2 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC2 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aromatic > EC3 - EC35 _ BL_O_1D_AR \\ TPH-CWG - Aro$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 1 2 10 10 10 10 10 10 10 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE				 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 To follow 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC10 $_{H5,1D,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{B1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{B1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{B1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC15 $_{B1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{B1,CU,1D,AL}$ TPH-CWG - Aliphatic >EC2 - EC7 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{H5,1D,AR}$ TPH-CWG - Aromatic >EC5 - EC1 $_{B1,CU,1B,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{B1,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{B1,CU,1D,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{B1,CU,1D,AR}$ TPH-CWG - Aromatic >EC16 - EC21 $_{B1,CU,1D,AR}$ TPH-CWG - Aromatic >EC16 - EC21 $_{B1,CU,1D,AR}$ TPH-CWG - Aromatic >EC16 - EC21 $_{B1,CU,1D,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{B1,CU,1D,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE			<pre>< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 < 0.001 < 0.001 < 0.001 < 1.0 4.8 39 47 92</pre>	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 To follow 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HG,ID,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,ID,AL}$ TPH-CWG - Aliphatic >EC10 $_{HS,ID,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,OI,ID,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H,OI,ID,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H,OI,ID,AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H,OI,ID,AL}$ TPH-CWG - Aliphatic >EC5 - EC35 $_{H,OI,ID,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,OI,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,OI,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,OI,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC13 $_{H,OI,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC13 $_{H,OI,ID,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H,OI,ID,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10 10 10 10 1	NONE NONE NONE NONE NONE NONE NONE NONE			<pre>< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 < 0.001 < 0.001 < 0.001 < 1.0 4.8 39 47 92 < 1.0</pre>	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 To follow < 1.0 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HG, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC21 - EC35 $_{H, CJ, ID, AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H, CJ, ID, AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC1 - EC10 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC1 - EC16 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CJ, ID, AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10 10 10 10 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE				 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 To follow < 1.0 < 1.0 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{HC,0L,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{HC,0L,1D,AL}$ TPH-CWG - Aliphatic >EC12 - EC35 $_{HL,0L,1D,AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{HL,0L,1D,AL}$ TPH-CWG - Aliphatic >EC5 - EC3 $_{HL,0L,1D,AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS,1D,AR}$ TPH-CWG - Aromatic >EC12 - EC16 $_{HL,0L,1D,AR}$ TPH-CWG - Aromatic >EC12 - EC16 $_{HL,0L,1D,AR}$ TPH-CWG - Aromatic >EC12 - EC16 $_{HL,0L,1D,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{HL,0L,1D,AR}$ TPH-CWG - Aromatic >EC3 - EC35 $_{HL,0L,1D,AR}$	mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 1 2 10 10 10 10 1 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 $< 0.001 < 0.001 < 0.001 < 1.0 4.8 39 47 92 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 <$	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 1.0 < 1.0 < 1.0 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{HC, U, ID, AL}$ TPH-CWG - Aliphatic >EC16 $_{HC, U, ID, AL}$ TPH-CWG - Aliphatic >EC16 - EC21 $_{HC, U, ID, AL}$ TPH-CWG - Aliphatic >EC1 - EC35 $_{HC, U, ID, AL}$ TPH-CWG - Aliphatic >EC1 - EC35 $_{HC, U, ID, AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC5 - EC3 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC8 - EC10 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC3 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{HC, U, ID, AR}$ TPH-CWG - Aromatic >EC3 - EC35 $_{HC, U, ID, AR}$	mg/kg mg/kg	0.001 0.001 1 2 8 8 8 10 0.001 0.001 1 0.001 1 1 1 1 1 1 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 $< 0.001 < 0.001 < 0.001 < 1.0 4.8 39 47 92 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < $	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow To follow < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 	
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TPH-CWG - Aliphatic >EC5 - EC6 $_{HG,ID,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,ID,AL}$ TPH-CWG - Aliphatic >EC10 $_{HS,ID,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,CU,ID,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H,CU,ID,AL}$ TPH-CWG - Aliphatic >EC12 - EC13 $_{H,CU,ID,AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H,CU,ID,AL}$ TPH-CWG - Aliphatic >EC5 - EC35 $_{H,CU,ID,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC6 - EC10 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC13 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC11 - EC35 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC11 - EC35 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC3 - EC35 $_{H,CU,ID,AR}$ TPH-CWG - Aromatic >EC3 - EC35 $_{H,CU,ID,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg µg/kg µg/kg µg/kg µg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 10 10 10 10 10 10 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE				 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 To follow < 1.0 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HG,ID,AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS,ID,AL}$ TPH-CWG - Aliphatic >EC10 $_{HS,ID,AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H,OJ,ID,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H,OJ,ID,AL}$ TPH-CWG - Aliphatic >EC12 - EC16 $_{H,OJ,ID,AL}$ TPH-CWG - Aliphatic >EC1 - EC21 $_{H,OJ,ID,AL}$ TPH-CWG - Aliphatic >EC1 - EC35 $_{H,CJ,ID,AL}$ TPH-CWG - Aliphatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC1 - EC10 $_{HS,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CJ,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CJ,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H,CJ,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC13 $_{H,CJ,ID,AR}$ TPH-CWG - Aromatic >EC10 - EC35 $_{H,CJ,ID,AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H,CJ,ID,AR}$ TPH-CWG - Aromatic >EC3 - EC35 $_{H,CJ,ID,AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg µg/kg µg/kg µg/kg µg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 0.001 1 1 1 1 1 1 1 1 1 1 1 1 1	NONE NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 10 < 0.001 < 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 1.0 	
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC6 - EC8 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC8 - EC10 $_{HS, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC12 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC16 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC21 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC21 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC10 - EC21 $_{H, OJ, ID, AL}$ TPH-CWG - Aliphatic >EC2 - EC35 $_{H, CU+HS, ID, AL}$ TPH-CWG - Aromatic >EC5 - EC7 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC7 - EC8 $_{HS, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC12 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC10 - EC21 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$ TPH-CWG - Aromatic >EC21 - EC35 $_{H, CU, HS, ID, AR}$	mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg ug/kg µg/kg µg/kg µg/kg µg/kg	0.001 0.001 1 2 8 8 10 0.001 0.001 0.001 1 2 10 10 10 10 10 10 10 10 10 10	NONE NONE NONE NONE NONE NONE NONE NONE			< 0.001 < 0.001 < 1.0 < 2.0 < 8.0 < 8.0 10 $< 0.001 < 0.001 < 0.001 < 0.001 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1.0 < 1$	 < 0.001 < 0.001 < 0.001 To follow To follow To follow To follow To follow < 0.001 < 1.0 	





