



Ground Contamination Assessment Report

Berwick Farm

Berwick Lane

Hallen

South Gloucestershire

BS10 7RS

Report Ref: B23326/24

January 2024

Earth Environmental & Geotechnical (Southern) Ltd 3 Tollbridge Studios Toll Bridge Road Bath BA1 7DE

Tel : 01225 858823

Email southwest@earthenvironmental.co.uk www.earthenvironmental.co.uk



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Prepared on Behalf of:

Mr. E. Cemery

By:

Earth Environmental & Geotechnical (Southern) Ltd 3 Tollbridge Studios Toll Bridge Road Bath BA1 7DE

**DISTRIBUTION:** 

1 electronic copy Mr. E. Cemery



# **GROUND CONTAMINATION ASSESSMENT**

## Berwick Farm, Berwick Lane, Hallen, South Gloucestershire, BS10 7RS

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Prepared by:	Earth Environmental & Geotechnical (Southern) Ltd 3 Tollbridge Studios Toll Bridge Road Bath BA1 7DE

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Written by:

Christian Kielinger Geo-environmental Consultant

SAleat

Approved by:

Simon Leat Managing Director



# TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY1				
2.0	INTRODUCTION	2			
2.1	BACKGROUND				
2.2 2.3	TERMS OF REFERENCE				
2.5 2.4	LIMITATIONS OF THE STUDY				
3.0	THE SITE				
3.0					
3.1	SITE LOCATION & DESCRIPTION				
3.2	PROPOSED DEVELOPMENT	5			
4.0	REVIEW OF DESK STUDY INFORMATION	7			
4.1	GEOLOGICAL SETTING				
	1.1 Geology				
	1.2 Ground Stability				
	1.3 Radon Potential				
	1.4 Soil Chemistry	8			
4. 4.2	1.5 Mining, Ground Workings & Natural Cavities ENVIRONMENTAL SETTING				
	2.1 Industrial Land Use Information	9			
	2.2 Waste and Landfill Sites				
	2.3 Environmental Permits, Incidents and Registers				
	2.4 Hydrogeology and Hydrology				
4.	2.5 Potential Flood Risks				
4.	2.6 Environmentally Sensitive Sites	11			
4.	2.7 Visual and Cultural Designations	11			
4.3	SITE HISTORY	11			
5.0	PRELIMINARY CONTAMINATION RISK ASSESSMENT	13			
5.1	INTRODUCTION	13			
5.2	POTENTIAL SOURCES				
5.3	POTENTIAL RECEPTORS				
5.4	POTENTIAL PATHWAYS				
5.5	PRELIMINARY RISK ASSESSMENT	17			
6.0	SITE INVESTIGATION	18			
6.1	Exploratory Fieldwork	18			
6.2	ENVIRONMENTAL TESTING	20			
7.0	GROUND CONDITIONS ENCOUNTERED	21			
7.1	Soil Profile Encountered	21			
7.1	OBSTRUCTIONS				
7.2	GROUNDWATER				
7.4	LAND GAS	22			
7.5	VISUAL / OLFACTORY EVIDENCE OF CONTAMINATION	22			
8.0	SOIL CONTAMINATION RISK ASSESSMENT	23			
8.1	GENERAL				
8.2	TIER I HUMAN HEALTH SOIL RISK ASSESSMENT – GROUNDWORKERS DURING DEVELOPMENT				
8.3	TIER I HUMAN HEALTH SOIL RISK ASSESSMENT – FUTURE SITE USERS				
8.4	SOIL WASTE ASSESSMENT				
9.0	PROTECTION OF BURIED WATER PIPES	27			
10.0	REVIEW OF PRELIMINARY CONTAMINATION RISK ASSESSMENT	28			



11.0	GROUND CONTAMINATION CONCLUSIONS AND RECOMMENDATIONS	
11.1	SOIL CONTAMINATION	
11.2	SOIL DISPOSAL	
11.3	ASBESTOS	
11.4	LAND GAS	
11.5	RISK TO GROUNDWATER AND SURFACE WATERS	
11.6	RISK TO BURIED (WATER) SERVICES	
11.7	SITE PERSONNEL & OTHER MATTERS	

# LIST OF FIGURES

- Figure 1 Site Location Plan
- Figure 2 Aerial Photograph Showing Site Location
- Figure 3 General Site Photographs
- Figure 4 Proposed Development Details
- Figure 5 Geological & Superficial Map Extract
- Figure 6 Exploratory Hole Location Plan

#### **TABLES**

- Table 1 Soil Chemistry Records
- Table 2Soil Screening Values
- Table 3 Summary of Industrial Land Use
- Table 4
   Environmental Permits, Incidents and Registers Within 250m of the Site
- Table 5Summary of Site History
- Table 6Consequence, Probability and Risk
- Table 7
   Estimation of Level of Risk by Comparison of Consequence and Probability
- Table 8Preliminary Conceptual Model
- Table 9
   Summary of Ground Conditions Encountered
- Table 10
   Summary of Ground Conditions Encountered
- Table 11Summary of Guideline Values for Protection of Workers and the General PublicDuring Development of Contaminated Land
- Table 12Soil Results Comparison with C4SL/S4UL Levels
- Table 13Summary of Elevated Levels of Contamination
- Table 14 Soil Results Comparison with WRAS Guidance Levels
- Table 15Revised Conceptual Model

#### **APPENDICES**

- Appendix 1 Exploratory Hole Logs
- Appendix 2 Photographs
- Appendix 3 In Situ Test Results
- Appendix 4 Monitoring Results
- Appendix 5 Laboratory Test Results
- Appendix 6 Waste Classification
- Appendix 7 Report Limitation



# 1.0 EXECUTIVE SUMMARY

Appointment	A ground contamination assessment has been commissioned to examine ground conditions and retrieve soil samples for chemical testing for a proposed residential development in Hallen, South Gloucestershire.
The Site	The site is occupied by a derelict farmhouse and associated soft landscaped areas, at Berwick Farm, Berwick Lane, Hallen, South Gloucestershire, NGR 355658 180658, nearest postcode BS10 7RS. Geology: Superficial Tidal Flat Deposits (NW area only) overlying Mercia Mudstone.
<b></b>	
Environmental Considerations	On Site: no records <u>Within 250m of Site</u> : 4 surface ground workings, 9 historical industrial land uses, 1 historical tank, 2 historical petrol stations, 2 recent industrial land uses, 3 licensed waste sites, 1 active landfill, 22 waste exemptions, 1 dangerous or hazardous site.
Site History	The site has been occupied by a farmhouse since earlies records (1880-1881).
The Investigation	The investigation comprised window sample boreholes, trial pitting with associated sampling and in situ testing, gas/groundwater monitoring, laboratory contamination testing.
Ground Conditions Encountered	The exploratory holes have encountered the anticipated geology of : Made Ground Tidal Flat Deposits Mercia Mudstone Groundwater was encountered in WS04 only at 1.00mbgl. Post investigation monitoring within WS01 and WS04 show groundwater depths of between 0.79m – 0.91m respectively. Significant levels of land gas have not been encountered.
Soil Contamination	Current Site Users Very Low Risk
Risk Assessment	Future Site Users (hard cover areas) Low Risk
	Future Site Users (soft landscaped areas) High Risk
	Remediation of soils required for soft landscaped areas.
Soil Waste Assessment	8 samples tested. 7 are classified as Non-Hazardous.1 classified as hazardous.
Protection of Buried Water Services	Special precautions likely required.
Land Gas Risk Assessment	Radon/Land Gas protection measures not required on site.
	to provide a summary only of the report. It does not provide a definitive engineering ses of costing or construction and is subject to the limitation of the agreed brief.



# 2.0 INTRODUCTION

#### 2.1 Background

A ground contamination assessment has been commissioned by Mr. E. Cemery (the 'Client) to examine ground conditions and retrieve soil samples for chemical testing for a proposed residential development in Hallen, South Gloucestershire.

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) previously carried out Phase I Geo-Environmental Desk Study for the site, the findings of which are included in the EEGSL Desk Study Report reference B3326/23 (November 2023) and summarised in this report.

#### 2.2 Terms of Reference

Earth Environmental and Geotechnical (Southern) Ltd (EEGSL) was commissioned by the Client to undertake an Investigation of the site in accordance with a proposal B3326 dated 26<sup>th</sup> October 2023. The objectives of this investigation are as follows:

• Assess the presence and likely extent of any potential environmental hazards (soil, groundwater, and gas) associated within the areas of the site investigated.

## 2.3 Report Scope

This report presents a review of desk study information, full factual records of the site work carried out, the ground conditions encountered in the exploratory holes, the in situ and laboratory test results, and results of any monitoring. All information collected has been used to provide an interpretation of the ground conditions, with recommendations on potential ground contamination risks for the proposed development.

#### 2.4 Limitations of the Study

The report is written in the context of an agreed scope of work and budget and should not be used in a different context. New information, improved practices or changes in legislation may require a reinterpretation of the report in whole or in part. EEGSL reserve the right to amend either conclusions or recommendations in light of any further information that may become available. The report is provided for the sole use by the client and is confidential to them.

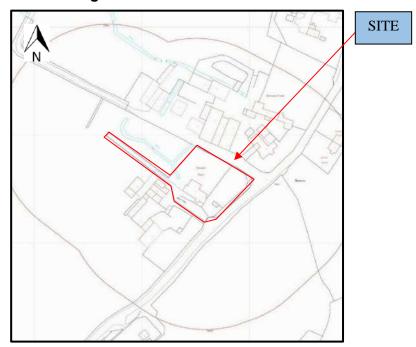
Recommendations within this report are also based on exploratory records and examination of samples and, where applicable, laboratory tests. No liability can be accepted for conditions not revealed by the boreholes and trial pits, particularly at intervening locations. Whilst every effort is made to ensure accuracy of data supplied, all opinions expressed as to the spatial distribution of strata between sampling locations is for guidance only and no responsibility is accepted as to its accuracy.



# 3.0 THE SITE

#### 3.1 Site Location & Description

The site is located at Berwick Farm, Berwick Lane, Hallen, South Gloucestershire, and is centred on National Grid Reference 355658, 180658 with the nearest postcode of BS10 7RS. The site and surrounding area are shown in Figure 1 below.





The site is approximately 0.35ha and within it is an old derelict farmhouse with collapsed roofing, walls, and broken windows. There are large amounts of building rubble situated around the derelict building. Within the site boundary is also a portion of road that is newly paved with road construction materials in piles beside it. The soft landscaping around the site is vastly overgrown with various species of plants, bushes and trees mostly appear to be healthy. The site also has a derelict outhouse made of brick and concrete with some roofing material placed inside that may contain asbestos. Approximately 5m east of the outhouse is a manhole cover that may be access to a septic tank or sewer drain. On the east side of the farmhouse is a small garden shed that is completely overgrown and covered in vines bushes and surrounded by small trees. There is a small river that runs along the boundary between the site and the neighbouring far to the north.

The site is bounded to the north by Hutton & Sons Dairy Farm. The east boundary is against Berwick Lane with open fields and Berwick Woodland beyond that. South of the site is open fields and Berwick woodland with a fuel pumping station 100m southwest, the west is bounded by another derelict farm building and a 28ha landfill site. Access to the site is off Berwick Lane to the south.





# Figure 2 – Aerial Photograph Showing Site Location

General site photographs are presented in Figure 3 overleaf.





# Figure 3 – General Site Photographs

## 3.2 Proposed Development

The proposed development of the site is to demolish the existing derelict farmhouse and construct a residential property within the original building's footprint with hard and soft landscaping.

The proposed development layout details are shown in Figure 4 overleaf.





# Figure 4 – Proposed Development Details



# 4.0 REVIEW OF DESK STUDY INFORMATION

The following sections provide a review of the information in the EEGSL Desk Study Report for the site, reference B3226/23 (November 2023).

The following sections are generally limited to locations within 250m of the site boundary unless it is considered that installation or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

#### 4.1 Geological Setting

#### 4.1.1 Geology

The Groundsure Report indicates the site could be underlain by infilled ground.

According to the British Geological Survey (BGS), the site is partly underlain by superficial tidal flat deposits across its northwestern half. The bedrock beneath the entire site is the Mercia Mudstone Group of Triassic Age.

Tidal flat deposits are described as comprising unconsolidated sediment, mainly mud and/or sand with gravel and peat in places.

The Mercia Mudstone is described as dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite are widespread; thin sandstones are also present.

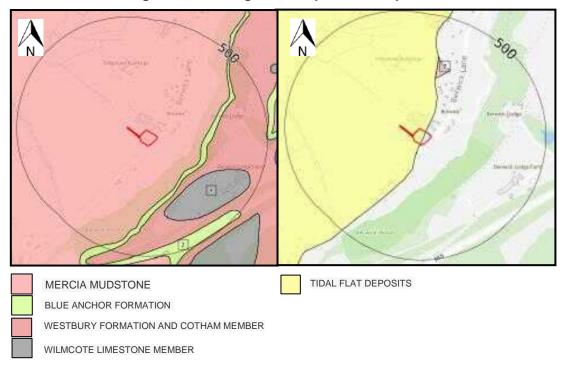


Figure 5 – Geological & Superficial Map Extract



#### 4.1.2 Ground Stability

The ground stability risk across the site is variable, due mainly to the presence of Tidal Flat Deposits on part of the site. The following risk ratings for ground stability:

Running SandsModerate to NegligibleCompressible DepositsModerate to NegligibleShrink Swell ClaysLow to Very LowLandslidesVery LowCollapsible DepositsVery Low to NegligibleGround Dissolution of RocksNegligible

#### 4.1.3 Radon Potential

The site is located in a radon affected area in which less than 1% of properties are expected to be above the action level. Therefore, no radon protection measures are required.

#### 4.1.4 Soil Chemistry

There are 2 estimated soil chemistry records on site, the results of which are shown in Table 1 below.

Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
15-35 mg/kg	100-200 mg/kg	60-120 mg/kg	2.2-3.0 mg/kg	60-120 mg/kg	15-30 mg/kg

#### Table 1 – Soil Chemistry Records

All the above chemicals: (arsenic, cadmium, chromium, nickel or lead) have estimated concentrations on site that are below the recognised screening levels based on Defra C4SL Health Criteria Values <sup>(March 2014)</sup> and LQM/CIEH Suitable 4 Use Levels <sup>(2015)</sup> for the relevant residential and commercial setting, shown in the table below.

	C4SL/S4UL Levels (mg/kg)*			
Determinand	Residential with homegrown produce	Residential without homegrown produce		
Arsenic	37	40		
Cadmium	26	149		
Chromium	910	910		
Lead	200	310		
Nickel	180	180		

#### Table 2 – Soil Screening Levels

#### 4.1.5 Mining, Ground Workings & Natural Cavities

The assessment site is not located within gypsum, brine, tin, or clay mining areas.

There are 4 surface ground workings located within 250m of the site boundary. The closest is identified as an unspecified heap 169m northeast of the site, recorded in 1969.

The Groundsure report has not identified any underground workings within 250m of the site. There are no records of brit pits within 250m of the site. Furthermore, the site is not located within a coal mining area as defined by the Coal Authority.



## 4.2 Environmental Setting

#### 4.2.1 Industrial Land Use Information

Historical and current industrial land usage on-site and within 250m of the site is summarised in Table 3 below:

Description	On- Site	Records within 250m of site	Details of nearest Record
Historical Industrial Land Uses	0	9	Nearest: 111m SW Gas Valve Compound 1974-1989
Historical Tanks	0	1	Nearest: 171m NE, Unspecified Tank 1971
Historical Energy Features	0	0	-
Historical Petrol Station	0	2	Nearest: 122m NE Petroleum depot
Historical Garage	0	0	-
Historical Military Land	0	0	-
Historical Railway and Tunnel Features	0	0	-
Historical Railways	0	0	-
Recent Industrial Land Use	0	2	Nearest: 88m N Slurry Bed Waste Storage, Processing and Disposal
Current/Recent Petrol Stations	0	0	-
Electricity Cables	0	0	-
Gas Pipelines	0	0	-
Current Railway Features	0	0	-

Table 3 - Summary of Industrial Land Use

#### 4.2.2 Waste and Landfill Sites

According to Groundsure, there are no records of historical waste sites or historical landfill. However, there are 3 licensed waste sites, located at Berwick farm landfill site 132m northwest and 194m west.

There is one active or recent landfill site within 250m of the assessment site, located 33m west of site at Berwick Farm Landfill, current status is closed.

There are 22 waste exemptions located at 30m northeast of the assessment site. All exemptions are located at Sampson Farm and include exemptions for 'spreading waste on agricultural land to confer benefit', 'burning of waste as a fuel in a small appliance', 'storage of waste in secure containers', 'aerobic composting and associated prior treatment', 'deposit of waste from dredging of inland waters', and 'burning waste in the open'.

#### 4.2.3 Environmental Permits, Incidents and Registers

Table 4 overleaf details environmental permits, incidents and registers within 250m of the site.



#### Table 4 - Environmental Permits, Incidents and Registers Within 250m of the Site

Sites Determined as Contaminated Land under Part 2A EPA1990	0	-
Dangerous or Hazardous (COMAH and NIHHS) Sites	1	128m NE, Exolum Pipeline System Limited, Current COMAH Site
Regulated Explosive Sites	0	-
Hazardous Substance Storage/Usage	0	-
Historical Licensed Industrial Activities (IPC)	0	-
Licensed Industrial Activities Part A (1)	0	-
Licensed Pollutant Release Part A (2) and Part B	0	-
Radioactive Substance Authorisations	0	-
Licensed Discharge to Controlled Waters	0	-
Pollutant Release to surface waters (Red List)	0	-
Pollutant Release to Public Sewer	0	-
List 1 Dangerous Substances	0	-
List 2 Dangerous Substances	0	-
Pollution Incidents (EA/NRW)	0	-
Pollution Inventory Substances / Waste Transfers/ Radioactive Waste	0	-

#### 4.2.4 Hydrogeology and Hydrology

The Superficial Deposits on site are classified as a 'Unproductive' by the Environmental Agency. The EA definition of an unproductive aquifer is given below:

**"Unproductive aquifer"** - These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The bedrock geology has been classified as a 'Secondary B' aquifer, the EA definition of this is provided below:

"Secondary B Aquifer" - Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons, and weathering. These are generally the water-bearing parts of the former non-aquifers.

There are no Source Protection Zone's (SPZ), groundwater, surface water or potable water abstractions on site or within 250 m of the site.

The site is located within the Chestle Pill surface water body catchment and the Avonmouth Mercia Mudstone groundwater body. There are 5 records of surface water features within 250m of the site, the nearest of which is on site and is described as an inland river not influenced by normal tidal action.



# 4.2.5 Potential Flood Risks

A comprehensive flood risk assessment is not within the scope of this report. However, based on a preliminary examination of flood data, the following observations can be made:

- On the site itself, the risk of surface water flooding is considered low, occurring at an estimated return period of 1 in 30 years with water levels typically ranging from 0.3 meters to 1 metre. The risk of groundwater flooding on site and within 250m is considered negligible.
- The site is located within a designated flood zone 2 area, indicating a 1 in 1000 (0.1%) chance of flooding each year. Within 50 m of the site is a flood zone 3 area meaning it is land at risk of flooding, when the presence of flood defences is ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers.
- There are no recorded historical flood events.

The risk of groundwater flooding on site and within 250m is considered negligible. There are no records of flood defences, however there are two areas benefitting from flood defences. One is situated on site and the other is 72m southwest. There are no flood storage areas within 250m of the site.

#### 4.2.6 Environmentally Sensitive Sites

There are no records of special areas of conservation, special protection areas, local or national nature reserves or sites of special scientific interest.

There is one record of designated ancient woodland at 130m southeast and is recorded as 'Ancient & Semi-Natural Woodland'.

#### 4.2.7 Visual and Cultural Designations

There are no world heritage sites, national parks, scheduled ancient monuments, registered parks and gardens or area of outstanding natural beauty (AONB) within 250m of the site.

The site is located on Grade 3 agricultural land, which is defined as Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

The site is not located within a nitrate vulnerable zone.

#### 4.3 Site History

The historical development of the site has been determined by reference to historical plans and Google Earth imagery. The reviewed historical plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding of the site. The earliest available historical mapping covering the site is from 1880. The site history is summarised in Table 5 overleaf.