Lab Sample Number			2/192726	2/102222	2/102220	2/102220	2/102220	
Sample Reference				2402720 BH02	2402727 BH02	2402720 RH02	2402725 RH02	2402750 RH02
Sample Number				Nono Supplied				
Sample Number				1 20		F 10		6 00
Depth (III)				1.20 Doviating	5.50	5.10 Deviating	0.05	0.00
Time Taken				Deviauity Nene Cumplied	Deviauity Nene Cumplied	Deviauliy Nana Guanliad	Deviauity Name Cumplied	Deviauity Name Cumplied
lime laken	r	-		None Supplied				
		ini.	A					
Analytical Parameter	c	ő	st cue					
(Soil Analysis)	nits	det	atu					
		ĝ	sitio					
		ion	n					
2,2-Dichloropropane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trichloromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dichloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1-Dichloropropene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Benzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Tetrachloromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1.2-Dichloropropane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Dibromomethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Bromodichloromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Cis-1.3-dichloropropene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trans-1 3-dichloropropene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1.1.2-Trichloroethane	ua/ka	1	NONE	-	-	< 1.0	< 1.0	-
1 3-Dichloropropage	µa/ka	1	NONE	-	-	< 1.0	< 1.0	-
Dibromochloromethane	ua/ka	1	NONE	-	-	< 1.0	< 1.0	-
Tetrachloroethene	ua/ka	1	NONE	-	-	< 1.0	< 1.0	-
1 2-Dibromoethane	ua/ka	1	NONE	-	-	< 1.0	< 1.0	-
Chlorobenzene	ug/kg	1	NONE	-	-	< 1.0	< 1.0	-
1 1 1 2-Totrachloroothano	ug/kg	1	NONE			< 1.0	< 1.0	
1,1,1,2-1 eti dei lioi beti laite	ug/kg	1	NONE	-	-	< 1.0	< 1.0	-
	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
p & III-Xylene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Styrefie	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1,2,2-1 etrachioroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Isopropyibenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Bromobenzene	µу/ку	1	NONE	-	-	< 1.0	< 1.0	-
n-Propylbenzene	µу/ку	1	NONE	-	-	< 1.0	< 1.0	-
2-Chlorotoluene	µg/кд	1	NONE	-	-	< 1.0	< 1.0	-
4-Chlorotoluene	µg/кд	1	NONE	-	-	< 1.0	< 1.0	-
1,3,5-Trimethylbenzene	µд/кд	1	NONE	-	-	< 1.0	< 1.0	-
tert-Butylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
sec-Butylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
p-Isopropyltoluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Butylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Hexachlorobutadiene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1.2.3-Trichlorohenzene	µq/kq	1	NONE	· · ·	· · ·	< 1.0	< 1.0	

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	0.3	0.5	-
Phenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	NONE	-	-	0.6	0.3	-





Lab Sample Number			2482726	2482727	2482728	2482729	2482730	
Sample Reference				BH02	BH02	BH02	BH03	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Denth (m)				1 20	3 50	5 10	0.85	6.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
		5		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
		imit	Acc					
Analytical Parameter	ų.	of	Sta					
(Soil Analysis)	its	lete	tus itat					
		đ	lion					
		š	NONE					
1,2-Dichlorobenzene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	NONE	-	-	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Naphthalene	mg/kg	0.05	NONE	-	-	< 0.05	0.19	-
2,4-Dichlorophenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	NONE	-	-	< 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	NONE	-	-	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Acenaphthylene	mg/kg	0.05	NONE	-	-	< 0.05	0.23	-
Acenaphthene	mg/kg	0.05	NONE	-	-	< 0.05	0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Dibenzoturan	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
4-Nitroanline	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Fluorene	mg/kg	0.05	NONE	-	-	< 0.05	0.28	-
Azobelizelle	mg/kg	0.5	NONE	-	-	< 0.3	< 0.3	-
	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Resactiorobenzene	mg/kg	0.5	NONE	-	-	< 0.3	< 0.3	-
Anthrasene	mg/kg	0.05	NONE	-	-	0.24	5.4	-
Anthracehe	mg/kg	0.05	NONE	-	-	0.09	1.1	-
Cal Dazole	mg/kg	0.5	NONE	-	_	< 0.3	< 0.3	-
Anthroquinene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Eluoranthono	ma/ka	0.05	NONE			0.3	< 0.5 7.6	-
Puropo	ma/ka	0.05	NONE			0.73	7.0	-
Butyl benzyl obthalate	ma/ka	0.05	NONE	_	_	0.71	/.2	-
Benzo(a)anthracene	ma/ka	0.05	NONE			0.3	< 0.3 4 1	-
Chrycono	ma/ka	0.05	NONE			0.43	7.1	-
Chrysene Ronzo(h)fluoranthono	ma/ka	0.05	NONE			0.0	J.1 4 5	-
Benzo(k)fluoranthene	ma/ka	0.05	NONE		-	0.52	7.5	-
	ma/ka	0.05	NONE	-	-	0.91	2. 4 / 1	-
Indono(1, 2, 2-cd)pyrono	ma/ka	0.05	NONE		-	0.52	4.1 2	-
	ma/ka	0.05	NONE			0.24	2 0.47	-
Benzo(ahi)pervlene	mg/kg	0.05	NONE	-	-	0.31	21	-

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





* 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 *
2482721	BH01	None Supplied	0.4	Brown clay and loam with gravel.
2482722	BH01	None Supplied	0.75	Brown clay and sand with gravel.
2482723	BH01	None Supplied	1.7	Grey clay and sand with gravel.
2482724	BH01	None Supplied	4.9	Brown clay and loam with gravel.
2482725	BH02	None Supplied	0.6	Brown clay and loam with gravel.
2482726	BH02	None Supplied	1.2	Grey clay with gravel.
2482727	BH02	None Supplied	3.5	Brown clay and sand with gravel.
2482728	BH02	None Supplied	5.1	Brown clay and sand with gravel.
2482729	BH03	None Supplied	0.85	Brown sandy clay with gravel.
2482730	BH03	None Supplied	6	Black clay and loam with gravel.




Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	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
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
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 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	NONE
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 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	NONE
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in water followed by acidification followed by addition of ferric nitrate followed by discrete analyser (spectrophotometer).	In-house method	L082-PL	D	NONE
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 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	NONE
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
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	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE





Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	NONE
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Organic matter (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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
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 or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD). For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' 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 aravimetrically using the moisture content which is carried out at a maximum of 30oC Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS Total or EH CU+HS Total



This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	None Supplied	S	2482721	а	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2482722	а	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2482723	а	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2482724	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482725	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482726	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482727	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482728	а	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2482729	а	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2482730	а	None Supplied	None Supplied	None Supplied





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Analytical Report Number : 22-93763

Project / Site name:	Penzance Harbour	Samples received on:	19/10/2022
Your job number:	21155	Samples instructed on/ Analysis started on:	01/11/2022
Your order number:	21155	Analysis completed by:	15/11/2022
Report Issue Number:	1	Report issued on:	25/11/2022
Samples Analysed:	10 soil samples		



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Izabela Wójcik Reporting Specialist 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

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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.





Lab Sample Number				2482721	2482722	2482723	2482724	2482725
Sample Reference				BH01	BH01	BH01	BH01	BH02
Sample Number				None Supplied				
Depth (m)				0.40	0.75	1.70	4.90	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
		5	1					
Analytical Parameter (Soil Analysis)	Units	mit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	11	18	13	14
Total mass of sample received	kg	0.001	NONE	0.7	0.7	0.8	0.8	0.8
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	-	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	N/A	N/A	N/A	SSZ
•					,			
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8	7.9	-	8.2	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cvanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	< 5.0	-	< 5.0	< 5.0
Total Sulphate as SO4	ma/ka	50	MCERTS	670	1000	1000	2700	2300
Water Soluble Sulphate as SO4 16hr extraction (2:1)	ma/ka	2.5	MCERTS	230	1000	920	2400	570
Water Soluble SO4 16hr extraction (2:1 Leachate	5, 5			250	1000	520	2100	570
Equivalent) Water Soluble SO4 16hr extraction (2:1 Leachate	g/l	0.00125	MCERTS	0.11	0.51	0.46	1.2	0.28
Equivalent)	mg/l	1.25	MCERTS	115	506	462	1210	283
Sulphide	mg/kg	1	NONE	11	7.8	7.7	230	1.4
Organic Matter (automated)	%	0.1	MCERTS	7.3	0.6	-	1.6	1.3
Tatal Dhanala								
Total Phenois	ma/ka	1	MCEDTS					
Total Phenois (mononydric)	iiig/kg	I	PICER13	< 1.0	< 1.0	-	< 1.0	< 1.0
Speciated PAHs								
Nanhthalana	ma/ka	0.05	NONE	0.2	< 0.05		0.2	0.44
Acenanbthylene	ma/ka	0.05	NONE	< 0.05	< 0.05	_	0.15	0.11
	ma/ka	0.05	NONE	< 0.05	< 0.05		0.15	0.2
Fluorene	ma/ka	0.05	NONE	< 0.05	< 0.05		0.07	0.25
Dhenanthrene	ma/ka	0.05	NONE	0.03	0.03		0.JZ 7 1	3.0/
Anthracene	ma/ka	0.05	NONE	< 0.05	< 0.05		1.1	1.0
Fluoranthene	ma/ka	0.05	NONE	0.05	0.05		4.2	1.T 6.2
Durana	ma/ka	0.05	NONE	0.32	0.20	-	 30	5.0
Renzo(a)anthracene	ma/ka	0.05	NONE	0.3	0.23		ש.ט ר	3.0
Christopo	mg/kg	0.05	NONE	0.21	0.19	-	1 5	3.4
	mg/kg	0.05	NONE	0.37	0.10	-	1.5	2.3
Denzo(b)nuoranthene	mg/kg	0.05	NONE	0.32	0.15	-	2.2	2./
	mg/kg	0.05	NONE	0.09	0.2	-	0.83	2.2
	mg/kg	0.05	NONE	0.19	0.18	-	1./	2.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.11	0.09	-	0.84	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	0.23	0.34
benzo(gni)peryiene	1119/ Kg	0.05	HUNL	0.12	0.12	-	0.81	1.3
Total DAL								
	ma/ka	0.8	NONE	0.67			22.4	
Specialed Total EPA-16 PAHS	1119/ Kg	0.0	HOILE	2.6/	1./1	-	22.4	34.4