# Table 5 - Summary of Site History

Date	Site	Surrounding Land Use (Within 250m of Site)
1880-1881	The site has one large farmhouse situated slightly off centre to the SW with three small footpaths leading to the farmhouse. Sparse trees on the soft landscaping surrounding the farmhouse. Small foot bridge immediately N of site farmhouse.	Immediately N of the site is farmland with a footbridge, likely over a drain and two large buildings 40-75m NE. E & S of the site is grassland and woodland (Berwick woodland). Two farm buildings are positioned immediately W and SW of the site. Open fields and a drain running NW to SE are found W and NW of the site
1887	No significant change.	No significant change.
1901	No significant change.	One rectangular farm building constructed 10m NNE Small rectangular building located within the same field as the site in the N corner, 55m NNW
1903-1921	No significant change.	No significant change.
1935	No significant change.	Patch of farmland has been segmented, potentially into pens and small farm buildings, 5m SW. Two small conjoined residential homes located 80m E. Roadway established between site and Sampson Farm.
1938	No significant change.	No significant change.
1955	No significant change.	Area N of farmland labelled as 'Rises' meaning change in topography and potentially made ground, 75m N
1969	No significant change.	No significant change.
1971	Small hut constructed 5m SW of farmhouse	Farm to the N now labelled as Sampson Farm with one new farm building 10m N. Large petroleum depot on both sides of Berwick Lane 125m NW. Multiple pump stations with one labelled tank. Ground levelling and terracing to the landscape on the E side of Berwick Lane for the petroleum depot. Gas valve compound (GVC) located 110m SSW. 2 small structures adjacent to the two small residential buildings 105m NE.
1974-1991	No significant change.	Berwick Farm has constructed 2 new buildings 30 m SW and 15m SW of site roadway. Sampson Farm has also constructed 2 new square buildings 20m-50m NW.
1992	No significant change.	Berwick farmland to the S has been fenced and segmented. Small building constructed joined to existing small building 25m SW of site roadway. 2 large buildings constructed on Sampson Farm 70m N. Small rectangular building constructed near residential homes 115m NE. GVC site has been expanded 110m S. Petroleum Depot to the N shows non-coniferous trees scattered through the depot.
2001	No significant change.	No significant change.
2003	No significant change.	One rectangular farm building constructed on Sampson Farm 50m N.
2010-2023	No significant change.	Berwick Farm buildings demolished immediately SW of site. Pipelines lab



## 5.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

#### 5.1 Introduction

The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by DEFRA and the EA Model Procedures for the Management of Land Contamination, CLR11(2004).

Table 8 provides a Preliminary Conceptual Model (PCM) which considers the source-pathwayreceptor linkages present alongside the likelihood, severity and risk level as defined within Table 6 and Table 7 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and CLR11.

Table 8 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

The PCM/PRA is based on a residential end use.

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage and an event either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution	Very High – acute risk to the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage and all the elements are present, which means that it is probable an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway- receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage and circumstances are possible for an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term	Moderate – Long term or short term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source- pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.) Slight effect on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source, however it is likely that they would at worst be mild.
		Very Low – it is unlikely that the source- pathway-receptor scenarios will give rise to an impact on human health or the environment.

#### Table 6 - Consequence, Probability and Risk



#### Table 7 - Estimation of Level of Risk by Comparison of Consequence and Probability

		Consequence				
		High	Moderate	Low	Very low	
	High Likelihood	Very High	High risk	Moderate risk	Moderate to low risk	
Drobobility	Likely	High risk	Moderate risk Moderate to low risk		Low risk	
Probability	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk	
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk	

#### 5.2 Potential Sources

#### Existing Building:

Lead-Based Paint: Paint used before 1978 often contained lead, which can pose a risk if it deteriorates and leads to lead dust or chips. This is especially relevant in structures built before 1880.

Asbestos: Asbestos-containing materials may have been used in roofing, insulation, or siding. Disturbed asbestos can lead to airborne fibres, which are hazardous to health.

#### Septic Systems:

Antiquated septic systems may fall short of contemporary standards, posing a risk of groundwater contamination without adequate upkeep. A manhole cover, identified near the farmhouse and mentioned by a former resident and neighbouring farmer, is suspected to serve as a septic tank for the deteriorated farmhouse and outhouse.

#### Organic Deposits below ground level:

Tidal Flat Deposits can contain peat which has the potential to generate land gas.

#### Offsite:

#### Licensed Landfill and Waste Sites:

The presence of licensed waste sites at Berwick Farm landfill, located 132m northwest and 194m west, may pose a risk of soil and groundwater contamination. The status of the landfill site at Berwick Farm is noted as closed. However, the waste site's boundary is 35m north and upslope of the site suggesting groundwater infiltration through the made ground onto site. Landfills have the potential to generate land gas.

#### Manure and Slurry:

Livestock produce manure and slurry, which contain nutrients like nitrogen and phosphorus. A portion of the site's roadway is also road access to the west and southwest farm buildings which appear to have animal pens within a courtyard area. If not managed properly, these can leach into the groundwater or via surface runoff into the site.



#### Farmland and Drain:

The presence of farmland to the north of the site with multiple drains suggests the possibility of agricultural runoff of chemicals used in agriculture, such as pesticides and herbicides, can run off into the drain and waterway between the site and farmland affect aquatic ecosystems and soil on site. This also includes the application of fertilisers to crops which can lead to nutrient runoff.

#### Farm Buildings:

The two large farm buildings located 40-75m northeast and two farm buildings on the west boundary of the site may have historical or current uses that could result in localised contamination, such as fuel or chemical storage. Electrical equipment identified on the west farm buildings likely as disused refrigeration units are also within this area.

#### Petroleum Depot:

The large petroleum depot 125m northwest of the site, with multiple pump stations and tanks, could be a potential source of soil and groundwater contamination from fuel or chemical spills. However, its distance from site is sufficient for this to be an unlikely source of contamination.

#### Gas Valve Compound (GVC):

The GVC located 110m SSW might contain pipelines and equipment that could pose a risk of gas or chemical leaks. However, its distance from site is sufficient for this to be an unlikely source of contamination.

#### Pipelines:

The mention of pipelines suggests the presence of underground infrastructure that could be a source of contamination if there are leaks or spills. The pipeline is labelled as fuel that is within 25m of the north portion of the site.

#### Waste Exemptions:

The 22 waste exemptions located at Sampson Farm, 30m northeast of the assessment site, indicate various waste-related activities. These exemptions cover activities such as spreading waste on agricultural land, burning waste as a fuel, waste storage, composting, deposit of waste from dredging, and open burning of waste. Each of these activities has the potential to generate and release contaminants into the surrounding environment.

#### 5.3 **Potential Receptors**

The following receptors have been considered as part of this assessment.

- Current land users.
- Adjacent land users.
- Future land users.
- Construction workers during site development works.

#### 5.4 Potential Pathways

The following pathways have been considered as part of this assessment.

- Direct / dermal contact, ingestion, inhalation pathways of potentially contaminated soils.
- Vertical or lateral migration of contamination on and off site.



Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Contamination of the ground beneath site due to current and historical use	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Unlikely	Low	Very Low	Due to historical and current use, there is potential for contamination of the ground. However, the risk is relatively low because there is little to no public involvement or access to the site. The primary pathways for exposure are dermal contact, ingestion, and inhalation of soil dust. The likelihood of exposure is unlikely, and the consequences are low, the overall risk to current site users remains <b>VERY LOW</b> .
		Future Site users	Likely	Low	Moderate to Low	The preliminary risk model for future site users, residing in a multibedroom residential house with access to grassland, soil, and potential vegetable cultivation, indicates a <b>MODERATE</b> to LOW overall risk level. Although there is a likelihood of exposure through dermal contact, ingestion, and inhalation of soil dust, the consequences are assessed as low for each pathway.
		Construction Workers	Low Likelihood	Low	Low	The preliminary risk model for construction workers at the site, which involves potential soil excavation, indicates a low overall risk level. This assessment considers the limited amount of time spent at the site, resulting in shorter durations of exposure. While there is a likelihood of exposure through dermal contact, ingestion, and inhalation of soil dust, the overall risk is low. Implementing safety measures and ensuring the use of appropriate protective equipment. (in line with CDM and other relevant health and safety guidance) provides a <b>LOW</b> risk to construction workers.
		Current Site Users	Unlikely	Low	Very Low	Given the limited site access and its current disuse, the absence of exposure risk results in a classification of <b>VERY LOW</b> for current site users.
		Adjacent land users	Low Likelihood	Low	Low	Given the site's close proximity to the landfill site and the plausible historical use of the site for the transportation of waste materials to the landfill, it is probable that waste materials may have been deposited on-site. Furthermore, the landfill is situated immediately beyond the site boundary, inherently presents a high potential for ground gas presence. In addition, the proximity of Sampson Farm, located only 10 meters from the site, implies the potential for ground gas migration to adjacent land users. Consequently, the overall risk associated with these factors is evaluated as <b>LOW</b> .
			Future land users	Low Likelihood	Moderate	Moderate to Low

# Table 8 - Preliminary Conceptual Model



Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
						<b>MODERATE to LOW</b> due to the extended and consistent nature of exposure.
		Construction Workers	Low Likelihood	Low	Moderate	For construction workers engaged in potential excavation activities at the site, it's important to note that their exposure duration is limited due to the nature of construction work. With the implementation of rigorous safety measures and the use of appropriate protective equipment, in compliance with CDM and other relevant health and safety guidance, the probability of encountering ground gases during this shorter exposure period is assessed as a <b>low likelihood</b> . While the consequences are moderated by these safety measures, the overall risk for construction workers is considered <b>LOW</b> .
	Vertical or horizontal migration of contamination via leaching into the underlying shallow groundwater	Controlled Waters	Low Likelihood	Moderate	Moderate to Low	The overall risk is assessed as <b>MODERATE to</b> <b>LOW.</b> The likelihood of contamination migration is considered of low likelihood due to limited potential sources of contamination on the site. as previously mentioned however, the site may have been used for access to the proximal landfill site causing some contamination on site. The higher topography of the landfill may result in runoff onto the site, increasing the potential for contamination leaching. Moreover, the presence of the septic tank/sewer and proximity to the waterways along the site's eastern borders accentuates the risk, as these waterways can act as receptors for leachate. While the consequences of contamination are assessed as moderate to low.

#### 5.5 Preliminary Risk Assessment

This section provides an overview of the site's preliminary risk assessment, taking into account its proximity to contamination sources and future residential use. The assessment assigns a MODERATE to LOW overall risk rating.

The site is near potential contamination sources, notably a nearby landfill, historic and active farm and the presence of an underground septic tank or sewer. Historical data of the roadways suggests waste transportation through the site to the landfill, potentially depositing diverse contaminants. Given its future residential purpose, risks to both the ground and shallow groundwater are considered.

Of concern is the likelihood of ground gas, heightened by the landfill's proximity. The MODERATE to LOW-risk rating emphasises the need for vigilant monitoring, strict safety measures, and protective measures to ensure future residents' safety, addressing potential contamination sources, ground gas migration, and other risk factors.



# 6.0 SITE INVESTIGATION

#### 6.1 Exploratory Fieldwork

The fieldwork was carried out by EEGSL on the 18<sup>th</sup> December and 21<sup>st</sup> December and comprised:

- 4 window sample boreholes (designated WS01 to WS04) were sunk to depths of between 3.00m and 5.00m below existing ground level. Window sampler boring is carried out with a small, track-mounted rig, which uses a chain-driven trip hammer to drive sampling tubes or penetrometers into the ground. These tools are coupled to the anvil of the hammer by solid drill rods. Sampling tubes comprise "windowless samplers", which are plain sampler tubes in which a continuous disturbed sample is recovered within a semi-rigid plastic liner. In order to reduce friction within the borehole, sampling tubes of progressively smaller diameter are used as the borehole depth increases. Sampler diameters generally range from between approximately 90mm to 50mm. Groundwater observations were noted where possible. These observations relate to the time of the investigation only, and do not necessarily reflect tidal or seasonal fluctuations. 50mm diameter standpipes were installed within WS01 and WS04 at depths of between 4m and 5m below ground level. Installation and backfill details are shown with the appropriate borehole logsheet in Appendix 1. Window sample liner photographs are presented in Appendix 2.
- To supplement the borehole investigation, 8 Hand dug pits (HP01-HP08) were carried out to depths of 0.50mbgl. The hand dug pits were completed to retrieve a good spread of contamination samples across the site for environmental testing. Trial pit logs are included in Appendix 1 and trial pit photographs included in Appendix 2.
- Dynamic probe tests were carried out generally in accordance with BS EN ISO 22476-2, at each WS location from ground level to depths of up to 5.00m below ground level. The results of these tests are shown in Appendix 3. Dynamic probe tests are conducted with a window sampler type rig, which uses a chain-driven trip hammer to drive a conetipped, solid steel penetrometer into the ground. The "super heavy" test (DPSH) uses a 50.5mm diameter cone, and a 63.5kg hammer, falling over a distance of 750mm. The resistance of the ground to the dynamic penetration is given by the number of blows required to drive the cone over depth increments of 100mm (DPN<sub>100</sub>).
- EEGSL carried out groundwater/gas monitoring within the standpipes (WS01, WS04) after the fieldwork period, the results of which are presented in the Appendix 4.

Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary. On completion, all samples recovered from the site were taken to a specialist laboratory for testing.

All site investigation work was supervised full time by a representative of EEGSL. The logging of soils and rocks has been carried out in accordance with BS5930<sup>(2015)</sup> except where superseded by the soil and rock description methodology in BS EN14688-1<sup>(2002)</sup>, BS EN 14688-2<sup>(2004)</sup> and BS EN 14689-1<sup>(2003)</sup>.

A summary of exploratory holes undertaken in presented in Table 9 overleaf.



			Date	Date	Loc	ation		
Hole	Туре*	Depth (m)	Started	Finished	Easting (m)	Northing (m)	Backfill Details**	
WS01	WS/DP	4.00	21/12/2023	21/12/2023	355665	180639	SP	
WS02	WS/DP	3.00	21/12/2023	21/12/2023	355660	180654	А	
WS03	WS/DP	3.80	21/12/2023	21/12/2023	355645	180662	А	
WS04	WS/DP	5.00	21/12/2023	21/12/2023	355558	180705	SP	
HP01	HP	0.50	18/12/2023	18/12/2023	355639	180666	А	
HP02	HP	0.45	18/12/2023	18/12/2023	355648	180661	А	
HP03	HP	0.35	18/12/2023	18/12/2023	355660	180670	А	
HP04	HP	0.50	18/12/2023	18/12/2023	355668	180664	А	
HP05	HP	0.50	18/12/2023	18/12/2023	355664	180644	А	
HP06	HP	0.20	18/12/2023	18/12/2023	355663	180634	А	
HP07	HP	0.15	18/12/2023	18/12/2023	355655	180634	A	
HP08								
	*WS = Window Sample, DP = Dynamic Probe, HP = Hand Dug Pit **A = Arisings, SP = Standpipe							

The fieldwork was carried out generally in accordance with BS 5930:2015 Code of Practice for Site Investigations, Eurocode 7, unless otherwise stated. The exploratory hole locations are shown approximately on the Exploratory Hole Location Plan below:

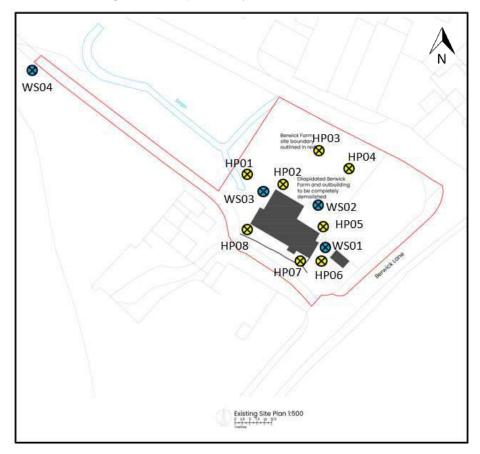


Figure 6 - Exploratory Hole Location Plan



#### 6.2 Environmental Testing

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEGSL and carried out by DETS Ltd.

Chemical analyses were carried out on 8 soil samples and were submitted for the following suite of determinants:

Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Sulphate (SO<sub>4</sub>), Sulphide, pH, Soil Organic Matter, Phenol, speciated Total Petroleum Hydrocarbons (TPH) and speciated Polyaromatic Hydrocarbons (PAH).

The results of the laboratory contamination tests are included in Appendix 4.

The range of potentially hazardous contaminants present on the site can be wide and varied, and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out. It is also possible that contaminants exist on the site but were not present at any of the exploratory hole locations.



#### 7.0 **GROUND CONDITIONS ENCOUNTERED**

#### 7.1 **Soil Profile Encountered**

The sequence of strata encountered beneath the site was as follows:

- Made Ground
- **Tidal Flat Deposits** ٠
- Weathered Bedrock •

The depths of the various materials encountered in each of the exploratory holes are summarised in Table 10 below.

	Depth to Stratum (m)								
	MADE GROUND		TIDAL I	FLAT DEPO	SITS	Weathered B	EDROCK		
Hole	Sandy clayey gravel	Sandy/gravelly silty <u>clay/silt</u> with brick, coal, chalk, organic inclusions	Grey brown sandy silty CLAY	Dark brown clayey SILT with chalk gravel	PEAT	Sandy/gravelly CLAY	Sandy/silty CLAY	GROUND- WATER	
WS01	GL-0.20	0.20-0.50				0.50-1.10 2.70-4.00	1.10-2.70	Dry	
WS02		GL-0.35				0.35-0.70 1.70-3.00	0.70-1.70	Dry	
WS03		GL-1.10				2.80-3.80.	1.10-2.80	Dry	
WS04			GL-4.90*		4.90- 5.00			1.00m	
HP01		GL-0.40		0.40- 0.50				Dry	
HP02		GL-0.45						Dry	
HP03		GL-0.50						Dry	
HP04		GL-0.50						Dry	
HP05		GL-0.50						Dry	
HP06	GL-0.20							Dry	
HP07	GL-0.20							Dry	
HP08	GL-0.20							Dry	
*strong organic	/peaty odour 2.2	10-4.90m							

#### Table 10 - Summary of Ground Conditions Encountered

#### 7.2 **Obstructions**

Underground man-made obstructions were not encountered during the investigation.

#### 7.3 Groundwater

Groundwater was encountered within WS04 at 1.00mbgl. No Groundwater was encountered within the exploratory holes WS01-WS03, HP01-HP08 during the investigation.

Post investigation monitoring within WS01 and WS04 show groundwater depths of between 0.79m - 0.91m respectively.



#### 7.4 Land Gas

Results obtained during the initial monitoring visit indicated Methane (CH<sub>4</sub>) levels of 0% by volume, Carbon Dioxide (CO<sub>2</sub>) levels ranging from 0% to 1.4% by volume, and Oxygen (O<sub>2</sub>) levels ranging from 17% to 19.7% by volume. Borehole pressures ranging from -1Pa to -4Pa and gas flows ranging from -1.4l/hr to -1.8l/hr were recorded.

Results obtained during subsequent monitoring visits indicated Methane levels ranging from 0% to 0% by volume, Carbon Dioxide levels ranging from 0.1% to 0.1% by volume, and Oxygen levels ranging from 19.1% to 20.2% by volume. Hydrogen Sulphide levels ranging from 0ppm and Carbon Monoxide levels ranging from 0ppm to 0ppm were recorded. Borehole pressures ranging from -0.1Pa to 0Pa and gas flows ranging from 0l/hr to 0.2l/hr were recorded. Atmospheric pressure was recorded in the range 1006mb to 1089mb.

It should be noted that the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore be representative of the conditions only at the time of sampling.

#### 7.5 Visual / Olfactory Evidence of Contamination

Strong organic odours are present within WS04. No visual/olfactory evidence of contamination was encountered in any of the exploratory holes.



# 8.0 SOIL CONTAMINATION RISK ASSESSMENT

#### 8.1 General

The following sections provide a Human Health Soil Assessment for groundworkers during development and future site users.