Lab Sample Number				2/92721	2492722	2492222	2492724	2492725
Sample Reference				8H01	2402722 BH01	2402723 BH01	8H01	8H02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Denth (m)	0.40	0.75	1 70	4 90	0.60			
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
		_		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	imit of detectior	Accreditation Status					
Heavy Metals / Metalloids		2		<u> </u>				ļ]
Arsonic (aqua rogia extractable)	ma/ka	1	MCERTS	OF	120	17	70	120
Roron (water colubio)	ma/ka	0.2	MCERTS	95	130	9.2	72	2.4
Cadmium (agua regia extractable)	ma/ka	0.2	MCERTS	2.5	5.5	0.5	- 0.2	2.4
Chromium (bexavalent)	ma/ka	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	ma/ka	1	MCERTS	38	73	40	30	< 1.0 66
Copper (agua regia extractable)	ma/ka	1	MCERTS	120	75	49	120	150
Lead (aqua regia extractable)	ma/ka	1	MCERTS	130	21	17	56	31
Mercury (aqua regia extractable)	ma/ka	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	ma/ka	1	MCERTS	51	87	33	27	81
Selenium (aqua regia extractable)	ma/ka	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	170	73	< 1.0 Q0	180
	5. 5	1	I	170	1/0	ر،	20	100
Monoaromatics & Oxygenates								
Bonzono	ua/ka	1	NONE	_	< 1.0	-	_	< 1.0
Teluene	ug/kg	1	NONE	-	< 1.0	-	-	< 1.0
Ethylhenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE		< 1.0			< 1.0
	ua/ka	1	NONE		< 1.0	_		< 1.0
MTBE (Mothyd Tortiany Butyd Ethor)	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
HTDL (Healy freidaly butyl Ealer)	F3/3	_		-	< 1.0	-	-	< 1.0
Potroloum Hudrocorbono								
	ma/ka	10	NONE	27			25	
TFTT CIO - CHO EH_CU_ID_TOTAL	iiig/ kg	10	NONE	37	-	-	35	-
	ma/ka	0.001	NONE	1	0.001			0.004
	mg/kg	0.001	NONE	-	< 0.001	-	-	< 0.001
TPH-CWG - Aliphatic > EC8 - EC8 $_{HS_1D_{AL}}$	mg/kg	0.001	NONE	-	< 0.001	-	-	< 0.001
TPH-CWG - Aliphatic > EC10 $_{HS_{1D}AL}$	mg/kg	0.001	NONE	-	< 0.001	-	-	< 0.001
TPH-CWG - Aliphatic > EC10 - EC12 EH_CU_1D_AL	mg/kg	1	NONE	-	< 1.0	-	-	2.2
TPH-CWG - Aliphatic > EC12 - EC16 EH_CU_1D_AL	mg/kg	2	NONE	-	< 2.0	-	-	/
TPH-CWG - Aliphatic > EC16 - EC21 EH_CU_1D_AL	mg/kg	0	NONE	-	< 8.0	-	-	13
TPH-CWG - Aliphatic (ECS - EC25)	mg/kg	0 10	NONE	-	< 8.0	-	-	/0
TFTT-CWG - Aliphatic (LC3 - LC33) EH_CU+HS_1D_AL	iiig/ kg	10	NONE	-	< 10	-	-	92
		0.001	NONE	1	0.001			0.004
TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	NONE	-	< 0.001	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	NONE	-	< 0.001	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	NONE	-	< 0.001	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	NONE	-	< 1.0	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	10	NONE	-	< 2.0	-	-	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	NONE	-	< 10	-	-	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_{CU_{1D}AR}}$	mg/kg	10	NONE	-	< 10	-	-	3/
TFTI-CWG - Alomatic (LCS - LCSS) EH_CU+HS_1D_AR	mg/kg	10	NONE	-	< 10	-	-	40
1/00-								
vocs		1	NONE		4.0			
Chloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Chioroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
bromometnane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
vinyi Chioride	μу/ку	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1,2- I richloro 1,2,2- I rifluoroethane	μу/ку	1	NONE	-	< 1.0	-	-	< 1.0
UIS-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
MIDE (METNY LETTARY BUTYLETHER)	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1-Dicnioroethane	µу/ку	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Irichloromethane	µg/кд	1	NONE	-	< 1.0	-	-	< 1.0





Lab Sample Number	2482721	2482722	2482723	2482724	2482725			
Sample Reference				BH01	BH01	BH01	BH01	BH02
Sample Number				None Supplied				
Denth (m)				0.40	0.75	1 70	4 90	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				Nono Supplied				
	r	-		None Supplieu	None Supplied	None Supplieu	None Supplieu	None Supplied
Analytical Parameter (Soil Analysis)	Units	imit of detection	Accreditation Status					
1,1,1-Trichloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Benzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Tetrachloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Trichloroethene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Dibromomethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Bromodichloromethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Cis-1.3-dichloropropene	µq/kq	1	NONE	-	< 1.0	-	-	< 1.0
Trans-1 3-dichloropropene	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
1 1 2-Trichloroethane	ua/ka	1	NONE	-	< 1.0	-	-	< 1.0
1 3-Dichloropropage	ua/ka	1	NONE	-	< 1.0	_	-	< 1.0
Dibromochloromothano	ua/ka	1	NONE	_	< 1.0	_	_	< 1.0
Totrachloroothono	ua/ka	1	NONE		< 1.0			< 1.0
1 2-Dibromoothano	ua/ka	1	NONE		< 1.0			< 1.0
1,2-Dibiomoethane	ug/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1,1,2-1 eti dellioi betildile	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	ug/kg	1	NONE	-	< 1.0	-	-	< 1.0
p & III-Aylene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
0-Xylene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,1,2,2-1 etrachioroethane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Isopropyibenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Bromobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
n-Propylbenzene	µу/ку	1	NONE	-	< 1.0	-	-	< 1.0
2-Chlorotoluene	µg/кд	1	NONE	-	< 1.0	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,3,5-Trimethylbenzene	µд/кд	1	NONE	-	< 1.0	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Butylbenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	< 1.0	-	-	< 1.0





Your Order No: 21155

Lab Sample Number	2482721	2482722	2482723	2482724	2482725			
Sample Reference		BH01	BH01	BH01	BH01	BH02		
Sample Number				None Supplied				
Denth (m)				0.40	0.75	1 70	4 90	0.60
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				Nono Supplied				
Time Taken	r	-		None Supplieu	None Supplied	None Supplieu	None Supplieu	None Supplied
Analytical Parameter (Soil Analysis)	Units	imit of detection	Accreditation Status					
SVOCs	-	_						
Aniline	mg/kg	0.1	NONE	-	0.3	-	-	1.1
Phenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	NONE	-	0.3	-	-	0.3
1,2-Dichlorobenzene	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	NONE	-	< 0.05	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Isophorone	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2-Nitronhenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
2 4-Dimethylphenol	mg/kg	0.3	NONE	-	< 0.3	_	-	< 0.3
Bic(2-chloroethoxy)methane	ma/ka	0.3	NONE	-	< 0.3	-	_	< 0.3
1 2 4-Trichlorohenzene	ma/ka	0.3	NONE	-	< 0.3	-	-	< 0.3
Nanhthalene	ma/ka	0.05	NONE	-	< 0.05	-	-	0.44
2 4-Dichlorophenol	ma/ka	0.3	NONE	-	< 0.05	-	_	< 0.3
4-Chloroaniline	ma/ka	0.1	NONE		< 0.3			< 0.5
Heyachlorobutadiono	ma/ka	0.1	NONE		< 0.1			< 0.1
4-Chloro-2-mothylphonol	ma/ka	0.1	NONE		< 0.1	_	-	< 0.1
2.4.6. Trichlorophonol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
	ma/ka	0.2	NONE	-	< 0.1	-	-	< 0.1
2-Mothylaphthalopo	ma/ka	0.1	NONE		< 0.2	_	-	0.2
2-Metryinaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	0.7
	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	NONE	-	< 0.05	-	-	0.2
Acenaphthene	mg/kg	0.03	NONE	-	< 0.05	-	-	0.25
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Dibenzoluran	mg/kg	0.2	NONE	-	< 0.2	-	-	0.4
4-Chiorophenyi phenyi ether	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
	mg/kg	0.05	NONE	-	< 0.05	-	-	0.67
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Bromophenyi phenyi ether	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Department	mg/kg	0.5	NONE	-	< 0.3	-	-	< 0.3
Phenanthrene	mg/kg	0.05	NONE	-	0.13	-	-	3.3
Anthracene	mg/kg	0.03	NONE	-	< 0.05	-	-	1.4
Carbazole	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Dibutyi phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
	mg/kg	0.05	NONE	-	0.26	-	-	0.2
Pyrene	mg/kg	0.05	NONE	-	0.23	-	-	5.8
Butyi benzyi phthalate	mg/kg	0.0	NONE	-	< 0.3	-	-	< 0.3
berizo(a)anthracene	mg/kg	0.05	NONE	-	0.19	-	-	3.4
Chrysene	mg/kg	0.05	NONE	-	0.16	-	-	2.3
Benzo(D)fluoranthene	mg/kg	0.05	NONE	-	0.15	-	-	2.7
Benzo(K)fluoranthene	mg/kg	0.05	NONE	-	0.2	-	-	2.2
Benzo(a)pyrene	mg/kg	0.05	NONE	-	0.18	-	-	2.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	-	0.09	-	-	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	-	< 0.05	-	-	0.34
Benzo(ghi)perylene	тту/кд	0.05	NONE	-	0.12	-	-	1.3

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rour	order	140:	21122	

Lab Sample Number				2482721	2482722	2482723	2482724	2482725
Sample Reference				BH01	BH01	BH01	BH01	BH02
Sample Number				None Supplied				
Depth (m)				0.40	0.75	1.70	4.90	0.60
Date Sampled	Deviating	Deviating	Deviating	Deviating	Deviating			
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

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





Lab Sample Number		2/192726	2/102222	2/02220	2/192720	2/192720		
Sample Reference				2402720 BH02	2402727 BH02	2402720 BH02	2402723 BH02	2402730 BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Sample Number				1 20	2 50	None Supplied		6 00
Depth (m)				1.20 Doviating	5.50 Doviating	5.10 Doviating	Doviating	0.00 Doviating
Time Taken				None Cupplied	None Supplied	None Supplied	None Cumplied	None Supplied
	1	_	1	None Supplied	None Supplied	None Supplieu	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	< 0.1
Moisture Content	%	0.01	NONE	13	13	19	9.8	11
Total mass of sample received	kg	0.001	NONE	0.8	0.7	0.8	0.8	0.8
Asbestos in Soil	Туре	N/A	ISO 17025	-	-	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	-	8	7.6	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cvanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Thiocvanate as SCN	mg/kg	5	NONE	_	_	< 5.0	< 5.0	< 5.0
Total Sulphate as SO4	mg/kg	50	MCERTS	15000	920	3800	1800	2200
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	300	750	3400	1100	1600
Water Soluble SO4 16hr extraction (2:1 Leachate	5. 5			500	,	5.00		1000
Equivalent) Water Soluble SO4 16br extraction (2:11 eachate	g/l	0.00125	MCERTS	0.15	0.38	1.7	0.56	0.82
Equivalent)	mg/l	1.25	MCERTS	152	377	1720	564	818
Sulphide	mg/kg	1	NONE	36	14	200	5.9	2100
Organic Matter (automated)	%	0.1	MCERTS	-	-	3.8	0.9	1.2
Total Phonoic								
Total Phenois	ma/ka	1	MCERTS			. 1.0	. 1.0	. 1.0
Total Hieliois (monoriyane)	5, 5			-	-	< 1.0	< 1.0	< 1.0
Speciated BAHs								
Speciated PARS	ma/ka	0.05	NONE			- 0.05	0.10	0.25
	mg/kg	0.05	NONE	-	-	< 0.05	0.19	0.25
Acenaphthylene	mg/kg	0.05	NONE	-	-	< 0.05	0.23	0.6
Acenaphthene	mg/kg	0.05	NONE	-	-	< 0.05	0.1	0.14
Fluorene	mg/kg	0.05	NONE	-	-	< 0.05	0.28	0.54
Phenanthrene	mg/kg	0.05	NONE	-	-	0.24	3.4	9
Anthracene	mg/kg	0.05	NONE	-	-	0.09	1.1	2.3
Fluoranthene	mg/kg	0.05	NONE	-	-	0.73	7.6	18
Pyrene	mg/kg	0.05	NONE	-	-	0.71	7.2	15
Benzo(a)anthracene	mg/kg	0.05	NONE	-	-	0.43	4.1	7.1
Chrysene	mg/kg	0.05	NONE	-	-	0.6	3.1	7.3
Benzo(b)fluoranthene	mg/kg	0.05	NONE	-	-	0.52	4.5	6.9
Benzo(k)fluoranthene	mg/kg	0.05	NONE	-	-	0.41	2.4	7.4
Benzo(a)pyrene	mg/kg	0.05	NONE	-	-	0.52	4.1	7.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	-	-	0.24	2	3
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	-	-	< 0.05	0.47	0.84
Benzo(ghi)perylene	mg/кg	0.05	NUNE	-	-	0.31	2.1	3.2
Total PAH								
Speciated Total EPA-16 PAH:	ma/ka	0.8	NONE			10	12 0	00
Specialeu Total EFA-10 FALIS	5, 19		-	-	-	4.0	42.0	09