#### 8.2 Tier I Human Health Soil Risk Assessment – Groundworkers During Development

To assess the risk of soil contamination to construction and ground workers during development, guidelines from the HSE Document 'Protection of workers and the general public during development of contaminated land'<sup>(1991)</sup> are used. The document assesses soil contamination test results and classifies the site as being uncontaminated or contaminated with varying degrees of contamination from 'slight' to 'unusually heavy'.

The guideline values and laboratory test results are summarised in the following table:

# Table 11 - Summary of Guideline Values for Protection of Workers and the General Public During Development of Contaminated Land

	Typical Values* for:						
Contaminant	Uncontaminated Soils			Heavy Contamination	Unusually Heavy Contamination	Test Results	Class
	Class A	Class B	Class C	Class D	Class E		
pH (alkaline)	7 - 8	8 - 9	9 - 10	10 - 12	12	7.0-7.5	A
Arsenic	0 - 30	30 - 50	50 - 100	100 - 500	500	7-46	A-B
Cadmium	0 - 1	1 - 3	3 - 10	10 - 50	50	0.8-13.2	A-D
Chromium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	10-31	A
Copper	0 - 100	100 - 200	200 - 500	500 - 2500	2500	38-169	A-B
Lead	0 - 500	500 - 1000	1000 - 2000	2000 – 1%	1.0%	74-758	A-B
Mercury	0 - 1	1 - 3	3 - 10	10 - 50	50	<1-1.1	A-B
Nickel	0 - 20	20 - 50	50 - 200	200 - 1000	1000	10-29	A-B
Zinc	0 - 250	250 - 500	500 - 1000	1000 - 5000	5000	166- 2760	A-D
Boron	0 - 2	2 - 5	5 - 50	50 - 250	250	<1-2	Α
Selenium	0 - 1	1 - 3	3 - 10	10 - 50	50	<2	Α
Barium	0-500	500-1000	1000-2000	2000-1.0%	1.0%	200-638	A-B
Beryllium	0 - 5	5 - 10	10 - 20	20 - 50	50	0.5-1.4	Α
Vanadium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	12-34	Α
Sulphate	0 - 2000	2000 - 5000	5000 – 1%	1% - 5%	5.05%	449- 1460	А
Sulphide	0 - 10	10 - 20	20 - 100	100 - 500	500	<5 - 15	A-B
Cyanide (free)	0 - 1	1 - 5	5 - 50	50 - 100	100	<1	А
Coal Tar	0-500	500-1000	1000-2000	2000-1.0%	1.0%	<42	A
Phenol	0 - 2	2 - 5	5 - 50	50 - 250	250	<2	Α

Based on the above results there is a moderate potential risk from soil contamination to construction workers, ground workers and members of the public, and appropriate measures, such as PPE, site health plans, appropriate disposal of material arisings will be required to mitigate this risk.



#### 8.3 Tier I Human Health Soil Risk Assessment – Future Site Users

As part of the contamination assessment, the chemical results obtained by EEGSL have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values<sup>(March 2014)</sup>, where available; and
- Tier 1 assessment values based on LQM/CIEH Suitable 4 Use Levels<sup>(2015)</sup> (S4ULs).

As a preliminary screening assessment, all results have been compared to residential end use criteria.

The comparison of results is summarised in Table 12 overleaf.



		C45	SL/S4UL Le	vels (mg/kg)*		No. of	Min.	Max.	No of	
Determinand	-	Residential with		Residential without homegrown produce		Samples	(mg/kg)	(mg/kg)	Exceedances	
Metals	nom	egrown proe	auce	without	nomegrow	n produce				
Arsenic		37			40		8	7	46	1
Beryllium		1.7			1.7		8	0.5	1.4	-
Cadmium		26			149		8	0.8	6	-
Chromium		910			910		8	10	31	-
Chromium VI		21			21		8	<2	<2	-
Copper		2400			7100		8	38	169	-
Lead		2400			310		8	74	758	5
Mercury		1.2			1.2		8	<1	1.1	-
Nickel		1.2			1.2		8	10	29	-
Selenium		250			430		8	<2	<2	-
Vanadium		410			1200		8	12	34	
Zinc		3700			4000		8	12	2760	-
-		3700			4000		0	100	2700	-
Petroleum Hydrocarbons	1.0	2.5	6.0	1.0	2.5	6.0				
SOM (%) Benzene	0.87	<b>2.3</b> 17		3.3			•	-0.002	-0.000	•
			0.37		0.70	1.4	8	< 0.002	< 0.002	-
Toluene Ethylbenzene	230 47	290 110	660 260	880 83	1900	3900	8	<0.005 <0.002	<0.005 <0.002	-
,					190	440	8			-
o-xylenes	60	140	330	88	210	480	8	< 0.002	< 0.002	-
p & m -xylenes	56	130	310	79	180	430	8	< 0.002	< 0.002	-
Aliphatic EC 5-6	42	78	160	42	78	160	8	< 0.01	< 0.01	-
Aliphatic EC >6-8	100	230	530	100	230	530	8	< 0.05	< 0.05	-
Aliphatic EC >8-10	27	65	150	27	65	150	8	<2	<2	-
Aliphatic EC >10-12	130	330	760	130	330	770	8	<2	<2	-
Aliphatic EC >12-16	1100	24000	4300	1100	24000	4400	8	<3	<3	-
Aliphatic EC >16-35	65000	92000	110000	65000	92000	110000	8	<10	<10	-
Aromatic EC 5-7	70	78	300	370	690	1400	8	< 0.01	< 0.01	-
Aromatic EC >7-8	130	230	660	860	1800	3900	8	<0.05	< 0.05	-
Aromatic EC >8-10	34	65	190	47	110	270	8	<2	<2	-
Aromatic EC >10-12	74	330	380	250	590	1200	8	<2	<2	-
Aromatic EC>12-16	140	24000	660	1800	2300	2500	8	<2	<2	-
Aromatic EC>16-21	280	92000	930	1900	1900	1900	8	<3	<3	-
Aromatic EC>21-35	1100	92000	1700	1900	1900	1900	8	<10	<10	-
Polycyclic Aromatic Hydro					1					-
Naphthalene	2.3	5.6	13	2.3	5.6	13	8	<0.1	<0.1	-
Acenaphthylene	170	420	920	2900	4600	6000	8	<0.1	<0.1	-
Acenaphthene	210	510	1100	3000	4700	6000	8	<0.1	<0.1	-
Fluorene	170	400	860	2800	3800	4500	8	<0.1	<0.1	-
Phenanthrene	95	220	440	1300	1500	1500	8	<0.1	0.90	-
Anthracene	2400	5400	11000	31000	35000	37000	8	<0.1	<0.1	-
Fluoranthene	280	560	890	1500	1600	1600	8	<0.1	2.20	-
Pyrene	620	1200	2000	3700	3800	3800	8	<0.1	1.78	-
Benz(a)anthracene	7.2	11	13	11	14	15	8	<0.1	0.55	-
Chrysene	15	22	27	30	31	32	8	<0.1	0.90	-
Benzo(a)pyrene	5.0	2.7	3.0	5.3	3.2	3.2	8	<0.1	0.73	-
Benzo(b)fluoranthene	2.6	3.3	3.7	3.9	4.0	4.0	8	<0.1	0.96	-
Benzo(k)fluoranthene	77	93	100	110	110	110	8	<0.1	0.37	-
Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	8	<0.1	0.55	-
Dibenz(a,h)anthracene	0.24	0.28	0.3	0.31	0.31	0.32	8	<0.1	<0.1	-
Benzo(ghi)perylene	320	340	350	360	360	360	8	<0.1	0.46	-
Phenols			_							
Phenol	280	550	1100	750	1300	2300	8	<2	<2	-

### Table 12 - Soil Results Comparison with C4SL/S4UL Levels



From Table 12 it can be some of the samples have elevated levels of arsenic and lead contaminants. These elevated contaminants are summarised in Table 16 below.

			Elevated contaminants in excess of:					
Location	Depth	Strata	Residential end use	Residential end use				
			with homegrown produce	without homegrown produce				
HP08	0.05-0.15m	Made Ground	Arsenic	Arsenic				
HP01	0.30-0.40m	Made Ground	Lead	Lead				
HP02	0.35-0.45m	Made Ground	Lead	Lead				
HP03	0.20-0.30m	Made Ground	Lead	-				
HP06	0.10-0.20m	Made Ground	Lead	Lead				
HP08	0.05-0.15m	Made Ground	Lead	Lead				

Table 13 – Summary of Elevated Levels of Contamination

Asbestos has not been encountered in any of the samples tested.

#### 8.4 Soil Waste Assessment

Environment Agency Technical Guidance WM3.1: Hazardous Waste; "Guidance on the classification and assessment of waste", May 2018, published by Environment Agency of England and Wales, SEPA, NIEA and Natural Resources Wales has been used to characterise soil materials.

HazWasteOnline<sup>™</sup> a cloud-based software application for the management, analysis and reporting of hazardous waste materials has been used to make this assessment.

The Hazardous Waste Assessment (included in Appendix 6) confirms that all the samples tested can be classified as **Non-Hazardous**, with the exception of the sample from HP08 which is **Hazardous** due to the elevated level of Zinc.



# 9.0 PROTECTION OF BURIED WATER PIPES

The potential risk to new buried water pipes associated with ground contamination has been assessed using the Water Regulations Advisory Scheme (WRAS) Guidance Note No. 9-04-03<sup>(2002)</sup> and Water UK *'Contaminated Land Assessment Guidance'* (January 2014). The results of contamination testing compared to WRAS Guidance Values are summarised in the following table:

Contaminant	Threshold Level (mg/kg)	HP01 0.30-0.40m	HP02 0.35-0.45m	HP03 0.20-0.30m	HP04 0.5 -0.50m	HP05 0.30-0.40m	HP06 0.10-0.20m	HP07 0.05-0.15m	HP08 0.05-0.15m	No. of Exceedances
Corrosion										
Sulphate	2000	1025	1212	809	449	729	12894	939	1460	0
Sulphide	250	5	<5	<5	<5	<5	5	<5	15	0
рН	5 ≤ pH ≤ 8	7.4	7.4	7.0	7.3	7.5	7.5	7.5	7.4	0
Toxicity										
Arsenic	10	17	21	12	9	8	17	7	46	4
Cadmium	3	6.0	3.8	5.6	1	0.8	9.0	2.9	13.2	4
Chromium (hexavalent)	25	<2	<2	<2	<2	<2	<2	<2	<2	0
Chromium (total)	600	31	21	21	23	15	10	10	18	0
Cyanide (free)	25	<1	<1	<1	<1	<1	<1	<1	<1	0
Cyanide (complex)	250	<1	<1	<1	<1	<1	<1	<1	<1	0
Lead	500	758	381	226	74	79	362	143	685	2
Mercury	1	1.1	<1	<1	<1	<1	1.1	<1	<1	2
Selenium	3	<2	<2	<2	<2	<2	<2	<2	<2	0
Organic contaminants										
BTEX & MTBE	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0
EC5-EC10 ali + aro hydrocarbons	2	<2	<2	<2	<2	<2	<2	<2	<2	0
EC10-EC16 ali + aro hydrocarbons	10	<3	<3	<3	<3	<3	<3	<3	<3	0
EC16-EC40 ali + aro hydrocarbons	500	27	<10	<10	<10	<10	<10	<10	<10	0
Phenols	2	<2	<2	<2	<2	<2	<2	<2	<2	0
Polycyclic Aromatic Hydrocarbons (PAH)	50	3.0	<1.6	<1.6	<1.6	<1.6	2.1	3.3	9.4	0
Notes: (1) For copper pipes, corrosive if pH<	:5 or >8.									

 Table 14 – Soil Results Comparison with WRAS Guidance Levels

From the above table, it can be seen there are some elevated contaminant levels suggesting special requirements could be required for new water pipes.



# 10.0 REVIEW OF PRELIMINARY CONTAMINATION RISK ASSESSMENT

The following table provides a review of the Preliminary Conceptual Model/Contamination Risk Assessment included in Section 5.0, based on the findings of the Phase II investigation, and laboratory testing.

Source	Pathway	Receptor	Risk
		Current Site Users	VERY LOW
Contamination of the ground beneath site	Dermal contact, ingestion and inhalation	Future Site users	Hard Cover Development : VERY LOW Soft Landscaping: HIGH
	of soils dust	Construction Workers	LOW TO MODERATE
due to current and historical	Vertical or lateral	Current Site Users	VERY LOW
use	migration of	Adjacent land users	LOW
	contamination	Future land users	LOW
	(including ground gas)	Controlled Waters	VERY LOW
	on and off site.	Construction Workers	LOW

#### Table 15 - Revised Conceptual Model



# 11.0 GROUND CONTAMINATION CONCLUSIONS AND RECOMMENDATIONS

#### 11.1 Soil Contamination

Based on available soil contamination test results there is a low to moderate potential risk from soil contamination to construction workers and ground workers during development and appropriate measures such as PPE, site health plans, appropriate disposal of material arisings will be required to mitigate this risk. The groundworks contractor must provide a soil management plan including methods of dealing with soil contamination encountered during groundworks.

As discussed in the above sections, elevated levels of arsenic and lead have been encountered within the Made Ground near surface, above the recommended guideline values for residential end use with and without home grown produce.

Areas of proposed hardcover development will not require any remediation as these areas effectively seal contamination beneath and break any potential source-pathway-pollutant linkage.

The elevated contamination encountered is located within the Made Ground near surface. Areas of proposed soft landscaping will require remediation. This can be carried out by either removing the Made Ground from these areas, capping the Made Ground with a minimum 600mm of clean imported material, or a combination of both, depending on finished site levels.

The presence of higher levels of contamination on areas of the site not covered by the current exploratory holes should not be discounted and additional spot checks would be prudent, particularly during groundworks and in areas of proposed soft landscaping. This testing can be carried out as part of the Soil Management Plan for the site.

#### 11.2 Soil Disposal

Soils should be disposed of at a suitable site, registered to take the levels of contamination encountered. Seven of the eight samples tested have been classified as Non-Hazardous in accordance with Environment Agency guidance WM3.1. The sample from HP08 has been classified as hazardous.

#### 11.3 Asbestos

Asbestos has not been encountered in any of the samples tested. It is therefore considered the risk of asbestos being in the ground is low.

#### 11.4 Land Gas

Another potential source of contamination is land gas. Land gas is largely generated by the decomposition of organic matter, both in natural soils such as peat, and manmade materials such as landfill or other fill materials. The gases that are normally associated with these materials, which can pose a risk to health, include methane (which is toxic and potentially explosive) and carbon dioxide (which is toxic). Oxygen depletion is also a consequence of the generation of these other gases.

Based on the results of monitoring it is considered the risk posed by land gas is low and land gas protection measures will not be required for new buildings.



Based on information included in the Groundsure report, protection against the ingress of radon gas into the new building is not required.

## 11.5 Risk to Groundwater and Surface Waters

Based on the ground and groundwater conditions encountered and results of laboratory testing it is considered the risk from contamination to groundwater and surface waters is low.

#### 11.6 Risk to Buried (Water) Services

Based on the results of laboratory testing it is considered standard materials are unlikely to be appropriate for new water pipes. The advice of the water supply company should be sought.

#### 11.7 Site Personnel & Other Matters

As with all construction sites, personnel working on the site during the construction period should be encouraged to maintain a high standard of personal hygiene and on-site washing facilities should be available.

Due diligence is required during the construction period, and should any further evidence of contamination be found, appropriate investigation and / or action should be taken. The significance of any contamination not discovered by this investigation is outside the scope of this report.



# **APPENDIX 1**

# EXPLORATORY HOLE LOGS



#### EARTH ENVIRONMENTAL & GEOTECHNICAL

rojeci	Name:	Berwick	Farm		Client: I	VII. E. C	entery			Date: 31/0	1/2022		
			n, Berwick I ershire, BS		Contrac	ctor: Co	ok Gl			Co-ords: E	355665.00	N180639.0	00
	No. : B				Crew N	ame: B	+ J			Drilling Eq	uipment: Da	art Archway	/
Borel	hole Nu			e Type VS		Level			ed By		cale	-	Number
1	WS01 Nater			vs Situ Testing	 1   r	Depth	Level		S		:25		et 1 of 1
	Strikes	Depth (		Results		(m)	(m)	Legend		Stratur	n Descriptio	on	
						0.10 0.20 0.50 1.10			roots) MADE GR clayey gravel Gravel is s MADE GR gravelly sill fine to coal organic inc Firm dark th clay. Grave and mudst (WEATHER Firm light b sandy silty	orown slightly el is subangul	sh brown slig ets/roots up to dark brown s el is subangu ne, brick, coa gravelly slig ar fine to me A MUDSTON and pinkish is fine to me	htly sandy si o 3mm thickr f limestone. lightly sandy lar to subrou al, chalk and htly sandy si dium of lime E BEDROCH brown slightl dium.	lightly ness. nded lty stone () y
						1.50			CLAY. San	f reddish brov d is fine to co ng stiff to ve avel sized le	arse.	minor fine t	
						2.70			green med slightly sar subangular Sand is fin	f reddish brov ium to coarse dy slightly gr fine to coars e to coarse. RED MERCI <i>F</i>	e gravel sized avelly silty C se of sandsto	d silt lenses, LAY. Gravel ne and siltst	is one.
						4.00				End of Bc	vrehole at 3.6(	00m	
	ole Diame a (m) Dian			Diameter Diameter (mm)	Depth T	op Dep	Chise th Base	illing Duration	Tool	Depth Top	Inclination a	and Orientation	Orientati



Well       Sample and In Situ Testing Depth (m)       Depth (m)       Type       Results       Depth (m)       Level (m)       Level (m)       Level (m)       Level (m)       Level (m)       MADE GROUND: Soft to firm dark brown slightly gravelly slightly sandy SIL? With frequent rootlets. Gravel is subangular to subrounded fine to medium imestore, chalk, brick and mudstone.         0.35       0.35       0.35       0.36       0.36       0.37       Clay pipe         0.70       0.70       0.70       0.70       The town slightly gravelly slightly sandy slig	Number : 1 of 1 n of
roject No : : B3326 Borehole Number WS02 Vell VS0 Vell VS1 VS0 VS1 VS0 VS VS0 VS VS0 VS	n of
WS02     WS     AS     1:25     Sheel       Iell     Water Strikes     Sample and In Situ Testing Depth (m)     Depth (m)     Type     Results     Level (m)     Legend     Stratum Description       MADE GROUND: Soft to fim dark brown slightly gravelly slightly sandy SILT with frequent rootets. Gravel is subangular to subrounded fine to medium imestone, chaik, brick and mudstone.     MADE GROUND: Soft to fim dark brown slightly gravelly slightly sandy sli	n of
Vater Strikes     Sample and In Situ Testing Depth (m)     Depth Type     Depth (m)     Level (m)     Legend     Stratum Description       MADE GROUND: Soft to firm dark brown slightly gravely slightly sandy SIL Gravel is subangular to subrounded fine to medium limestone, chalk, brick and mudstone.     MADE GROUND: Soft to firm dark brown slightly gravely slightly sandy SIL Gravel is subangular to subrounded fine to oredium of limestone, chalk, brick and mudstone.       0.35     0.35       0.70     0.70       1.05     1.05       1.70     1.70	n of ilty
Image: Provide and the second seco	ilty
0.35       MADE GROUND: Soft to firm dark brown slightly gravelly slightly sandy SILT with frequent rootlets. Gravell is subangular to subrounded fine to medium limestone, chaik, brick and mudstone.         0.35       Clay pipe         0.70       Immetsione and mudstone.         1.05       Immetsione and mudstone.         1.05       Immetsione and mudstone.         1.05       Immetsione and mudstone.         1.70       Immetsione and mudstone.         1.70       Immetsione and mudstone.         1.70       Immetsione and mudstone.         1.70       Immetsione.         1.70       Immetsione.         1.70       Immetsione.         1.70       Immetsione.         1.70       Imm	ilty
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222       3.00       X       End of Borehole at 3.000m         End of Borehole at 3.000m       Image: Chick of Borehole at 3.000m       Image: Chick of Borehole at 3.000m         Hole Diameter       Casing Diameter (mm) Depth Base (m) Diameter (mm)       Depth Top       Depth Base       Inclination and Orientation         100       37       3.00       Image: Chick of Borehole at 3.000m       Image: Chick of Borehole at 3.000m	



oject Name: Berwick		Client: Mr. E. C	Cemery			Date: 21/12	/2023		
ocation: Berwick Farm allen, South Gloucest		Contractor: Co	ook GI			Co-ords: E3	55645.00	N180662.0	00
oject No. : B3326		Crew Name: B	3 + J			Drilling Equi	ipment: D	art Archway	/
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-	No. : B				rew Name:	B + J			Drilling Equipment: D		
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	ole Diame			Diameter		Chise				and Orientation	
h Base 1.00		neter (mm) 87			Depth Top De	epth Base	Duration	Tool	Depth Top Depth Base		Orientatio
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& GEOTECHIN	ICAL									-9			
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	Berwick Fa				Cont	ractor:				Co-ords: E3556	650.00 N	18066	67.00	
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	ame: Berwick			Client: Mr. E	E. Cemery			Date: 18/12/202	3		
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		Berwick Fai			Client	: Mr. E. C	emery			Date: 18/12/20	23			
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	Water Strikes	Sample	and In S	Situ Testin		Depth (m)	Level (m)	Legend		Stratum De	escription			
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						0.15				End of Boreho	le at 0.150r			
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## Trial Pit Loa

& GEO	TECHNICAL			11	аг		UY		
	ne: Berwick		Client: Mr. E. C	Cemery			Date: 18/12/2023		
Location: B Hallen, Sou	erwick Farm uth Glouceste	n, Berwick Lane, tershire, BS10 7RS	Contractor:				Co-ords: E355641.0	00 N180640.00	
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	Number 208	Location Type TP	Level			jed By CK	Scale 1:15	Page Num Sheet 1 c	
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Remarks Exploratory p	oosition scann	l	nce Tool prior to drillir	ng. No grou	undwater en	countered.	Hole backfilled with arisin	ngs.	Invironmental ICHNICAL



#### **APPENDIX 2**

#### PHOTOGRAPHS



EARTH ENVIRONMENTAL	Project	B3326	Drawing Title Window Sample Photos	
& GEOTECHNICAL	Client	Mr. E. Cemery	Reference WS01	

Earth Environmental & Geotechnical Studio 3, Tollbridge Studios, Toll Bridge R vvvvv.EarthenvironmentaLo southwest@earthenvironment +44 (0)1225 858823	ouk tal.co.uk	HOLE NO.	BERWICK 3326 1507 2.00 "	in the second second	/23 m-
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EARTH ENVIRONMENTAL & Geotechnical (S Studio 3, Tollbridge Studios, Toll Bridge Rd, Www.earthenvironmental.co. southwest@earthenvironmental.ea +44 (0)1225 858823	NICAL iouthem) Ltd i. Bath, BA1 7DE uik Lco.uik	PROJECT NO. B HOLE NO. W DEPTH FROM	BERWICE 3326 3016 .00 "	DATE 21/12/ SAMPLE NO. TO 4.00	23 m
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Earth Environmental & Geotechnical (Southern) Ltd Studio 3. Tollbridge Studios. Toll Bridge Rd. Bath. BA1 7DE	HOLE NO. WSO3	SAMPLE NO.
www.earthenvironmental.co.uk southwest@earthenvironmental.co.uk +44 (0)1225 858823	DEPTH FROM	TO 1.00
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CARLON OF COMPANY		
EARTH ENVIRONMENTA	PROJECT NAME BERWICK	
& GEOTECHNICAL	PROJECT NO. B3326	DATE 21/12/23
Earth Environmental & Geotechnical (Southern) Ltd Studio 3, Tollbridge Studios, Toll Bridge Rd, Bath, BA1 7DE	HOLE NO. WS03	SAMPLE NO.
www.earthenvironmentaLco.uk southwest@earthenvironmentaLco.uk +44 (0)1225 858823	DEPTH FROM	2:00
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EARTH EN	WIRONMENTAL	PROJECT NAME Berwick Farm	
	ivironmental Chnical		ATE 18/12/23
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		Mr. E. Cemery	HP01

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	Client	Mr. E. Cerr	nery	ererence	HP05

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		Mr. E. Cemery	HP06

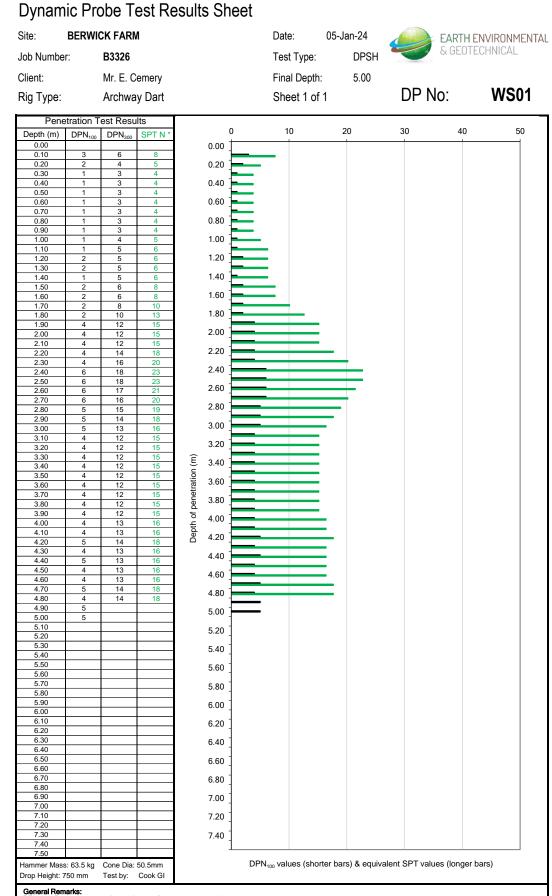
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		Mr. E. Cemery		HP08

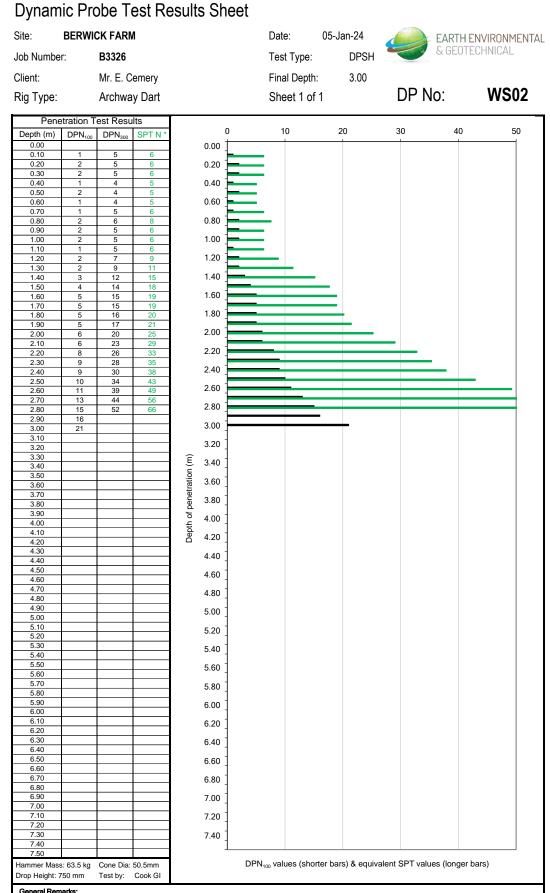


#### **APPENDIX 3**

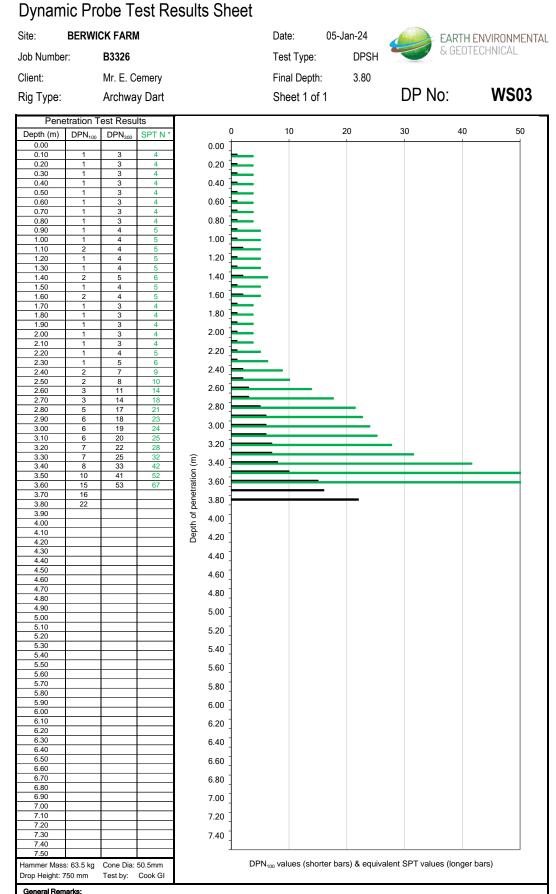
#### IN SITU TEST RESULTS



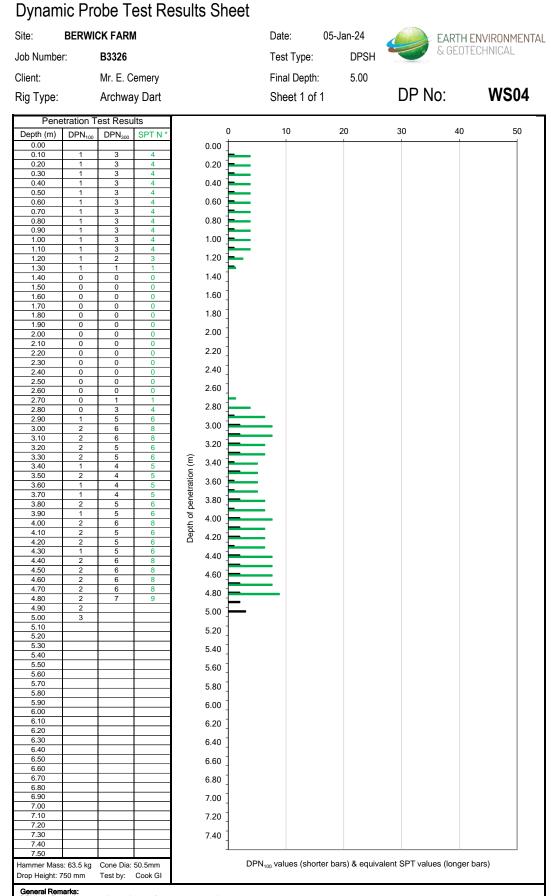
General Remarks: DPN<sub>100</sub> = Dynamic penetration resistance for 100mm penetration. DPN<sub>200</sub> = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN<sub>00</sub> values), starting at the depth given. \* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN<sub>200</sub> values for dynamic probe "super-heavy" test (DPSH). For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN<sub>300</sub> = 1.5 SPT-N. [see Card, G.B., Roche, D.P. & Herbert, S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only. SPT hammer energy ratio = 75.73%



General Remarks: DPN<sub>100</sub> = Dynamic penetration resistance for 100mm penetration. DPN<sub>200</sub> = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN<sub>200</sub> values), starting at the depth given. \* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN<sub>200</sub> values for dynamic probe "super-heavy" test (DPSH). For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN<sub>300</sub> = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only. SPT hammer energy ratio = 75.73%



General Remarks: DPN<sub>100</sub> = Dynamic penetration resistance for 100mm penetration. DPN<sub>200</sub> = Dynamic penetration resistance for 300mm penetration (ie: sum of 3 consecutive DPN<sub>200</sub> values), starting at the depth given. \* Equivalent SPT N-values (for 300mm penetration) assumed to approximate the DPN<sub>200</sub> values for dynamic probe "super-heavy" test (DPSH). For dynamic probe "heavy" test (DPH), equivalent SPT N-values estimated using the theoretical relationship DPN<sub>300</sub> = 1.5 SPT-N. [see Card,G.B., Roche,D.P. & Herbert,S.M., in Geol. Soc. Special Publication No 6, *Field Testing in Engineering Geology* (1990)]. SPT values are estimated and are for general guidance only. SPT hammer energy ratio = 75.73%



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#### **APPENDIX 4**

#### **MONITORING RESULTS**

roject Number:		3326		1																					
ojoot ituinoot.		5520		1 1		1															7				
roject Name:	Berw	ick Farm			Weather:	Wet, Rainy, Cold																			
ate:	04/01/2024			1															*mbgl - Meters below Ground Level						
ogger		1 '																							
				-																					
Initial			10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments	
orehole ID	WS01	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (l/hr)	-1.6	CO2 (%)	0	0.1	0.3	0.7	1	1	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	Flow Rate (I/hr)	-1.4			
tmospheric ressure (mbar)	997	02 (%)	19.7	19.4	19.1	18.7	18.4	18.2	18	18	17.9	17.8	17.6	17.4	17.3	17.3	17.2	17.2	17.2	17	Atmospheric Pressure (mbar)	994	0.79	4.05	
orehole Pressure Pa)	-4	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	-3.9	0.70	4.00	
ime	14:56	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	15:03			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				
										1											Stearly State Flow	Readings (taken after gas	Groundwater	Borehole Base	
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec:		eadings)	Level (mbgl*)	(mbgl*)	Comments
orehole ID	W \$04	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (I/hr)	-1.9	CO2 (%)	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	Flow Rate (I/hr)	-1.8			
tmospheric ressure (mbar)	989	O2 (%)	19.1	19.1	19.2	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.5	19.5	19.6	19.6	19.6	19.6	19.7	Atmospheric Pressure (mbar)	987	0.91	4.54	
orehole Pressure Pa)	-2	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	-1	0.01	4.04	
ime	15:10	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	15:17			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				

roject Number:	rd	3326		1																					
oject Number.		3320		4		1															ר				
roject Name:	Berw	ick Farm			Weather:							Col	d, Dry, Clo	udy											
ate:	11/	01/2024		1																				*mbgl - I	Meters below Ground Level
ogger		JL		1 '																	-				
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec:		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
orehole ID	WS01	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (l/hr)	0	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Flow Rate (I/hr)	0			
tmospheric ressure (mbar)	1039	02 (%)	19.1	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.2	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.1	Atmospheric Pressure (mbar)	1038	0.83	4.05	
orehole Pressure Pa)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	-1			
ime	10:08	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	10:15			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
orehole ID	W \$04	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (l/hr)	0.2	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Flow Rate (I/hr)	0			
tmospheric ressure (mbar)	1089	O2 (%)	19.4	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.4	19.5	19.5	19.5	19.4	19.5	19.4	19.5	19.5	19.6	Atmospheric Pressure (mbar)	1089	0.76	4.54	
orehole Pressure Pa)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	0	5.70	04	
ime	10:29	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	10:56			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				

Bas Monitoring Reco				-																					
roject Number:		3326		4																	7				
roject Name:	Berw	ick Farm			Weather:							Su	nny, Cold,	Dry.											
)ate:	18/	01/2024		1																				*mbgl - I	Meters below Ground Level
.ogger		JL		] '																	-				
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
orehole ID	WS01	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (I/hr)	0	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Flow Rate (I/hr)	0.2			
tmospheric ressure (mbar)	1006	O2 (%)	19.8	19.9	19.9	19.9	19.9	19.9	19.7	19.9	20	19.5	20	19.8	19.5	19.8	19.8	19.5	19.8	19.7	Atmospheric Pressure (mbar)	1010	0.86	4.04	
lorehole Pressure Pa)	-1	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	1			
ïme	14:21	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	14:28			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec:		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
orehole ID	WS04	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (I/hr)	0	CO2 (%)	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Flow Rate (I/hr)	0.2			
utmospheric rressure (mbar)	1033	O2 (%)	19.9	20	20	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.8	Atmospheric Pressure (mbar)	1033	0.6	4.51	
lorehole Pressure Pa)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	0	5.0	4.51	
ime	14:37	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	14:44			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				

Bas Monitoring Recor				1																					
Project Number:		3326		4		1															1				
Project Name:	Berw	ick Farm			Weather:							Clo	udy, Mild,	Wet.											
Date:	25/	01/2024		1																				*mbgl - M	Meters below Ground Level
.ogger		JL		1 '																	-				
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sec:		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
Borehole ID	W S01	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (l/hr)	0	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Flow Rate (I/hr)	0.2			
Atmospheric Pressure (mbar)	1032	O2 (%)	19.8	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19.9	Atmospheric Pressure (mbar)	1021	0.87	4.08	
lorehole Pressure Pa)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	0			
ime	14:05	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	14:12			
Peak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				
			Initial	10 secs	20 secs	30 secs	40 secs	50 secs	60 secs	70 secs	80 secs	90 secs	100 secs	110 secs	120 secs	130 secs	140 secs	150 secs	180 secs	300 sect		Readings (taken after gas eadings)	Groundwater Level (mbgl*)	Borehole Base (mbgl*)	Comments
orehole ID	W \$04	CH4 (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
low Rate (I/hr)	0.1	CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Flow Rate (I/hr)	0.3			
tmospheric ressure (mbar)	1054	O2 (%)	20.1	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.1	20	20	20	20.1	20	20	20	20	Atmospheric Pressure (mbar)	1035	0.49	4.49	
Borehole Pressure Pa)	0	CO (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Borehole Pressure (Pa)	2	0.40	40	
ime	14:19	H2S (ppm)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Time	14:26			
eak VOC		LEL (%)	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	Peak VOC				



# **APPENDIX 5**

# LABORATORY TEST RESULTS



Christian Kielinger Earth Environmental & Geotechnical (Southern Ltd) Studio 3, Tollbridge Studios Toll Bridge Road Bath BA1 7DE



Derwentside Environmental Testing Services Ltd Unit 1 Rose Lane Industrial Estate Rose Lane Lenham Heath Kent ME17 2JN t: 01622 850410

### DETS Report No: 23-15524

Site Reference:	Berwick Farm
Project / Job Ref:	B3326
Order No:	B3326/CK/20122023
Sample Receipt Date:	20/12/2023
Sample Scheduled Date:	20/12/2023
Report Issue Number:	1
Reporting Date:	03/01/2024

### Authorised by:

5.62-

Steve Knight Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.