Your Order No: 21155

Trichloromethane

Lab Sample Number		2482726	2482727	2482728	2482729	2482730		
Sample Reference				BH02	BH02	BH02	BH03	BH03
Sample Number				None Supplied				
Depth (m)				1.20	3.50	5.10	0.85	6.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detecti	Accreditation Status					
		ion	-					
Heavy Metals / Metalloids					-		-	
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	42	110	120	97	140
Boron (water soluble)	mg/kg	0.2	MCERTS	1	6.7	7.8	0.7	4.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	43	44	42	38
Copper (aqua regia extractable)	mg/kg	1	MCERTS	140	150	210	120	330
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	46	120	83	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	46	78	54	64	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	78	320	200	250	870
Monoaromatics & Oxygenates			-	-	-		-	
Benzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Toluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
p & m-xylene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
o-xvlene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Petroleum Hydrocarbons TPH C10 - C40 _{EH_CU_ID_TOTAL}	mg/kg	10	NONE	-	-	-	-	110
TPH-CWG - Aliphatic >EC5 - EC6	ma/ka	0.001	NONE			< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8 $\mu_{B_{1D}AL}$	ma/ka	0.001	NONE	-	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic > EC8 - EC10 Hs_10 AL	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic > EC10 - EC12 rul cu to al	ma/ka	1	NONE	-	-	< 1.0	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16 $= EC12 + EC16$	ma/ka	2	NONE	-	-	< 2.0	< 2.0	-
TPH-CWG - Aliphatic > EC16 - EC21 rul ou to al	ma/ka	8	NONE	-	-	< 8.0	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 rul cu to al	ma/ka	8	NONE	-	-	< 8.0	9.4	-
TPH-CWG - Aliphatic (EC5 - EC35) EH CLARS 1D AL	mg/kg	10	NONE	-	-	10	11	-
		I				10	11	
TPH-CWG - Aromatic >EC5 - EC7 us up up	ma/ka	0.001	NONE	-	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8 He ID AP	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10 HS 1D AR	mg/kg	0.001	NONE	i .	-	< 0.001	< 0.001	- 1
TPH-CWG - Aromatic >EC10 - EC12 EH CU 10 AP	mg/kg	1	NONE	-	-	< 1.0	1.6	-
TPH-CWG - Aromatic >EC12 - EC16 FH CULID AR	mg/kg	2	NONE	-	-	4.8	6.1	- I
TPH-CWG - Aromatic >EC16 - EC21 EH CU 10 AP	mg/kg	10	NONE	-	-	39	13	-
TPH-CWG - Aromatic >EC21 - EC35 FH CILLID AP	mg/kg	10	NONE	-	-	47	33	- I
TPH-CWG - Aromatic (EC5 - EC35) EH CU+HS 1D AR	mg/kg	10	NONE	-	-	92	53	-
VOCs	I							
Chloromethane	µq/ka	1	NONE	-	-	< 1.0	< 1.0	I
Chloroethane	μq/ka	1	NONE	-	-	< 1.0	< 1.0	-
Bromomethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	- 1	-	< 1.0	< 1.0	- 1
Trichlorofluoromethane	µg/kg	1	NONE	i .	-	< 1.0	< 1.0	- 1
1.1-Dichloroethene	µg/kg	1	NONE	- 1	-	< 1.0	< 1.0	- 1
1.1.2-Trichloro 1.2.2-Trifluoroethane	µg/kg	1	NONE	i .	-	< 1.0	< 1.0	- 1
Cis-1.2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	NONE	-	-	< 1.0	< 1.0	- I
1.1-Dichloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
2.2-Dichloropropane	µg/kg	1	NONE	<u> </u>	<u> </u>	< 1.0	< 1.0	-

µg/kg 1 NONE

-

< 1.0

-

< 1.0





Lab Sample Number		2482726	2482727	2482728	2482729	2482730		
Sample Reference				BH02	BH02	BH02	BH03	BH03
Sample Number				None Supplied				
Denth (m)				1 20	3 50	5 10	0.85	6.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
		None Supplied	None Supplied	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	imit of detection	Accreditation Status					
1,1,1-Trichloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dichloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1-Dichloropropene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Benzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Tetrachloromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dichloropropane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trichloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Dibromomethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Bromodichloromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Toluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,3-Dichloropropane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Dibromochloromethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dibromoethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Chlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
p & m-Xylene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Styrene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Tribromomethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
o-Xylene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Isopropylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Bromobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
n-Propylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
2-Chlorotoluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
4-Chlorotoluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
tert-Butylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
sec-Butylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1.3-Dichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
p-Isopropyltoluene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Butylbenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1.2-Dibromo-3-chloropropane	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1.2.4-Trichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
Hexachlorobutadiene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-
1,2,3-Trichlorobenzene	µg/kg	1	NONE	-	-	< 1.0	< 1.0	-