Soil Analysis Certificate

### DETS Ltd Unit 1, Rose Lane Industrial Estate **Rose Lane** Lenham Heath Maidstone Kent ME17 2JN Tel : 01622 850410



DETS Report No: 23-15524			Date Sampled	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23
Earth Environmental & Geotechnica	al (Southern Ltd)		Time Sampled	None Supplied				
Site Reference: Berwick Farm			TP / BH No	HP01	HP02	HP03	HP04	HP05
Project / Job Ref: B3326		4	Additional Refs	None Supplied				
Order No: B3326/CK/20122023			Depth (m)	0.30 - 0.40	0.35 - 0.45	0.20 - 0.30	0.40 - 0.50	0.30 - 0.40
Reporting Date: 03/01/2024		DI	ETS Sample No	691687	691688	691689	691690	691691
Determinand	Unit	RL	Accreditation				(n)	
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected				
pH	pH Units	N/a	MCERTS	7.4	7.4	7.0	7.3	7.5
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO <sub>4</sub>	mg/kg	< 200	MCERTS	1025	1212	809	449	729
Total Sulphate as SO <sub>4</sub>	%	< 0.02	MCERTS	0.10	0.12	0.08	0.04	0.07
W/S Sulphate as SO <sub>4</sub> (2:1)	mg/l	< 10	MCERTS	18	12	15	< 10	< 10
W/S Sulphate as SO <sub>4</sub> (2:1)	g/l	< 0.01	MCERTS	0.02	0.01	0.02	< 0.01	< 0.01
Sulphide	mg/kg	< 5	NONE	5	< 5	< 5	< 5	< 5
Organic Matter (SOM)	%	< 0.1	MCERTS	9.9	11.4	11.5	4.1	5.4
Arsenic (As)	mg/kg	< 2	MCERTS	17	21	12	9	8
Barium (Ba)	mg/kg	< 2.5	MCERTS	422	461	320	200	307
Beryllium (Be)	mg/kg	< 0.5	MCERTS	1.1	1.4	1.1	1	0.7
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	6	3.8	5.6	1	0.8
Chromium (Cr)	mg/kg	< 2	MCERTS	31	21	21	23	15
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	98	74	69	44	38 79
Lead (Pb)	mg/kg	< 3	MCERTS	758	381	226	74	79
Mercury (Hg)	mg/kg	< 1	MCERTS	1.1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	29	27	24	25	16
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	MCERTS	32	34	28	30	21
Zinc (Zn)	mg/kg	< 3	MCERTS	681	540	524	230	166
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion Subcontracted analysis (S) (n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation



Soil Analysis Certificate

### DETS Ltd Unit 1, Rose Lane Industrial Estate Rose Lane Lenham Heath Maidstone Kent ME17 2JN Tel : 01622 850410



DETS Report No: 23-15524			Date Sampled	18/12/23	18/12/23	18/12/23		
Earth Environmental & Geotechnica	al (Southern Ltd)		Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Berwick Farm			TP / BH No	HP06	HP07	HP08		
Project / Job Ref: B3326			Additional Refs	None Supplied	None Supplied	None Supplied		
Order No: B3326/CK/20122023			Depth (m)	0.10 - 0.20	0.05 - 0.15	0.05 - 0.15		
Reporting Date: 03/01/2024		D	ETS Sample No	691692	691693	691694		
	-							
Determinand		RL	Accreditation				-	
Asbestos Screen <sup>(S)</sup>	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected		
pH	pH Units	N/a	MCERTS	7.5	7.5	7.4		
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1		
Complex Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1		
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1		
Total Sulphate as SO <sub>4</sub>	mg/kg	< 200	MCERTS	1284	939	1460		
Total Sulphate as SO <sub>4</sub>	%	< 0.02	MCERTS	0.13	0.09	0.15		
W/S Sulphate as SO <sub>4</sub> (2:1)	mg/l	< 10	MCERTS	14	15	< 10		
W/S Sulphate as SO <sub>4</sub> (2:1)	g/l	< 0.01	MCERTS	0.01	0.02	< 0.01		
Sulphide	mg/kg	< 5	NONE	5	< 5	15		
Organic Matter (SOM)	%	< 0.1	MCERTS	16	16.8	26.9		
Arsenic (As)	mg/kg	< 2	MCERTS	17	7	46		
Barium (Ba)	mg/kg	< 2.5	MCERTS	638	232	232		
Beryllium (Be)	mg/kg	< 0.5	MCERTS	0.5	0.6	1		
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	2		
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	9	2.9	13.2		
Chromium (Cr)	mg/kg	< 2	MCERTS	10	10	18		
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2		
Copper (Cu)	mg/kg	< 4	MCERTS	60	49	169		
Lead (Pb)	mg/kg	< 3	MCERTS	362	143	685		
Mercury (Hg)	mg/kg	< 1	MCERTS	1.1	< 1	< 1		
Nickel (Ni)	mg/kg	< 3	MCERTS	11	10	23		
Selenium (Se)	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Vanadium (V)		< 1	MCERTS	13	12	17		
Zinc (Zn)	mg/kg	< 3	MCERTS	674	439	2760		
Total Phenols (monohydric)		< 2	NONE	< 2	< 2	< 2		

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion Subcontracted analysis (S)





Soil Analysis Certificate	- Speciated PAHs							
DETS Report No: 23-1552	24		Date Sampled	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23
Earth Environmental & Ge	otechnical (Souther		Time Sampled	None Supplied				
Site Reference: Berwick F	arm		TP / BH No	HP01	HP02	HP03	HP04	HP05
Project / Job Ref: B3326		4	dditional Refs	None Supplied				
Order No: B3326/CK/201	22023		Depth (m)	0.30 - 0.40	0.35 - 0.45	0.20 - 0.30	0.40 - 0.50	0.30 - 0.40
Reporting Date: 03/01/2	024	D	TS Sample No	691687	691688	691689	691690	691691
Determinand	Unit	RL	Accreditation				(n)	
Naphthalene	5, 5	< 0.1	MCERTS	0.17	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	0.59	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.63	0.17	0.18	< 0.1	< 0.1
Pyrene	mg/kg	< 0.1	MCERTS	0.58	0.14	0.16	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.21	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.33	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.27	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.25	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	3	< 1.6	< 1.6	< 1.6	< 1.6

(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation





Soil Analysis Certificate	- Speciated PAHs						
DETS Report No: 23-1552	24		Date Sampled	18/12/23	18/12/23	18/12/23	
Earth Environmental & Ge	eotechnical (Souther		Time Sampled	None Supplied	None Supplied	None Supplied	
Site Reference: Berwick F	Farm		TP / BH No	HP06	HP07	HP08	
Drainet / Jak Dafe D2226			Additional Refs	Nege Constinut	News Constitut	Nega Cumplied	
Project / Job Ref: B3326 Order No: B3326/CK/201		,	Depth (m)	None Supplied 0.10 - 0.20	None Supplied 0.05 - 0.15	None Supplied 0.05 - 0.15	
Reporting Date: 03/01/2			ETS Sample No	691692	691693	691694	
Reporting Date: 03/01/2	.024		13 Sample No	091092	091095	091094	
Determinand	Unit	RL	Accreditation				
Naphthalene			MCERTS	< 0.1	< 0.1	< 0.1	
Acenaphthylene			MCERTS	< 0.1	< 0.1	< 0.1	
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Phenanthrene	mg/kg	< 0.1	MCERTS	0.13	0.24	0.90	
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	
Fluoranthene	mg/kg	< 0.1	MCERTS	0.40	0.73	2.20	
Pyrene	mg/kg	< 0.1	MCERTS	0.36	0.61	1.78	
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.15	0.19	0.55	
Chrysene	mg/kg		MCERTS	0.26	0.35	0.90	
Benzo(b)fluoranthene			MCERTS	0.29	0.37	0.96	
Benzo(k)fluoranthene	5,5		MCERTS	< 0.1	0.12	0.37	
Benzo(a)pyrene	5,5		MCERTS	0.22	0.28	0.73	
Indeno(1,2,3-cd)pyrene			MCERTS	0.17	0.19	0.55	
Dibenz(a,h)anthracene			MCERTS	< 0.1	< 0.1	< 0.1	
Benzo(ghi)perylene			MCERTS	0.14	0.17	0.46	
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	2.1	3.3	9.4	





Soil Analysis Certificate	- TPH CWG Bande	d						
DETS Report No: 23-155			Date Sampled	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23
Earth Environmental & Ge	eotechnical (Souther		Time Sampled	None Supplied				
Site Reference: Berwick	Farm		TP / BH No	HP01	HP02	HP03	HP04	HP05
Project / Job Ref: B3326			Additional Refs	None Supplied				
Order No: B3326/CK/201	122023		Depth (m)	0.30 - 0.40	0.35 - 0.45	0.20 - 0.30	0.40 - 0.50	0.30 - 0.40
Reporting Date: 03/01/2	2024	D	ETS Sample No	691687	691688	691689	691690	691691
Determinand	Unit	RL	Accreditation				(n)	
Aliphatic >C5 - C6 : HS 1D MS AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8 : HS 1D MS AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH CU 1D AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7 : HS 1D MS AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8 : HS 1D MS AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH CU 1D AR	mg/kg	< 3	MCERTS	4	< 3	< 3	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	23	< 10	< 10	< 10	< 10
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	ma/ka	< 21	NONE	27	< 21	< 21	< 21	< 21
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Tot al		< 42	NONE	< 42	< 42	< 42	< 42	< 42

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Soil Analysis Certificate	- TPH CWG Bande	d					
DETS Report No: 23-155			Date Sampled	18/12/23	18/12/23	18/12/23	
Earth Environmental & Ge	eotechnical (Souther		Time Sampled	None Supplied	None Supplied	None Supplied	
Site Reference: Berwick	Farm		TP / BH No	HP06	HP07	HP08	
Project / Job Ref: B3326			Additional Refs	None Supplied	None Supplied	None Supplied	
Order No: B3326/CK/20			Depth (m)	0.10 - 0.20	0.05 - 0.15	0.05 - 0.15	
Reporting Date: 03/01/2	2024	D	ETS Sample No	691692	691693	691694	
Determinand	Unit	RL	Accreditation				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C10 - C12 : EH CU 1D AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aliphatic >C12 - C16 : EH CU 1D AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
Aliphatic >C16 - C21 :	mg/kg	< 3	MCERTS	< 3	< 3	< 3	
EH_CU_1D_AL Aliphatic >C21 - C34 :	mg/kg	< 10	MCERTS	< 10	< 10	< 10	
EH_CU_1D_AL Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21	< 21	
Aromatic >C5 - C7 : HS 1D MS AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	
Aromatic >C7 - C8 : HS 1D MS AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	
Aromatic >C8 - C10 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C12 - C16 : EH CU 1D AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2	
Aromatic >C16 - C21 : EH CU 1D AR	mg/kg	< 3	MCERTS	< 3	< 3	5	
Aromatic >C21 - C35 : EH CU 1D AR	mg/kg	< 10	MCERTS	< 10	< 10	< 10	
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21	< 21	
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Tot al		< 42	NONE	< 42	< 42	< 42	





Soil Analysis Certificate	- BTEX / MTBE							
DETS Report No: 23-1552	24		Date Sampled	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23
Earth Environmental & Ge	otechnical (Souther		Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Berwick F	Farm		TP / BH No	HP01	HP02	HP03	HP04	HP05
Project / Job Ref: B3326			Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: B3326/CK/201	122023		Depth (m)	0.30 - 0.40	0.35 - 0.45	0.20 - 0.30	0.40 - 0.50	0.30 - 0.40
Reporting Date: 03/01/2	024	D	ETS Sample No	691687	691688	691689	691690	691691
Determinand	Unit	RL	Accreditation				(n)	
Determinand Benzene : HS_1D_MS		<b>RL</b> < 2		< 2	< 2	< 2	(n) < 2	< 2
	ug/kg		MCERTS	< 2 < 5	< 2 < 5	< 2 < 5		< 2 < 5
Benzene : HS_1D_MS	ug/kg ug/kg	< 2	MCERTS MCERTS	< 2 < 5 < 2			< 2	< 2 < 5 < 2
Benzene : HS_1D_MS Toluene : HS_1D_MS	ug/kg ug/kg ug/kg	< 2 < 5	MCERTS MCERTS MCERTS		< 5	< 5	< 2 < 5	
Benzene : HS_1D_MS Toluene : HS_1D_MS Ethylbenzene : HS_1D_MS	ug/kg ug/kg ug/kg ug/kg	< 2 < 5 < 2	MCERTS MCERTS MCERTS MCERTS	< 2	< 5	< 5	< 2 < 5 < 2	< 2

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Soil Analysis Certificate	- BTEX / MTBE						
DETS Report No: 23-1552	24		Date Sampled	18/12/23	18/12/23	18/12/23	
Earth Environmental & Ge	otechnical (Souther		Time Sampled	None Supplied	None Supplied	None Supplied	
Site Reference: Berwick F	Farm		TP / BH No	HP06	HP07	HP08	
Project / Job Ref: B3326			Additional Refs	None Supplied	None Supplied	None Supplied	
Order No: B3326/CK/201	22023		Depth (m)	0.10 - 0.20	0.05 - 0.15	0.05 - 0.15	
Reporting Date: 03/01/2	024	D	ETS Sample No	691692	691693	691694	
Determinand	Unit	RL	Accreditation				
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2	
MTBE : HS 1D MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5	





Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 23-15524	
Earth Environmental & Geotechnical (Southern Ltd)	
Site Reference: Berwick Farm	
Project / Job Ref: B3326	
Order No: B3326/CK/20122023	
Reporting Date: 03/01/2024	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
691687	HP01	None Supplied	0.30 - 0.40	23.5	Brown loamy sand with vegetation
691688	HP02	None Supplied	0.35 - 0.45	23.2	Brown loamy sand with vegetation
691689	HP03	None Supplied	0.20 - 0.30	23.9	Brown loamy sand with stones and vegetation
691690	HP04	None Supplied	0.40 - 0.50		Brown clay with vegetation
691691	HP05	None Supplied	0.30 - 0.40	16.4	Brown sandy clay with stones and vegetation
691692	HP06	None Supplied	0.10 - 0.20	13	Black loamy sand with stones
691693	HP07	None Supplied	0.05 - 0.15	11.5	Brown loamy sand with stones and vegetation
691694	HP08	None Supplied	0.05 - 0.15	30.3	Brown loamy sand with stones and vegetation

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample  $^{\rm I/S}$  Unsuitable Sample  $^{\rm U/S}$ 





Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 23-15524
Earth Environmental & Geotechnical (Southern Ltd)
Site Reference: Berwick Farm
Project / Job Ref: B3326
Order No: B3326/CK/20122023
Reporting Date: 03/01/2024

Gold         D         Boron - Ward Soluble Determination of Water soluble horon in solit w 21. Not water extract lowers by ICP-OES         E512           Gold         D         Catoons Determination of Text by hadquace CASAS         E503         E503           Gold         D         Chiorde - Water Soluble (2). Differentiation of solub value results described by ICP-OES         E503           Gold         AR         Chromium - Hexarelist TL, José Hennaharback Callows by by colorinstry         E515           Gold         AR         Construit- Compute Determination of more cavate by destination for domains by colorinstry         E515           Gold         AR         Construit- Compute Determination of the cavate by destination for domains by colorinstry         E515           Gold         AR         Construit- Compute Determination of the cavate by destination for domains by destina domains by destination for domains by destination for	Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soul         AR         mmmodel between sould of calculations of BTEX by haskpace GA-B3         Sould Calculations and by accurate disection for blowed by CP-OES         Sould Calculations of Disections and by accurate disection for blowed by CP-OES         Sould Calculations of Disections and by accurate disection for blowed by CP-OES         Sould Calculations of Calculations of Disections and by accurate disection for blowed by CP-OES         Sould Calculations of	Soil		Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	
Sail         D         Cators Determination of cators in solu y aga-resis display followed by (CPCS)         6000           Sail         D         Obliede - Water Soluble (2) Determination of Induced by distriction with water & analysed by ion chromatography         6009           Sail         AR         Chromiun - Neuwalem Determination of Induced by distriction (1000 by robusted) by columenty         6015           Sail         AR         Cyanide - Trave Determination of The cyanide induced by catorinety         6015           Sail         AR         Cyanide - Trave Determination of the cyanide induced by catorinety         6015           Sail         AR         Operating and thread by distribution followed by catorinety         6015           Sail         AR         Description of the cyanide - Trave Determination of analytic by distribution of solubated of columns style followed by catorinety         6021           Sail         AR         Electrical Conductivity determination of alexical style by addition of water followed by catorinetic measurement.         6023           Sail         AR         Electrical Conductivity determination of alexical style by addition of water followed by catorinetic measurement.         6023           Sail         AR         Electrical Conductivity determination of alexical style by addition of water followed by catorinetic measurement.         6023           Sail         AR         Eletrinstrib Sain alexical style by	Soil	AR			E001
Soli         D         Oblicide - Water Soluble (23) Determination of chinds by extraction with water 8 analyaed by ion chinalyzand by determination of the service of chinaly in sol by extraction in water then by actification, addition of the service of chinal by colorinatry.         E005           Soli         AR         Chronium - Hocowald by Extension in sol by extraction with extension in water then by actification.         E016           Soli         AR         Chronium - Hocowald by training the service of the service by devicement in sol by extraction with extension.         E015           Soli         AR         Cyclobrease Extension.         E015           Soli         AR         Cyclobrease Extension.         E011           Soli         AR         Description.         E021           Soli         AR         Extencial Conductive Vectorial conductive Ny solution of subtractic analystation followed by colorinative.         E022           Soli         AR         Extencial Conductive Vectorial conductive Ny solution of subtractic analystation followed by colorinative.         E023           Soli         AR         Extencial Conductive Vectorial conductive Ny solution of subtractic analystation followed by colorinative.         E023           Soli         AR         Extencial Conductive Ny solution of subtraction with water followed by color AND. C is to CAD. C is to CAD.         E023           Soli         D         Extencial Conductin Conductive	Soil	D	Cations	Determination of cations in soil by agua-regia digestion followed by ICP-OES	E002
301         AR         Chroman Tradewaterin 1,5 dependenciable for complex cyalite by defailation followed by colorinetry         610           301         AR         Cyanife - free gletermination of free cyanide by defailation followed by colorinetry         6115           301         AR         Cyanife - free gletermination of free cyanide by defailation followed by colorinetry         6115           301         AR         Decode Range Organics (C10 - C4) Determination of hearn/sectore extrately hydrocarbone by GC-FDD         600           301         AR         Electrical Conductivity Determination of electrical and/truckity by addition of water followed by celebrometric measurement         602           302         D         Electrical Conductivity Determination of electrical and/truckity by addition of water followed by celebrometric measurement         602           303         AR         Electrical Conductivity Determination of acteruly-Pasare extratable hydrocarbone by GC-FID         6004           304         AR         EPH TEAS (C4-C), C5-10, C1-10, C1-10, Determination of Too the vartachale hydrocarbone by GC-FID         6004           304         AR         EPH TEAS (C4-C), C5-10, C1-10, C1-10	Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soli         AR         Openator         Opena	Soil	AR	Chromium - Hexavalent		E016
Soil         AR         Copanie - Total Determination of total cynamic by distillation followed by colorinety.         EDI           Soil         AR         Deself Range Organics (C10 - C2)         Determination of hexangelacetone extractable hydrocarbons by CC-100-100-100-100-100-100-100-100-100-1	Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil         D         Cockheane Extractable Patter (ED)         Granutricital determined through extraction with cyclinesane.         601           Soil         AR         Biest Range Organics (CII - OA)         Beermination of electrical conductively by addition of saturated calcium sulphate followed by         602           Soil         AR         Electrical Conductive         Destimination of electrical conductively by addition of saturated calcium sulphate followed by         602           Soil         AR         Electrical Conductive         Destimination of electrical conductively by addition of water followed by electrometric measurement         602           Soil         AR         Electrical Conductive         Destimination of electrical conductively by addition of water followed by electrometric measurement         602           Soil         AR         Electrical Conductive         Destimination of accomphesane extractable hydrocomos by GC-FID         600           Soil         D         Franction Under Cathon (CIC) Destimination of accomphesane extractable hydrocomos by GC-FID         603           Soil         D         Franction Degratic Cathon         FiDe (CIC) Cathon Degratic Cathon         602           Soil         D         Franction Degratic Cathon         FiDe (CIC) Cathon Degratic Cathon         603           Soil         D         FoC (Fraction Degratic Cathon         FiDe (CIC) Cathon Degratic Catho	Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil         AR         Desel Range Organics (210 - C24)         Determination of hexane/actenic extractable hydrocarbons by CC-FID         E804           Soil         AR         Bischical Conductivity         Determination of electrical conductivity by addition of submeted calcum subplate followed by electrometric measurement         E022           Soil         AR         Bischical Conductivity         Determination of electrical conductivity by addition of submeted calcum by CC-MS         E023           Soil         AR         Determination of electrical conductivity by addition of submeted calcum by CC-MS         E024           Soil         AR         Determination of electrical conductivity by addition of submeted calcum by CC-MS         E004           Soil         AR         Determination of actore/hexane extractable hydrocarbons by CC-HD         E004           Soil         AR         Determination of relacide by extraction with water & analysed by lon chromatography         E007           Soil         D         Fraction Organic Carbon         Determination of TC-D combination analyser.         E007           Soil         D         Fraction Organic Carbon         Determination of TC-D combination analyser.         E007           Soil         D         Fraction Organic Carbon         Determination of TC-D combination analyser.         E002           Soil         D         Fractin Organic Carbon	Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Sol         AR         Electrical Conductivity         Determination of electrical conductivity by addition of saturated calcium sulphate followed by         E022           Sol         AR         Electrical Conductivity         Determination of electrical conductivity by addition of water followed by electrometric measurement         E033           Sol         D         Electrical Conductivity         Determination of electrical conductivity by solvent extraction followed by electrometric measurement         E030           Sol         AR         Electrical Conductivity         Determination of automalisation solution by solvent extraction followed by electrometric measurement         E030           Sol         AR         EMP fractular Conductivity         Determination of automalisation solution by solvent extraction with water & analysed by ion chromatography         E030           Sol         D         Fractular Conductivity         Electrical Conductivity         Electritity         Electrical	Soil		Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soli         AR         Electrical Conductivity         Determination         CP22           Soli         D         Electrical Conductivity         Determination         of electrical conductivity by addition of water followed by electrometric measurement         E023           Soli         AR         Electrical Conductivity         Determination of electrical conductivity by addition of water followed by GC-MS         E023           Soli         AR         EPH TEXK (FCA (S-C) (C-1) CL2)         E014         E014         E014           Soli         AR         EPH TEXK (FCA (S-C) (C-1) CL2)         E014         E014         E014           Soli         D         Protoine View Follower Book         E014         E027         E014         E027           Soli         D         Protoine View Follower Book         E024         E027         E027         E027           Soli         D         Toro C (Total Organic Carbon (Poet (C-1))         E024         E027	Soil	AR	Diesel Range Organics (C10 - C24)		E004
Sail         D         Elemental Solution         Determination of elemental subput by colonet extraction followed by GC-MS         6020           Soil         AR         EPH FModul ID determination of actors/heame extractable hydrocarbons by GC-FID         6004           Soil         AR         EPH FModul ID determination of actors/heame extractable hydrocarbons by GC-FID for CB to C40. C6 to C8 by         6004           Soil         AR         EPH TMS4 (FCs, C8: C40: C10. C12). Determination of actors/heame extractable hydrocarbons by GC-FID for CB to C40. C6 to C8 by         6004           Soil         D         Fraction Organic Carbon (FOC)         Determination of T&OC by consistion analyser.         6027           Soil         D         Fraction Organic Carbon (FOC)         Determination of Cb by consistion analyser.         6027           Soil         D         Fraction Organic Carbon (FOC)         Determination of Actors analyser.         6027           Soil         D         FOC (Fraction Organic Carbon)         Pattermination of Actors analyser.         6025           Soil         D         Loss on Ignition @ 450c         Determination of Issoin gipsition in soil by grawimetrically with the sample being ignited in a muffle         6002           Soil         D         Micrael OI (CIO)         Determination of nated actors analyser.         6003           Soil         AR         M	Soil	AR	Electrical Conductivity		E022
Soil         AR         EPH (C10 – C40) Determination of acctors/preame extractable hydrocarbons by CC-FID         E004           Soil         AR         EPH TEXAS (C6-C8, C3-C10, C10-C12)         Better instain of acctors/preame extractable hydrocarbons by CC-FID for C8 to C40. C6 to C8 by         E004           Soil         AR         EPH TEXAS (C6-C8, C3-C10, C10-C12, Determination of acctors/preame extractable hydrocarbons by CG-FID for C8 to C40. C6 to C8 by         E004           Soil         D         Floatide - Water Soluble Determination of T0C by combustion analyser.         E027           Soil         D         Floatide - Water Soluble Determination of T0C by combustion analyser.         E027           Soil         D         TOC (Total Organic Carbon Determination of T0C by combustion analyser.         E027           Soil         AR         Exchanceable Annonkian         Determination of T0C by combustion analyser.         E023           Soil         D         FOC (Fractio Organic Carbon Determination of T0C by combustion analyser.         E023           Soil         D         Exchanceable Annonkian         Determination of totas to splate.         E025           Soil         D         Loss on Ignition (9 450C         Determination of netaxe yaar-egia digaction followed by LP-OES         E025           Soil         AR         Mineral Oil (C10 - C40)         Determination of netaxe yaaay-egia diga	Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	
Soil         AR         EPH Product ID         Etem ID <th< td=""><td>Soil</td><td></td><td>Elemental Sulphur</td><td>Determination of elemental sulphur by solvent extraction followed by GC-MS</td><td></td></th<>	Soil		Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	
Soli         AR         EPH TEXAS (C6-C8, C8-C10, C10-C12, Determination of acetore/hexane extractable hydrocarbons by GC-FID for C8 to C40, C6 to C8 by         E004           Solit         D         FNacrida	Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soli         Ark         C12/C16, C12(C1, C12(C1, C12(C1) peddsace GC-MS         Eton           Soli         D         Fluoride - Vister Soluble Determination of ToC by combustion analyser.         E009           Soli         D         Fluoride - Vister Soluble Determination of ToC by combustion analyser.         E027           Soli         D         Organic Carbon (PGO)         Determination of ToC by combustion analyser.         E027           Soli         D         ToC (Total Organic Carbon Determination of ToC by combustion analyser.         E027           Soli         D         FOC (Fraction Organic Carbon Determination of ToC by combustion analyser.         E029           Soli         D         Loss on Ignition @ 4500         Determination of fraction of organic carbon by oxication with the soluble hydrocarbon by oxication with the soluble hydrocarbon by oxication with solub hydrocarbon by oxication and with solub hydrocarbon by oxication with solub hydrocarb	Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Solit         D         Fluctide - Water Soluble Determination of Fluoride by extraction with water 8 analysed by ion chromatography         E002           Solit         D         Fraction Organic Carlon (CCD)         Determination of TCC by combustion analyser.         E027           Solit         D         TOC (Total Organic Carbon (CCD)         Determination of TCC by combustion analyser.         E027           Solit         D         TOC (Total Organic Carbon Determination of TCC by combustion analyser.         E023           Solit         D         FOC (Fraction Organic Carbon Determination of a granic arbon by soliding with potassium dichromate followed by ICP-OES         E025           Solit         D         Magnesium - Water Soluble Determination of metals by aquarequa digestion followed by ICP-OES         E025           Solit         AR         Mineral OII (CID - C40)         Determination of metals by aquarequa digestion followed by ICP-OES         E004           Solit         AR         Mineral OII (CID - C40)         Determination of metals by aquarequa digestion followed by ICP-OES         E005           Solit         D         Nitrate - Water Soluble (2:1)         Determination of metals by aquarequa digestion followed by ICP-OES         E005           Solit         D         Organic Matter         Gold (10 - C40)         Determination of metals by aquarequarequadingestion nith water & analysed by ion chromatography	Soil	AR			E004
Soil         D         Organic Matter (SOM)         Determination of TOC by combustion analyser.         E027           Soil         AR         Exchangeable Ammonium Determination of TOC by combustion analyser.         E029           Soil         D         TOC (Fract Organic Carbon)         Determination of a granic carbon by oxidising with potassium dichromate followed by E029         E029           Soil         D         Loss on Ignition (@ 4500         E019         E019           Soil         D         Magnesium - Vers Soluble         E019         E019           Soil         D         Magnesium - Vers Soluble         E019         E019         E019           Soil         AR         Mineral Oil (C10 - C40)         Determination of meane/acctone extractable hydrocarbons by GC-FID fractionality with SPE         E002           Soil         AR         Mineral Oil (C10 - C40)         Determination of nitrate by extraction with water followed by ICP-OES         E003           Soil         D         Nitrate - Water Soluble (2:1)         Determination of nitrate by extraction with water followed by ICP-OES         E003           Soil         AR         PAH - Speciated (EPA 10)         Determination of nitrate by extraction with water followed by ICP-OES         E003           Soil         AR         PAH - Speciated (EPA 10)         Determination of phace by ext	Soil				
Soil         D         TOC (Total Organic Carbon)         Determination of anomounity bidgreets analyser.         E027           Soil         AR         Exchangabile Ammonum Determination of anomounity bidgreets analyser.         E023           Soil         D         FOC (Fraction Organic Carbon)         Determination of anomounity bidgreets analyser.         E023           Soil         D         Loss on Ignition @ 450oc         Determination of mater soluble magnesium by variation with water followed by ICP-OES         E025           Soil         D         Magnesium - Water Soluble Determination of metals by acuar-regind digestion followed by ICP-OES         E003           Soil         AR         Mineral OII (C10 - C40)         Determination of metals by acuar-regind digestion followed by ICP-OES         E003           Soil         AR         Mineral OII (C10 - C40)         Determination of mater by acutaling digestion followed by ICP-OES         E003           Soil         AR         Mineral OII (C10 - C40)         Determination of antice by extraction with water & analysed by ion chromatography         E003           Soil         AR         PAH - Speciated (EPA L)         Determination of anomatics         Soil AR         PAH - Speciated (EPA L)         Determination of anomatics         Determination of anomatics         Determination of anomatics         E004           Soil         AR <td< td=""><td>Soil</td><td>D</td><td>Fraction Organic Carbon (FOC)</td><td>Determination of TOC by combustion analyser.</td><td>E027</td></td<>	Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil         AR         Exchangeable Ammonum         Determination of animonium by discrete analyser.         E029           Soil         D         FOC (Fraction Organic Carbon)         Potermination of fraction of organic chorbon by oxiding with potassium dichromate followed by tration with iron (II) subpate.         E010           Soil         D         Magnesium - Water Soluble         Enternination of water soluble magnesium by extraction with water followed by ICP-OES         E022           Soil         AR         Minaral OII (CI) - C40)         Enternination of males by aquar-regia digestion followed by ICP-OES         E002           Soil         AR         Minaral OII (CI) - C40)         Enternination of mater soluble magnesium by extraction with water followed by ICP-OES         E003           Soil         AR         Minaral OII (CI) - C40)         Enternination of mane/actobe extractable hydrocarbons by CC-FID fractionating with SPE cartridge         E004           Soil         D         Nitrate - Water Soluble (CI) Determination of rinate by extraction with water & analysed by ion chromatography         E009           Soil         AR         PAH - Speciated (EPA 16)         Evertaction in acctance and hexane followed by GC-MS with the too fill by addition of water followed by cC-MS         E003           Soil         AR         PAH - Speciated (EPA 16)         Evertaction with water followed by CG-MS         E004           Soil	Soil				E027
Soil         D         FOC (Fraction Organic Carbon)         Determination of fraction of organic carbon by oxidising with potassium dichromate followed by         ED10           Soil         D         Loss on Ignition @ 4500C         Determination of fraction of organic carbon by oxidising with potassium dichromate followed by ICP-OES         ED23           Soil         D         Magnesium - Water Soluble         Determination of metals by quarregicial digestion followed by ICP-OES         ED03           Soil         AR         Mineral Oil (C10 - C40)         Determination of netals by quarregicial digestion followed by ICP-OES         ED04           Soil         AR         Moisture content; determined or antifacte by extraction with water followed by ICP-OES         ED04           Soil         D         Nitrate - Water Soluble (21)         Determination of netals by quarregication with water & analysed by ion chromatography         ED09           Soil         D         Organic Matter         Determination of PAH compands by extraction in actione and hexane followed by GC-MS with the go for surrotatic and internal standards         ED05           Soil         AR         PEn-7 Congeners         Determination of PAH compands by extraction with water & analysed by ion chromatography         ED01           Soil         AR         Phenols - To Congeners         Determination of PAH compands by extraction with water & analysed by ion chromatography         ED01	Soil	D			E027
Soil         D         FOC. (Fraction Organic Carbon) tration with iron (11) subpata <sup>-</sup> Construction         Hermitation of transact         Hermitation         He	Soil	AR	Exchangeable Ammonium		E029
Soil         D         Loss of ignition (# 9400 to the sould to the sould magnesium by extraction with water followed by LP-OES         E025           Soil         D         Magnesium-Water Soluble Determination of metals by aqua-regial diguestion followed by LP-OES         E025           Soil         AR         Mineral Oil (Cl0 - C40)         Determination of hexane/facteone extractable hydrocarbons by GC-FID fractionating with SPE control         E003           Soil         AR         Monetal Cl1 (L10 - C40)         Determination of netate by extraction with water & analysed by ion chromatography         E003           Soil         D         Organic Matter         Determination of and the second cl1 (L10 - C40)         Determination of analysis of second cl1 (L10 - C40)         Determination of analysis of the second cl1 (L10 - C40)         Determination of analysis of the second cl1 (L10 - C40)         Determination of analysis of the second cl1 (L10 - C40)         Determination of analysis of the second cl1 (L10 - C40)         Determination of analysis of the second cl1 (L10 - C40)         Determination of PAH to possign (L10 - C40)         Determination of PAH to posini PAH to possi	Soil	D	FOC (Fraction Organic Carbon)	5 , 5 ,	E010
Soil         D         Metals         Determination of metals by aqua-regial digastion followed by ICP-OES         E002           Soil         AR         Mineral Oil (C10 - C40)         Determination of hexane/actone extractable hydrocarbons by GC-FID fractionating with SPE         E004           Soil         AR         Moisture Content         Moisture content; determined gravimetrically         E003           Soil         D         Nitrate - Water Soluble (2:1) Determination of rurate by extraction with water & analysed by ion chromatography         E009           Soil         D         Organic Matter         Determination of organic matter by oxidising with potassium dichromate followed by GC-MS with the use of surrogate and internal standards.         E005           Soil         AR         PAH - Speciated (EPA 16)         Determination of PAE toxing determined through extraction with acetone and hexane followed by GC-MS with the use of surrogate and internal standards.         E005           Soil         AR         PAH - Speciated (EPA 16)         Determination of PAE toxing determined through extraction with acetone and hexane followed by GC-MS         E008           Soil         AR         PAH - Speciated (EPA 16)         Determination of phashta E- Water Soluble (2:1)         Determination of water soluble extraction with acetone and hexane followed by GC-MS         E008           Soil         AR         Phenols - Total (monohydric)         Determination of solab ter b	Soil	D	Loss on Ignition @ 450oC		E019
Soil         AR         Mineral OII (C10 - C40) articidag         Determination of hexane/actione extractable hydrocarbons by GC-FID fractionating with SPE articidag         E003           Soil         AR         Moisture Content Moisture content; determination of nutrate by extraction with water & analysed by ion chromatography         E003           Soil         D         Nitrate - Water Soluble (2:1) Determination of organic matter by oxidising with potassium dichromate followed by titration with performance of organic matter by oxidising with potassium dichromate followed by GC-MS with the use of surrogate and internal standards         E003           Soil         AR         PAH - Speciated (EPA 16)         Determination of PAB to compounds by extraction in acetone and hexane followed by GC-MS         E006           Soil         AR         PAH - Speciated (EPA 16)         Determination of PAB to addition of water followed by electrometric measurement         E007           Soil         AR         PAH - Speciate (PEB Gravimetrically determined followed by colorimetry         E001           Soil         AR         Phenols - Total (monohydric) Determination of subhate by extraction with acets analysed by ion chromatography.         E003           Soil         D         Phosphate - Water Soluble (2:1) Determination of subhate by extraction with water & analysed by ion chromatography.         E001           Soil         AR         Phenols - Total (monohydric) Determination of subhate by extraction with water & analysed by ion chr	Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil     AR     mineral Oli (C10-C40)     cartridge     EU04       Soil     AR     Molsture Content Molsture content; determined gravimetrically     E003       Soil     D     Nitrate - Water Soluble (2:1)     Determination of organic matter by oxidising with potassium dichromate followed by titration with e010     E009       Soil     AR     PAH - Speciated (EPA 16)     Determination of PAR tompounds by extraction in acetone and hexane followed by GC-MS     E008       Soil     AR     PAH - Speciated (EPA 16)     Determination of PAB by extraction with acetone and hexane followed by GC-MS     E008       Soil     AR     PAB - Speciated (EPA 16)     Determination of PAB by extraction with acetone and hexane followed by GC-MS     E008       Soil     AR     PER-Our Entrat (FEB Gravimetrically determined trongly extraction with acetone and hexane followed by GC-MS     E009       Soil     AR     Pheroles: Total (monohydric) Determination of PAB by extraction with acetone and hexane followed by ICP-DES     E001       Soil     D     Pheroles: Total (monohydric) Determination of phenols by extraction with acet analysed by ion chromatography     E009       Soil     D     Sulphate (as SOA) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography     E003       Soil     D     Sulphate (as SOA) - Water Soluble (2:1) Determination of sulphate by extraction with water & analysed by ion chromatography     E003 <td>Soil</td> <td>D</td> <td>Metals</td> <td>Determination of metals by aqua-regia digestion followed by ICP-OES</td> <td>E002</td>	Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
SoilDNitrate - Water Soluble (2:1)Determination of nitrate by extraction with water & analysed by ion chromatographyE009SoilDOrganic MatterDetermination of organic matter by oxidising with potassium dichromate followed by GC-MS with the use of surrogate and internal standardsE010SoilARPAH - Speciated (EPA 16)Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standardsE003SoilARPCB - 7 CongenersDetermination of PAH compounds by extraction with petroleum etherE001SoilARPhenols - Total (monohydric)Determination of PAB by extraction with acet & analysed by ion chromatographyE009SoilDPhenols - Total (monohydric)Determination of phenols by distillation followed by colorimetryE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilARSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilARSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE004SoilAR<	Soil	AR	Mineral Oil (C10 - C40)		E004
SoilDOrganic Matther Ion (1) sulphate betermination of organic matter by oxidising with potassium dichromate followed by titration with iron (11) sulphate iron (11) sulphate iron (11) sulphate and of PAH compounds by extraction in acetone and hexane followed by GC-MS with the get surrogate and internal standardsE010SoilARPCB - 7 Congeners Determination of PAH compounds by extraction with acetone and hexane followed by GC-MS with the get aurogate and internal standardsE000SoilDPetroleum Ether Extract (PEE) Gravimetrically determined through extraction with acetone and hexane followed by electrometric measurementE001SoilARPhenols - Total (monohydric) Determination of phenols by distiliation followed by colorimetryE003SoilDPhosphate - Vater Soluble (211) Determination of bandate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Vater Soluble (211) Determination of sulphate by extraction with water & analysed by ion chromatographyE003SoilDSulphate (as SO4) - Water Soluble (211) Determination of soulphate by extraction with water followed by ICP-OESE014SoilARSulphate (as SO4) - Water Soluble (211) Determination of semi-voluble sulphate by extraction with water & analysed by ion chromatographyE008SoilARSulphiteDetermination of semi-voluble sulphate by extraction with water followed by ICP-OESE014SoilARSulphiteDetermination of semi-voluble sulphate by extraction with water followed by ICP-OESE024SoilARThiocyanate (as SCN)<	Soil	AR			E003
SoilDOrganic Matther Ion (1) sulphate betermination of organic matter by oxidising with potassium dichromate followed by titration with iron (11) sulphate iron (11) sulphate iron (11) sulphate and of PAH compounds by extraction in acetone and hexane followed by GC-MS with the get surrogate and internal standardsE010SoilARPCB - 7 Congeners Determination of PAH compounds by extraction with acetone and hexane followed by GC-MS with the get aurogate and internal standardsE000SoilDPetroleum Ether Extract (PEE) Gravimetrically determined through extraction with acetone and hexane followed by electrometric measurementE001SoilARPhenols - Total (monohydric) Determination of phenols by distiliation followed by colorimetryE003SoilDPhosphate - Vater Soluble (211) Determination of bandate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Vater Soluble (211) Determination of sulphate by extraction with water & analysed by ion chromatographyE003SoilDSulphate (as SO4) - Water Soluble (211) Determination of soulphate by extraction with water followed by ICP-OESE014SoilARSulphate (as SO4) - Water Soluble (211) Determination of semi-voluble sulphate by extraction with water & analysed by ion chromatographyE008SoilARSulphiteDetermination of semi-voluble sulphate by extraction with water followed by ICP-OESE014SoilARSulphiteDetermination of semi-voluble sulphate by extraction with water followed by ICP-OESE024SoilARThiocyanate (as SCN)<	Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
SoilARPAR - speciated (PA 10)use of surrogate and internal standardsEUGSSoilARPetroleum Ether Extract (PEE) Gravimetrically determined through extraction with petroleum etherE008SoilARPetroleum Ether Extract (PEE) Gravimetrically determined through extraction with petroleum etherE001SoilARPhenols - Total (monohydric)Determination of phenols by distillation of Nater followed by electrometric measurementE002SoilDPhosphate - Water Soluble (2:1)Determination of phosphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilARSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE003SoilARSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE003SoilARSulphate (as SO4)Determination of sulphide by extraction with aqua-regia followed by ICP-OESE014SoilDToluene Extractable Mater (TEM)Germination of seni-volatile organic compounds by extraction in caustic soda followed by acidificat	Soil	D		Determination of organic matter by oxidising with potassium dichromate followed by titration with	E010
SoilDPetroleum Ether Extract (PEE)Gravimetrically determined through extraction with petroleum etherE011SoilARphenols - Total (monohydric)Determination of phenols by distillation followed by colorimetryE021SoilDPhosphate - Water Soluble (2:1)Determination of phenols by distillation followed by colorimetryE003SoilDSulphate (as SO4) - TotalDetermination of phosphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of water soluble sulphate by extraction with water followed by ICP-OESE013SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of semi-volatile organic compounds by extraction in the water followed by ICP-OESE014SoilARSulphate (as SO4)Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by addition of ferric nitrate followed by extraction with tolueneE017SoilARThiocyanate (as SCN)Determination of organic matter by oxidising with potassium dichromate followed by titration with ron (11) sulphateE011SoilDTotal organic Carbon (TOC)Determination of nexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C23, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C23, C35-C44, cartridge for C8 to C35. C5 to C8 by headspace GC-MS <t< td=""><td>Soil</td><td>AR</td><td>PAH - Speciated (EPA 16)</td><td></td><td>E005</td></t<>	Soil	AR	PAH - Speciated (EPA 16)		E005
SoilARmphDetermination of pH by addition of water followed by electrometric measurementE007SoilDPhenols - Total (monohydric)Determination of phosphate by extraction with vater & analysed by ion chromatographyE021SoilDSulphate (as SO4) - totalDetermination of total sulphate by extraction with 10% HCI followed by ICP-OESE013SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water followed by ICP-OESE014SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water followed by ICP-OESE014SoilARSulphate (as SO4) - TotalDetermination of sulphate by extraction with aqua-regia followed by ICP-OESE014SoilARSulphate (as SO4)Determination of sulphate by extraction with aqua-regia followed by ICP-OESE024SoilARThiocyanate (as SCN)Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by colonimetryE006SoilARThiocyanate (as SCN)Determination of organic matter by oxidising with potassium dichromate followed by titration with ron (11) sulphateE011SoilDTotal Organic Carbon (TOC) Clo-C12, Cl2-C16, Cl6-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, Cl0-C12, Cl2-C16, Cl6-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, Cl0-C12, Cl2-C16, Cl6-C21, C21-C34, cl2-C16, Cl6-C21, C21-C21, cl2-C16, Cl6-C21, C21-C21, <br< td=""><td>Soil</td><td>AR</td><td>PCB - 7 Congeners</td><td>Determination of PCB by extraction with acetone and hexane followed by GC-MS</td><td>E008</td></br<>	Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
SoilARmphDetermination of pH by addition of water followed by electrometric measurementE007SoilDPhenols - Total (monohydric)Determination of phosphate by extraction with vater & analysed by ion chromatographyE021SoilDSulphate (as SO4) - totalDetermination of total sulphate by extraction with 10% HCI followed by ICP-OESE013SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water followed by ICP-OESE014SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water followed by ICP-OESE014SoilARSulphate (as SO4) - TotalDetermination of sulphate by extraction with aqua-regia followed by ICP-OESE014SoilARSulphate (as SO4)Determination of sulphate by extraction with aqua-regia followed by ICP-OESE024SoilARThiocyanate (as SCN)Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by colonimetryE006SoilARThiocyanate (as SCN)Determination of organic matter by oxidising with potassium dichromate followed by titration with ron (11) sulphateE011SoilDTotal Organic Carbon (TOC) Clo-C12, Cl2-C16, Cl6-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, Cl0-C12, Cl2-C16, Cl6-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, Cl0-C12, Cl2-C16, Cl6-C21, C21-C34, cl2-C16, Cl6-C21, C21-C21, cl2-C16, Cl6-C21, C21-C21, <br< td=""><td>Soil</td><td>D</td><td>Petroleum Ether Extract (PEE)</td><td>Gravimetrically determined through extraction with petroleum ether</td><td>E011</td></br<>	Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
SoilDPhosphate - Water Soluble (2:1)Determination of phosphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Total Determination of subphate by extraction with 10% HCI followed by ICP-OESE013SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water followed by ICP-OESE014SoilARSulphate (as SO4) - Total Determination of sulphate by extraction with aquar-regia followed by ICP-OESE024SoilDSulphate (as SO4) - Total Determination of the subphate by extraction with aquar-regia followed by ICP-OESE024SoilARSulphate (as SO4)Determination of thicyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetryE017SoilDToluene Extractable Matter (TEM) Gravimetrically determined through extraction with tolueneE011SoilDTotal Organic Carbon (TOC)Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, cartridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, cartridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16	Soil	AR			E007
SoilDSulphate (as SO4) - TotalDetermination of total sulphate by extraction with 10% HCI followed by ICP-OESE013SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE003SoilARSulphate (as SO4) - TotalDetermination of sulphate by extraction with aqua-regia followed by ICP-OESE014SoilDSulphur - TotalDetermination of sulphate by extraction with aqua-regia followed by ICP-OESE024SoilARSVOCDetermination of sulphate by extraction in caustic soda followed by ICP-OESE024SoilARThiocyanate (as SCN)Determination of total sulphur by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetryE017SoilDTotal Organic Carbon (TOC)Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE011SoilDTotal Organic Carbon (TOC)Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE arc: C5-C7, C7-C8, C8-C10, C10-C12, c12-C16, C16-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, C10-C12, c13-C16, C16-C21, C21-C35,E004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C12-C16, C16-C21, C21-C35, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C35, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C35, C35-C44, arc: C5-C7, C7-C8, C	Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water & analysed by ion chromatographyE009SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with water followed by ICP-OESE014SoilARSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by distillation followed by colorimetryE018SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of sulphate by extraction with aqua-regia followed by ICP-OESE014SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of total sulphur by extraction with aqua-regia followed by ICP-OESE024SoilARSulphate (as SO4)Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MSE006SoilARThiocyanate (as SCN)Determination of thiocyanate by extraction with tolueneE017SoilDToluene Extractable Matter (TEM) Gravimetrically detrate followed by colorimetryE011SoilDTotal Organic Carbon (TOC)Determination of erganic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE011SoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C48, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C48, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C48, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro:	Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
SoilDSulphate (as SO4) - Water Soluble (2:1)Determination of water soluble sulphate by extraction with water followed by ICP-OESE014SoilARSulphur - TotalDetermination of sulphide by distillation followed by colorimetryE023SoilARSulphur - TotalDetermination of sulphide by distillation followed by colorimetryE006SoilARStocDetermination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MSE007SoilARThiocyanate (as SCN)Determination of ferric nitrate followed by colorimetry addition of ferric nitrate followed by colorimetryE017SoilDTotal Organic Carbon (TOC)Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE010SoilDTotal Organic Carbon (TOC)Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C	Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
SoilARMathematical SoluptionE018SoilDSulphur - TotalDetermination of sulphide by distillation followed by colorimetryE024SoilARCMCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	Soil	D			E009
SoilDSulphur - TotalDetermination of total sulphur by extraction with aqua-regia followed by ICP-OESE024SoilARSVOCDetermination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MSE006SoilARThiocyanate (as SCN)Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetryE017SoilDToluene Extractable Matter (TEM)Gravimetrically determined through extraction with tolueneE011SoilDTotal Organic Carbon (TOC)Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE010SoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44,Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44,Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44,Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C44. C5 t	Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
SoilARSVCCDetermination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MSE006SoilARThiocyanate (as SCN)Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetryE017SoilDToluene Extractable Matter (TEM)Gravimetrically determined through extraction with tolueneE011SoilDTotal Organic Carbon (TOC)Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE010SoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, C12-C16, C16-C21, C21-C35Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, are: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, cartridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARVPH (C6-C8 & C8-C10) Determination of volatile organic compounds by headspace GC-MSE001SoilARVPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MSE001					
SoilARConceptionConceptionSoilARThiocyanate (as SCN)Determination of thiocyanate followed by colorimetry addition of ferric nitrate followed by colorimetry addition of ferric nitrate followed by colorimetryE017SoilDToluene Extractable Matter (TEM) Total Organic Carbon (TOC)Determination of horganic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE011SoilDTotal Organic Carbon (TOC) C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C12-C16, C16-C21, C21-C35, cartridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, cartridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilAROCDetermination of volatile organic compounds by headspace GC-MSE001SoilARVPH (C6-C8 & C8-C10) C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, Determination of hoxane/acetone extractable hydrocarbons by GC-FID fractionating with SPE aro: C5-C7, C7-C8, C8-C10, C10-C12, c12-C16, C16-C21, C21-C35, C35-C44,E001	Soil	D	Sulphur - Total		E024
SoilARThiocyalate (a SCN) addition of ferric nitrate followed by colorimetry addition of ferric nitrate followed by colorimetryED17SoilDToluene Extractable Matter (TEM)Gravimetrically determined through extraction with tolueneE011SoilDTotal Organic Carbon (TOC)Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE010SoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, cartridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARVPH (C6-C8 & C8-C10) C12-C16, C16-C21, C21-C35, C35-C44, C12-C16, C16-C21, C21-C35, C35-C44, cartridge for C8 to C44. C5 to C8 by headspace GC-MSE001SoilARVPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MSE001	Soil	AR	SVOC		E006
SoilDToluene Extractable Matter (TEM) Gravimetrically determined through extraction with tolueneE011SoilDTotal Organic Carbon (TCO) Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphateE010SoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35betermination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, artridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44,betermination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44E001SoilARTOTAL OPDE C10-C12, C12-C16, C16-C21, C21-C35, C35-C44E001SoilARVPH (C6-C8 & C8-C10)Determination of hydrocarbons C6-C8 by headspace GC-MSE001	Soil	AR	Thiocyanate (as SCN)		E017
SoilDTotal Organic Carbon (TOC) iron (II) sulphateTotal Organic Carbon (TOC) EDIOSoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE 	Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
SoilARTPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE artridge for C8 to C35. C5 to C8 by headspace GC-MSE004SoilARTPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, arc: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44, c12-C16, C16-C21, C21-C35, C35-C44, c1		D		Determination of organic matter by oxidising with potassium dichromate followed by titration with	
SoilARC10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MSE004SoilARVOCsDetermination of volatile organic compounds by headspace GC-MSE001SoilARVPH (C6-C8 & C8-C10)Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FIDE001	Soil	AR	C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12,	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE	E004
Soil AR VPH (C6-C8 & C8-C10) Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID E001			C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	cartridge for C8 to C44. C5 to C8 by headspace GC-MS	
D Dried			VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001