Your Order No: 21155

Lab Sample Number		2482726	2482727	2482728	2482720	2482730		
				2402720	2402727	2402720	2402729	2402730
Sample Reference				BHU2	BHU2	BHU2	BHU3	BH03
Sample Number				None Supplied				
Depth (m)				1.20	3.50	5.10	0.85	6.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis) SVOCs	Units	Limit of detection	Accreditation Status					
34003	ma/ka	0.1	NONE		1		0.5	
Aniline	тıg/кg	0.1	NUNE	-	-	0.3	0.5	-
Phenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	NONE	-	-	0.6	0.3	-
1,2-Dichlorobenzene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	NONE	-	-	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
1.2.4-Trichlorobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Nanhthalene	ma/ka	0.05	NONE	-	-	< 0.05	0.19	-
2 4-Dichlorophenol	ma/ka	0.3	NONE	_	_	< 0.05	< 0.3	-
4-Chloroanilino	ma/ka	0.1	NONE	_	_	< 0.1	< 0.5	_
Heyechlerebutediene	ma/ka	0.1	NONE	-	-	< 0.1	< 0.1	-
4 Chlore 2 methylphonel	ma/ka	0.1	NONE	-	-	< 0.1	< 0.1	-
	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Methyinaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Acenaphthylene	mg/kg	0.05	NONE	-	-	< 0.05	0.23	-
Acenaphthene	mg/kg	0.05	NONE	-	-	< 0.05	0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Fluorene	mg/kg	0.05	NONE	-	-	< 0.05	0.28	-
Azobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Phenanthrene	mg/kg	0.05	NONE	-	-	0.24	3.4	-
Anthracene	mg/kg	0.05	NONE	-	-	0.09	1.1	-
Carbazole	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Fluoranthene	mg/kg	0.05	NONE	-	-	0.73	7.6	-
Pyrene	mg/kg	0.05	NONE	-	-	0.71	7.2	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	NONE	-	-	0.43	4.1	-
Chrysene	mg/kg	0.05	NONE	-	-	0.6	3.1	-
Benzo(b)fluoranthene	mg/kg	0.05	NONE	-	-	0.52	4.5	-
Benzo(k)fluoranthene	mg/kg	0.05	NONE	-	-	0.41	2.4	-
Benzo(a)pyrene	mg/kg	0.05	NONE	-	-	0.52	4.1	-
Indeno(1.2.3-cd)pyrene	mg/kg	0.05	NONE	-	-	0.24	2	-
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	-	-	< 0.05	0.47	-
Benzo(ghi)perylene	mg/kg	0.05	NONE	-	-	0.31	2.1	-

This certificate should not be reproduced, except in full, without the express permission of the laboratory. The results included within the report relate only to the sample(s) submitted for testing





	Tour	oruer	140.	21135

Lab Sample Number				2482726	2482727	2482728	2482729	2482730
Sample Reference				BH02	BH02	BH02	BH03	BH03
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Depth (m)	1.20	3.50	5.10	0.85	6.00			
Date Sampled	Deviating	Deviating	Deviating	Deviating	Deviating			
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

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





* 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 *
2482721	BH01	None Supplied	0.4	Brown clay and loam with gravel.
2482722	BH01	None Supplied	0.75	Brown clay and sand with gravel.
2482723	BH01	None Supplied	1.7	Grey clay and sand with gravel.
2482724	BH01	None Supplied	4.9	Brown clay and loam with gravel.
2482725	BH02	None Supplied	0.6	Brown clay and loam with gravel.
2482726	BH02	None Supplied	1.2	Grey clay with gravel.
2482727	BH02	None Supplied	3.5	Brown clay and sand with gravel.
2482728	BH02	None Supplied	5.1	Brown clay and sand with gravel.
2482729	BH03	None Supplied	0.85	Brown sandy clay with gravel.
2482730	BH03	None Supplied	6	Black clay and loam with gravel.





Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	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
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
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 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	NONE
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 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	NONE
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in water followed by acidification followed by addition of ferric nitrate followed by discrete analyser (spectrophotometer).	In-house method	L082-PL	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCI 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 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	NONE
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
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	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE





Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	NONE
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Organic matter (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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
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 or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride). For method numbers ending in 'PL or B' 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 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
-	Operator to indicate sumulative a group Tatal as FU CULUS Tatal

Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	None Supplied	S	2482721	а	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2482722	а	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2482723	а	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2482724	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482725	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482726	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482727	а	None Supplied	None Supplied	None Supplied
BH02	None Supplied	S	2482728	а	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2482729	а	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2482730	а	None Supplied	None Supplied	None Supplied

SOUTH W	EST GEOTE	Test Report		South West Geotechnical Ltd Unit 3 Brooklands, Howden Road, Tiverton, Devon EX16 5HW		
Job No:		14666	Date Received:	07/11/22		
Job Nomo:		Ponzanco Harbour	Date Necelveu.	17/11/22		
Client Name	0.	Wheel Jane Ltd	Transmittal Number	T2077		
Client Job I			Sondors Initials			
Cheffit Job I	١٥.	21155	Benert Boyisien No	1		
Client Add	ress	Old Mine Offices, Wheal Jane, Baldhu, Truro, Cornwall, TR3 6EE	Compled by CM/C lob et			
			Sampled by SWG lab st	NU		
Ref.		Test Detail		No. of Tests / Report No.		
C3	Point Loa	ad Test on Regular Core and Irregular Specimens Tested ir International Journal of Rock Mechanics and Mir	n Accordance with the ning	15		
C4	ISRM: 198	31: Part 2 Suggested Methods - Uniaxial Compressive Stre	ngth of Rock Materials	1		
Sam	pling not pe	erformed by South West Geotechnical laboratory staff. R	esults apply to the same	ples as received.		
Approved S	Signatories:					
David Trow	bridge (Labo	ratory Manager) hnician)				
The results This c	contained certificate s	within this report only relate to the samples tested, as re hall not be reproduced except in full, without prior writte laboratory.	eceived from the client. en approval of the	Accredited to ISO/IEC 17025:2017		