List of HWOL Acronyms and Operators
DETS Report No: 23-15524
Earth Environmental & Geotechnical (Southern Ltd)
Site Reference: Berwick Farm
Project / Job Ref: B3326
Order No: B3326/CK/20122023
Reporting Date: 03/01/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
1	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS



# **APPENDIX 6**

# WASTE CLASSIFICATION REPORT



# Waste Classification Report

HazWasteOnline <sup>™</sup> classifies waste as either <b>hazardous</b> or <b>non-hazardous</b> based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to: a) understand the origin of the waste b) select the correct List of Waste code(s) c) confirm that the list of determinands, results and sampling plan are fit for purpose d) select and justify the chosen metal species (Appendix B) e) correctly apply moisture correction and other available corrections f) add the meta data for their user-defined substances (Appendix A) g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)				
	tory results, assumptions and justifications manage	d by the classifier are highlighted in pale yellow.		
Job name				
Berwick Farm				
Description/Commen	ts			
<b>D</b> uction				
Project B3326		Site		
B3326				
Classified by				
Name:	Company:	HazWasteOnline™ provides a two day, hazardous waste cla use of the software and both basic and advanced waste clas		
Simon Leat Date:	Earth Environmental & Geotechnical Ltd Houldsworth Mill Business & Arts Centre			
26 Jan 2024 11:54 GMT	Houldsworth Street	HazWasteOnline™ Certification:	-	
Telephone:	Stockport	<b>Course</b> Hazardous Waste Classification	Date	
0161 975 6088	SK5 6DA	Hazardous waste classification	-	
Purpose of classificat	tion			
2 - Material Characterisati	on			
Address of the waste		Deci	Code BS10 7RS	
Berwick Lane, Hallen		Fost		
SIC for the process g	iving rise to the waste			
41202 Construction of dor	nestic buildings			
Description of indust	ry/producer giving rise to the waste			
Redevelopment of site by				
redevelopment of site by				
Description of the spe	ecific process, sub-process and/or ac	tivity that created the waste		
Groundworks				
Description of the wa	ste			

Made Ground, natural clay



### Job summary

· · · · · · · · · · · · · · · · · · ·				
Sample name	Depth [m]	Classification Result	Hazard properties	Page
HP01	0.30 - 0.40	Non Hazardous		3
HP02	0.35 - 0.45	Non Hazardous		5
HP03	0.20 - 0.30	Non Hazardous		7
HP04	0.40 - 0.50	Non Hazardous		9
HP05	0.30 - 0.40	Non Hazardous		11
HP06	0.10 - 0.20	Non Hazardous		13
HP07	0.05 - 0.15	Non Hazardous		15
HP08	0.05 - 0.15	Hazardous	HP 14	17
	Sample name HP01 HP02 HP03 HP04 HP05 HP06 HP07	Sample name         Depth [m]           HP01         0.30 - 0.40           HP02         0.35 - 0.45           HP03         0.20 - 0.30           HP04         0.40 - 0.50           HP05         0.30 - 0.40           HP06         0.10 - 0.20           HP07         0.05 - 0.15	Sample name         Depth [m]         Classification Result           HP01         0.30 - 0.40         Non Hazardous           HP02         0.35 - 0.45         Non Hazardous           HP03         0.20 - 0.30         Non Hazardous           HP04         0.40 - 0.50         Non Hazardous           HP05         0.30 - 0.40         Non Hazardous           HP06         0.10 - 0.20         Non Hazardous           HP07         0.05 - 0.15         Non Hazardous	Sample nameDepth [m]Classification ResultHazard propertiesHP010.30 - 0.40Non HazardousHP020.35 - 0.45Non HazardousHP030.20 - 0.30Non HazardousHP040.40 - 0.50Non HazardousHP050.30 - 0.40Non HazardousHP060.10 - 0.20Non HazardousHP070.05 - 0.15Non Hazardous

### **Related documents**

# Name	Description
1 Example waste stream template for contaminated soils	waste stream template used to create this Job

### Report

Created by: Simon Leat	Created date: 26 Jan 2024 11:54 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	20
Appendix B: Rationale for selection of metal species	21
Appendix C: Version	22



### **Classification of sample: HP01**



#### Sample details

LoW Code:	
Chapter:	17: Construction and Demolition Wastes (including excavated soil
	from contaminated sites)
Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05
	03)
	Chapter:

### Hazard properties

None identified

#### Determinands

Moisture content: 23.5% Wet Weight Moisture Correction applied (MC)

#		EU CLP index EC Number CAS Number		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used	
1	4	arsenic { arsenic tr	i <mark>oxide</mark> } 215-481-4	1327-53-3		17	mg/kg	1.32	17.171	mg/kg	0.00172 %	√	
2	4	beryllium { berylliu		1304-56-9		1.1	mg/kg	2.775	2.335	mg/kg	0.000234 %	√	
3	4	boron { diboron tric	1	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %	Γ	<lod< th=""></lod<>
4	4	cadmium { cadmiu		1306-19-0		6	mg/kg	1.142	5.243	mg/kg	0.000524 %	~	
5	4	chromium in chrom <mark>chromium(III) oxide</mark>	nium(III) compound			31	mg/kg	1.462	34.661	mg/kg	0.00347 %	~	
6	~	chromium in chrom compounds, with th of compounds spe	nium(VI) compound	ds { chromium (VI) ium chromate and		<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< th=""></lod<>
		024-017-00-8							1				
7	4		215-270-7	lide }  1317-39-1		98	mg/kg	1.126	84.408	mg/kg	0.00844 %	$\checkmark$	
8	4	lead { lead chroma		7758-97-6	1	758	mg/kg	1.56	904.49	mg/kg	0.058 %	$\checkmark$	
9	4	mercury { mercury		7487-94-7		1.1	mg/kg	1.353	1.139	mg/kg	0.000114 %	$\checkmark$	
10	4	nickel { nickel chro		14721-18-7		29	mg/kg	2.976	66.028	mg/kg	0.0066 %	~	
11	4	selenium { nickel s	1	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %	Ľ	<lod< td=""></lod<>
12	4	zinc { zinc sulphate	1	7446-19-7 [1]		681	mg/kg	2.469	1286.417	mg/kg	0.129 %	~	
			231-793-3 [2]	7733-02-0 [2]									
13	•			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
14		tert-butyl methyl et 2-methoxy-2-methy 603-181-00-X		1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< th=""></lod<>
15		benzene	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< th=""></lod<>
		bor-020-00-8		1 -10-2	1				_				0 3 of 22

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#		Determinand		Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index EC Number CAS number	Number	CLP			Factor	-		value	MC /	Used
16		toluene			<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		601-021-00-3 203-625-9 108-88-	-3									
17	۲	ethylbenzene			<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
		601-023-00-4 202-849-4 100-41-	4									
		xylene										
18		601-022-00-9 202-422-2 [1] 95-47-6 203-396-5 [2] 106-42- 203-576-3 [3] 108-38- 215-535-7 [4] 1330-20	3 [2] 3 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
19	4	cyanides { salts of hydrogen cyanide with t exception of complex cyanides such as ferror ferricyanides and mercuric oxycyanide and th specified elsewhere in this Annex }	yanides,		<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>
		006-007-00-5										
20	۲	pH			7.4	рН		7.4	рН	7.4 pH		
		PH										
21		naphthalene			0.17	mg/kg		0.13	mg/kg	0.000013 %	$\checkmark$	
		601-052-00-2 202-049-5 91-20-3							-			
22	۲	acenaphthylene	0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		205-917-1 208-96-	.8								H	
23	۲	acenaphthene bot too c bo as c			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		201-469-6 83-32-9									H	
24	۲	fluorene			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		201-695-5 86-73-7										
25	۲	phenanthrene			0.59	mg/kg		0.451	mg/kg	0.0000451 %	$\checkmark$	
		201-581-5 85-01-8		_								
26	8	anthracene bod 271 1 l 20 12	7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		204-371-1 120-12- fluoranthene	1	_								
27	۲	205-912-4 206-44-	0		0.63	mg/kg		0.482	mg/kg	0.0000482 %	$\checkmark$	
			.0	_								
28	۲	204-927-3 129-00-	0		0.58	mg/kg		0.444	mg/kg	0.0000444 %	$\checkmark$	
			0									
29		benzo[a]anthracene 601-033-00-9 200-280-6 56-55-3			0.21	mg/kg		0.161	mg/kg	0.0000161 %	$\checkmark$	
	-	ou1-033-00-9 200-280-6 p6-55-3 chrysene		_							$\vdash$	
30		601-048-00-0 205-923-4 218-01-	.9		0.33	mg/kg		0.252	mg/kg	0.0000252 %	$\checkmark$	
	-	benzo[b]fluoranthene	-	_						[	$\square$	
31		601-034-00-4 205-911-9 205-99	2		0.27	mg/kg		0.207	mg/kg	0.0000207 %	$\checkmark$	
		benzo[k]fluoranthene	-								Η	
32		601-036-00-5 205-916-6 207-08-	.9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		benzo[a]pyrene; benzo[def]chrysene									Ħ	
33		601-032-00-3 200-028-5 50-32-8			0.25	mg/kg		0.191	mg/kg	0.0000191 %	$\checkmark$	
		indeno[123-cd]pyrene			<u> </u>			<u> </u>		0.0000 1.01	H	
34	-	205-893-2 193-39	5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
0-		dibenz[a,h]anthracene			<u> </u>			<u> </u>		0.0000 + 04		1.65
35		601-041-00-2 200-181-8 53-70-3			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
0.0		benzo[ghi]perylene			<u> </u>			<u> </u>		0.0000 + 04	$\square$	
36	-	205-883-8 191-24	2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
0-		phenol								0.0000.01	$\square$	
37		604-001-00-2 203-632-7 108-95	2		<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>
							!		Total:	0.214 %	Г	

Key

ĸey	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
4	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



### **Classification of sample: HP02**



#### Sample details

LoW Code:	
Chapter:	17: Construction and Demolition Wastes (including excavated soil
	from contaminated sites)
Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05
	03)
	Chapter:

### Hazard properties

None identified

#### Determinands

Moisture content: 23.2% Wet Weight Moisture Correction applied (MC)