SOUTH WE	GEOT	ECHNIC	AL				Poir	Point Load Results Summary Sheet										Unit 3 Brooklands, Howden Road, Tiverton, Devon EX16 5HW		
Project I	No.						Project	Name												
14666							Penzanc	Penzance Harbour												
Client Jo	ob No	_					Client	Client												
21155	21155								Wheal Jane Ltd											
		Sa	mple			Axial /														
Hole No.	Ref.	Тор	Base	Туре	Specimen Depth	Diametral / Irregular	THICKNESS (mm) - D	WIDTH (mm) - W	DIAMETER (mm) - D	BREAKING LOAD (kN) - P	D2e (mm2)	ls (MPa)	De	De/50	kPLT	Is 50 (MPa)		Sample Description		
BH01		6.7	6.8	С		А	33.87	89.92		0.3	3877.91	0.08	62.27	1.25	1.10	0.09		Brown and light greyish MUDSTONE		
BH01		7.4	7.5	С		D	88.12		89.74	1.3	8053.87	0.16	89.74	1.79	1.30	0.21		Light grey SANDSTONE		
BH01		8	8.06	С		A	55.82	20.91		0.2	1486.03	0.13	38.55	0.77	0.89	0.12		Grey MUDSTONE		
BH01		8.2	8.3	С		A	45.02	86.76		1.7	4973.19	0.34	70.52	1.41	1.17	0.40		Brown MUDSTONE		
BH01		8.9	9	С		A	72.82	94.10		0.5	8724.30	0.06	93.40	1.87	1.32	0.08		Grey and orange MUDSTONE		
BH02		5.9	6	С		A	89.41	75.06		0.7	8545.24	0.08	92.44	1.85	1.32	0.11		Brown and light greyish MUDSTONE		
BH02		6.4	6.5	С		D	88.27		90.56	11	8201.11	1.34	90.56	1.81	1.31	1.75		Light grey SANDSTONE		
BH02		7	7.1	С		А	91.60	59.17		8.5	6900.28	1.23	83.07	1.66	1.26	1.55		Greyish brown SANDSTONE		
BH02		7.7	7.8	С		А	20.41	89.03		12	2313.14	5.19	48.10	0.96	0.98	5.10		Dark grey SANDSTONE		
BH02		9.1	9.2	С		A	68.99	89.86		37	7893.67	4.69	88.85	1.78	1.30	6.07		Grey SANDSTONE		
Wylie and M Is = P/D2e	Wylie and Mah (1991) Rock Slope Engineering Where Is = P/D2e Is (50) =IskPLT					Where a de	escription is	followed	Samples tested in accordance with International Journal of Rock Mechanics and Mining.					Date Approve			red By	Page No.		
D2e = (4(WD))/p kPLT = (De/50)0.45 De = √D2e					along an	existing we	eakness	Lab Sheet Reference: KL011R Point Load					17/11/22		Miette Swift		1			

SOUTH WE	GEOT	TECHNIC					Point Load Results Summary Sheet										Unit 3 Brookla Howden F Tive Da EX16	Unit 3 Brooklands, Howden Road, Tiverton, Devon EX16 5HW		
Project	No.						Project	Name												
14666							Penzanc	e Harbou	ur											
Client Jo	Client Job No.																			
21155	21155								Wheal Jane Ltd											
Hole No		Sa	Sample		Specimen	Axial / Diametral /	THICKNESS WIDTH		DIAMETER	BREAKING	D2e (mm2)	is (MPa)	De	De/50	kPLT	ls 50 (MPa)	Sample Description			
noie ne.	Ref.	Тор	Base	Туре	Depth	Irregular	(mm) - D	(mm) - W	(mm) - D	LOAD (kN) - P		(u)		Derso		15 55 (iiii u)				
BH03		6.25	6.35	С		A	80.87	88.02		2.4	9062.80	0.26	95.20	1.90	1.34	0.35	Light grey MUDSTONE			
BH03		6.45	6.6	С		D	172.26		91.14	1	8305.89	0.12	91.14	1.82	1.31	0.16	Light grey and black MUDSTONE			
BH03		7.6	7.7	С		А	73.07	91.46		1.7	8509.74	0.20	92.25	1.84	1.32	0.26	Light grey SANDSTONE			
BH03		9.2	9.3	С		А	88.82	89.24		2.1	10091.70	0.21	100.46	2.01	1.37	0.28	Brown and dark grey MUDSTONE			
BH03		9.9	10	С		D	77.48		88.90	0.6	7902.62	0.08	88.90	1.78	1.30	0.10	Brown MUDSTONE			
Wylie and M Is = P/D2e	Wylie and Mah (1991) Rock Slope Engineering Is = P/D2e Is (50) =IskPLT Where a contract of the second					Where a de	Samples tested in accordance with International Journal of Rock Mechanics and Mining.					ational	Date Approved By			ved By Page No.				
D2e = (4(WD))/p kPLT = (De/50)0.45 De = √D2e					0.45	along an	existing we	existing weakness Lab Sheet Reference: KL011R Point Load 17/1						1	7/11/22	Miette	2 Swift 2			

SOUTH WEST GE	OTECHNICAL Name	Summary of Rock Testing ISRM: 1981: Part 2 Suggested Methods - Uniaxial Compressive Strength of Rock materials Date of test Penzance Harbour									
Clie	ent	Wheal Jane	Job No.	21155							
		Sample D	otaile		De	nsity		Uni	vial Compres		
Borehole No.	Sample Reference	Depth (m)	Description	Water Content (%)	Bulk (Mg/m3)	Dry (Mg/m3)	Diameter (mm)	Height (mm) H/D Ratio	Load at Failure (kN)	UCS (Mpa)
BH02	-	8.20 - 8.50	Dark grey and green SANDSTONE	0.28	2.96	2.95	89.73	206.33	2.3	407.9	64.5
KL037 - Uniaxial Compressive Strength of Rock			Remarks			Appro	oved By	Date			
					Davi	d Trowbrid Mai	dge - Labora nager	tory	1	.7	



The Phased Approach to Land Contamination

As set out in Contaminated Land Report 11 - Model Procedures for the Management of Land Contamination. Environment Agency Guidelines