#		EU CLP index EC Number CAS Number		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used	
1	4	arsenic { arsenic tr	i <mark>oxide</mark> } 215-481-4	1327-53-3		21	mg/kg	1.32	21.294	mg/kg	0.00213 %	√	
2	~	beryllium { berylliu	1	1304-56-9	_	1.4	mg/kg	2.775	2.984	mg/kg	0.000298 %	~	
3	4	boron { diboron tric	1	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<lod< td=""></lod<>
4	~	cadmium { cadmiu 048-002-00-0	<mark>m oxide</mark> } 215-146-2	1306-19-0		3.8	mg/kg	1.142	3.334	mg/kg	0.000333 %	$\checkmark$	
5	4	chromium in chrom chromium(III) oxide	· · ·	is { •		21	mg/kg	1.462	23.572	mg/kg	0.00236 %	$\checkmark$	
6	4	chromium in chrom compounds, with the of compounds spe	nium(VI) compound	ds { chromium (VI) rium chromate and		<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< th=""></lod<>
		024-017-00-8											
7	4	copper { dicopper ( 029-002-00-X	<mark>oxide; copper (I) o</mark> 215-270-7			74	mg/kg	1.126	63.986	mg/kg	0.0064 %	$\checkmark$	
		lead { lead chroma		1317-39-1									
8	4		231-846-0	7758-97-6	1	381	mg/kg	1.56	456.414	mg/kg	0.0293 %	$\checkmark$	
9	2	mercury { mercury	dichloride }			4		4.050	4.050		0.000405.0/		
9		080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<lod< td=""></lod<>
10	4	nickel { <mark>nickel chro</mark>	mate }			27	mg/kg	2.976	61.716	mg/kg	0.00617 %	$\checkmark$	
			238-766-5	14721-18-7								ľ	
11	4	selenium { nickel s		45000 00 5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<lod< td=""></lod<>
<u> </u>			239-125-2	15060-62-5	-							-	
12	~		231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		540	mg/kg	2.469	1024.067	mg/kg	0.102 %	$\checkmark$	
13	۲	TPH (C6 to C40) p		ТРН	_	<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
14		tert-butyl methyl et 2-methoxy-2-methy	lpropane	1		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
<u> </u>	-		216-653-1	1634-04-4	-							-	
15		benzene 601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
_		ho zwooto online							_			_	0 5 of 22

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#		Determinand	Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index EC Number CAS Number	CLP			T actor			Value	MC /	Useu
16		toluene		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		601-021-00-3 203-625-9 108-88-3	_								
17	۲	ethylbenzene		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
		601-023-00-4 202-849-4 100-41-4	_								
18		xylene 601-022-00-9 202-422-2 [1] 95-47-6 [1] 203-396-5 [2] 106-42-3 [2] 203-576-3 [3] 108-38-3 [3] 215-535-7 [4] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< td=""></lod<>
19	4	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>
		pH	+							T	
20		PH	-	7.4	pН		7.4	рН	7.4 pH		
21		naphthalene 601-052-00-2 202-049-5  91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
22	0	acenaphthylene 205-917-1 208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
23	۲	acenaphthene 201-469-6 83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
24	٥	fluorene 201-695-5 86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
25	8	phenanthrene 201-581-5 85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
26	8	anthracene 204-371-1 120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
27	8	fluoranthene 205-912-4 206-44-0		0.17	mg/kg		0.131	mg/kg	0.0000131 %	$\checkmark$	
28	0	pyrene 204-927-3 129-00-0		0.14	mg/kg		0.108	mg/kg	0.0000108 %	$\checkmark$	
29		benzo[a]anthracene 601-033-00-9 200-280-6 56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
30		chrysene 601-048-00-0 205-923-4 218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
31		benzo[b]fluoranthene 601-034-00-4 205-911-9 205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
32		benzo[k]fluoranthene 601-036-00-5 205-916-6 207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
33		benzo[a]pyrene; benzo[def]chrysene           601-032-00-3         200-028-5         50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
34	8	indeno[123-cd]pyrene 205-893-2 193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
35		dibenz[a,h]anthracene 601-041-00-2 200-181-8 53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
36	٥	benzo[ghi]perylene 205-883-8 191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
37		phenol 604-001-00-2 203-632-7 108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>
								Total:	0.156 %		

Key

ĸey	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
4	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



### **Classification of sample: HP03**



#### Sample details

uction and Demolition Wastes (including excavated soil minated sites)
minated sites)
Soil and stones other than those mentioned in 17 05

### Hazard properties

None identified

#### Determinands

Moisture content: 23.9% Wet Weight Moisture Correction applied (MC)

#		EU CLP index EC Number CAS Number		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used	
1	4	arsenic { arsenic tr	i <mark>oxide</mark> } 215-481-4	1327-53-3		12	mg/kg	1.32	12.057	mg/kg	0.00121 %	$\checkmark$	
2	4	beryllium { berylliu		1304-56-9		1.1	mg/kg	2.775	2.323	mg/kg	0.000232 %	~	
3	4	boron { diboron tric	1	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<lod< th=""></lod<>
4	4	cadmium { cadmiu		1306-19-0		5.6	mg/kg	1.142	4.868	mg/kg	0.000487 %	~	
5	4	chromium in chrom <mark>chromium(III) oxide</mark>	nium(III) compound			21	mg/kg	1.462	23.357	mg/kg	0.00234 %	~	
6	4	chromium in chrom compounds, with th of compounds spe	nium(VI) compound	ds { chromium (VI) ium chromate and		<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %	ſ	<lod< th=""></lod<>
		024-017-00-8 copper { dicopper (	avida: connar (I) av									-	
7	4		215-270-7	1317-39-1	-	69	mg/kg	1.126	59.119	mg/kg	0.00591 %	$\checkmark$	
8	4		<mark>te</mark> } 231-846-0	7758-97-6	1	226	mg/kg	1.56	268.266	mg/kg	0.0172 %	$\checkmark$	
9	4	mercury { mercury		7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<lod< td=""></lod<>
10		nickel { nickel chro		14721-18-7		24	mg/kg	2.976	54.359	mg/kg	0.00544 %	~	
11	-	selenium { nickel s	1	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<lod< td=""></lod<>
12		zinc { zinc sulphate	1	7446-19-7 [1]		524	mg/kg	2.469	984.667	mg/kg	0.0985 %	~	
L			231-793-3 [2]	7733-02-0 [2]									
13				TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
14		tert-butyl methyl et 2-methoxy-2-methy 603-181-00-X		1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
15		benzene	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< th=""></lod<>
	1	bor-020-00-8		1 -10-2	1				_			_	0 7 of 22

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#		Determinand	Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index EC Number CAS Number	CLP			T actor			Value	MC /	Useu
16		toluene		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		601-021-00-3 <u>203-625-9</u> <u>108-88-3</u>	_								
17	0	ethylbenzene		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
		601-023-00-4 202-849-4 100-41-4									
18		xylene 601-022-00-9 202-422-2 [1] 95-47-6 [1] 203-396-5 [2] 106-42-3 [2] 203-576-3 [3] 108-38-3 [3] 215-535-7 [4] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< td=""></lod<>
19	*	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>
		pH		_			-		7.11		
20	-	PH	-	7	рН		7	рН	7pH		
21		naphthalene 601-052-00-2 202-049-5 91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
22	8	acenaphthylene 205-917-1 208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
23	۲	acenaphthene 201-469-6 83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
24	۲	fluorene 201-695-5 86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
25	8	phenanthrene 201-581-5 85-01-8	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
26	8	anthracene 204-371-1 120-12-7	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
27	۲	fluoranthene 205-912-4 206-44-0	_	0.18	mg/kg		0.137	mg/kg	0.0000137 %	$\checkmark$	
28	8	pyrene 204-927-3 129-00-0		0.16	mg/kg		0.122	mg/kg	0.0000122 %	$\checkmark$	
29		benzo[a]anthracene 601-033-00-9 200-280-6 56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
30		chrysene 601-048-00-0 205-923-4 218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
31		benzo[b]fluoranthene 601-034-00-4 205-911-9 205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
32		benzo[k]fluoranthene 601-036-00-5 205-916-6 207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
33		benzo[a]pyrene; benzo[def]chrysene 601-032-00-3 200-028-5 50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
34	8	indeno[123-cd]pyrene 205-893-2 193-39-5	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
35		dibenz[a,h]anthracene 601-041-00-2 200-181-8 53-70-3	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
36	0	benzo[ghi]perylene 205-883-8 191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
37		phenol 604-001-00-2 203-632-7 108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>
								Total:	0.137 %		

Key

ĸey	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
4	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



### **Classification of sample: HP04**



#### Sample details

LoW Code:	
Chapter:	17: Construction and Demolition Wastes (including excavated soil
	from contaminated sites)
Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05
	03)
	Chapter:

### Hazard properties

None identified

#### Determinands

Moisture content: 22.6% Wet Weight Moisture Correction applied (MC)

#		EU CLP index	Determinand EC Number	CAS Number	CLP Note	User entered	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
1	4	arsenic { arsenic tr		4007.50.0		9	mg/kg	1.32	9.197	mg/kg	0.00092 %	~	
2	4	033-003-00-0 beryllium { <mark>berylliu</mark> l	215-481-4 m oxide }	1327-53-3		1	mg/kg	2.775	2.148	mg/kg	0.000215 %	~	
_		004-003-00-8	215-133-1	1304-56-9								ľ	
3	4	boron {	<mark>xide</mark> } 215-125-8	1303-86-2	-	<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<lod< td=""></lod<>
4	4	•				1	mg/kg	1.142	0.884	mg/kg	0.0000884 %	$\checkmark$	
		048-002-00-0 215-146-2 1306-19-0		-									
5	4	chromium in chrom <mark>chromium(III) oxide</mark>	e (worst case) }	ls {		23	mg/kg	1.462	26.019	mg/kg	0.0026 %	$\checkmark$	
		215-160-9 1308-38-9											
6	4	compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< th=""></lod<>
		024-017-00-8											
7	4	copper { dicopper of		<mark>tide</mark> }		44	mg/kg	1.126	38.343	mg/kg	0.00383 %	$\checkmark$	
_		029-002-00-X	215-270-7	1317-39-1								ř	
8	4	lead { <mark>lead chroma</mark>	te }		1	74	mg/kg	1.56	89.34	mg/kg	0.00573 %	$\checkmark$	
			231-846-0	7758-97-6								Ľ	
9	4	mercury { mercury				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<lod< td=""></lod<>
			231-299-8	7487-94-7								H	
10	4	nickel { nickel chro				25	mg/kg	2.976	57.591	mg/kg	0.00576 %	$\checkmark$	
			238-766-5	14721-18-7									
11	4	selenium { nickel s 028-031-00-5	elenate }  239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<lod< td=""></lod<>
<u> </u>			1	15000-02-5	-								
12	4	zinc { zinc sulphate 030-006-00-9		7446-19-7 [1]		230	mg/kg	2.469	439.584	mg/kg	0.044 %	1	
			231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								ľ	
13		TPH (C6 to C40) petroleum group				<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
				TPH			59			39			
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane			<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>	
		603-181-00-X	216-653-1	1634-04-4									
15		benzene 601-020-00-8	200-753-7	71-43-2	_	<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< th=""></lod<>
_	1	hazwaataanlina		1					_				0.0 of 22

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#		Determinand	Note	User entere	ed data	Conv.	Compound c	onc.	Classification	MC Applied	Conc. Not
		EU CLP index EC Number CAS Nu number				Factor			value	MC A	Used
16		toluene		< 0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		601-021-00-3 203-625-9 108-88-3									
17	۲	ethylbenzene		< 0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< td=""></lod<>
		601-023-00-4 202-849-4 100-41-4									
		xylene									
18		601-022-00-9 202-422-2 [1] 95-47-6 [1 203-396-5 [2] 106-42-3 [ 203-576-3 [3] 108-38-3 [ 215-535-7 [4] 1330-20-7	2] 3]	<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< td=""></lod<>
19	4	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyan ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>
		006-007-00-5									
20	۲	pH		7.3	pН		7.3	pН	7.3 pH		
		PH									
21		naphthalene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		601-052-00-2 202-049-5 91-20-3									
22	۲	acenaphthylene 205-917-1 208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
23	۲	acenaphthene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		201-469-6 83-32-9									
24	۲	fluorene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		201-695-5 86-73-7									
25	۲	201-581-5 85-01-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		anthracene									
26		204-371-1 120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
	_	fluoranthene									
27		205-912-4 206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		pyrene									
28	۲	204-927-3 129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		benzo[a]anthracene									
29		601-033-00-9 200-280-6 56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		chrysene									
30		601-048-00-0 205-923-4 218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		benzo[b]fluoranthene									
31		601-034-00-4 205-911-9 205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
0.0		benzo[k]fluoranthene							0.00001.01		1.65
32		601-036-00-5 205-916-6 207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
20		benzo[a]pyrene; benzo[def]chrysene		.0.4			.0.4		.0.00004.0/		1.00
33		601-032-00-3 200-028-5 50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
24		indeno[123-cd]pyrene		-0.1	maller		-0.1	maller	-0.00001.0/		
34		205-893-2 193-39-5		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
25		dibenz[a,h]anthracene		-0.4	maller		-0.1	maller	<0.00001.0/		
35		601-041-00-2 200-181-8 53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
36		benzo[ghi]perylene		-0.1	maller		-0.1	maller	-0.00001.0/		100
30		205-883-8 191-24-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
37		phenol		<2	malka		<2	malka	<0.0002.9/		<lod< td=""></lod<>
51		604-001-00-2 203-632-7 108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<lud< td=""></lud<>
			·					Total:	0.0693 %		

Key

ney	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
0	Determinand defined or amended by HazWasteOnline (see Appendix A)
4	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



### **Classification of sample: HP05**



#### Sample details

LoW Code:	
Chapter:	17: Construction and Demolition Wastes (including excavated soil
	from contaminated sites)
Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05
	03)
	Chapter:

### Hazard properties

None identified

#### Determinands

Moisture content: 16.4% Wet Weight Moisture Correction applied (MC)

#	EU CLP index EC Number CAS Number		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used		
1	4	arsenic { arsenic tr	i <mark>oxide</mark> } 215-481-4	1327-53-3	-	8	mg/kg	1.32	8.83	mg/kg	0.000883 %	$\checkmark$	
2	~	beryllium { berylliu		1304-56-9		0.7	mg/kg	2.775	1.624	mg/kg	0.000162 %	~	
3	4	boron { diboron trioxide }           005-008-00-8         215-125-8         1303-86-2				<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<lod< th=""></lod<>
4	4	cadmium { cadmium oxide }           048-002-00-0         215-146-2         1306-19-0				0.8	mg/kg	1.142	0.764	mg/kg	0.0000764 %	$\checkmark$	
5	4	chromium in chrom chromium(III) oxide	· · ·	ls { •		15	mg/kg	1.462	18.328	mg/kg	0.00183 %	~	
6	4	chromium in chrom compounds, with th of compounds spe	nium(VI) compound	ds { chromium (VI) rium chromate and		<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< th=""></lod<>
		024-017-00-8										_	
7	4	copper { dicopper ( 029-002-00-X	<mark>bxide; copper (I) o</mark> 215-270-7	(Ide }  1317-39-1		38	mg/kg	1.126	35.767	mg/kg	0.00358 %	$\checkmark$	
-	2	lead { lead chroma		1317-39-1									
8	~	•	231-846-0	7758-97-6	1	79	mg/kg	1.56	103.016	mg/kg	0.0066 %	$\checkmark$	
9	4	mercury { mercury	dichloride }			<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<lod< td=""></lod<>
Ľ		080-010-00-X	231-299-8	7487-94-7				1.000		ing/kg			
10	4	nickel { nickel chro		4 4 7 9 4 4 9 7		16	mg/kg	2.976	39.811	mg/kg	0.00398 %	$\checkmark$	
		028-035-00-7 selenium {	238-766-5	14721-18-7									
11	4		239-125-2	15060-62-5	-	<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<lod< td=""></lod<>
	2	zinc { zinc sulphate	1										
12			231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		166	mg/kg	2.469	342.679	mg/kg	0.0343 %	$\checkmark$	
13	۵	TPH (C6 to C40) p	etroleum group	ТРН		<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
L	_		216-653-1	1634-04-4									
15		benzene 601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< th=""></lod<>
		hazwaataanlina							_				11 of 22

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#		Determinand	Note	User entere	ed data	Conv.	Compound c	onc.	Classification	MC Applied	Conc. Not
		EU CLP index EC Number CAS Number	CLP			Factor	·		value	MC A	Used
16		toluene		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		601-021-00-3 203-625-9 108-88-3									
17	۲	ethylbenzene		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< td=""></lod<>
		601-023-00-4 202-849-4 100-41-4									
		xylene									
18		601-022-00-9 202-422-2 [1] 95-47-6 [1] 203-396-5 [2] 106-42-3 [2] 203-576-3 [3] 108-38-3 [3] 215-535-7 [4] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<lod< td=""></lod<>
19	4	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>
		006-007-00-5									
20	۲	pH		7.5	pН		7.5	pН	7.5 pH		
-		PH									
21		naphthalene           601-052-00-2         202-049-5         91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
<u> </u>			_								
22	۲	acenaphthylene 205-917-1 208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		acenaphthene									
23	0	201-469-6 83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
-		fluorene									
24	۲	201-695-5 86-73-7	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		phenanthrene									
25		201-581-5 85-01-8	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		anthracene									
26		204-371-1 120-12-7	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
07		fluoranthene		0.4			0.4		0.00001.0/		1.00
27		205-912-4 206-44-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
28		pyrene		-0.1	~~~// <i>c</i>		.0.1		-0.00001.0/		<lod< td=""></lod<>
20		204-927-3 129-00-0		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
29		benzo[a]anthracene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
29		601-033-00-9 200-280-6 56-55-3		<0.1	шу/ку		<0.1	шу/ку	<0.00001 /8		<lod< td=""></lod<>
30		chrysene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		601-048-00-0 205-923-4 218-01-9		<b>NO.1</b>	ing/kg		<u> </u>	ing/kg			~200
31		benzo[b]fluoranthene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
Ľ		601-034-00-4 205-911-9 205-99-2									
32		benzo[k]fluoranthene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		601-036-00-5 205-916-6 207-08-9									-
33		benzo[a]pyrene; benzo[def]chrysene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
<u> </u>		601-032-00-3 200-028-5 50-32-8	_		5 5						
34	Θ	indeno[123-cd]pyrene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
<u> </u>		205-893-2 193-39-5	_								
35		dibenz[a,h]anthracene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		601-041-00-2 200-181-8 53-70-3									
36	۲	benzo[ghi]perylene		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		205-883-8 191-24-2	_								
37		phenol		<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>
		604-001-00-2 203-632-7 108-95-2						Total	0.0576 %		
								Total:	0.0070 %		

Key

Rey	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
0	Determinand defined or amended by HazWasteOnline (see Appendix A)
44	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



### **Classification of sample: HP06**



#### Sample details

Sample name:	LoW Code:	
HP06	Chapter:	17: Construction and Demolition Wastes (including excavated soil
Sample Depth:		from contaminated sites)
0.10 - 0.20 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05
Moisture content:		03)
13%		
(wet weight correction)		
, s		

### Hazard properties

None identified

#### Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand           EU CLP index number         EC Number         CAS Number		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used	
1	4	arsenic { arsenic tr 033-003-00-0	<mark>ioxide</mark> } 215-481-4	1327-53-3		17	mg/kg	1.32	19.528	mg/kg	0.00195 %	$\checkmark$	
2	4	beryllium { <mark>berylliu</mark>	1	1304-56-9		0.5	mg/kg	2.775	1.207	mg/kg	0.000121 %	$\checkmark$	
3	4	boron { diboron tric		1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<lod< td=""></lod<>
4	4	cadmium { cadmium oxide }           048-002-00-0         215-146-2         1306-19-0				9	mg/kg	1.142	8.944	mg/kg	0.000894 %	$\checkmark$	
5	4	chromium in chrom chromium(III) oxide		Is { •		10	mg/kg	1.462	12.716	mg/kg	0.00127 %	~	
6	4	chromium in chrom compounds, with th of compounds spe	nium(VI) compound	Is { chromium (VI) ium chromate and		<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< td=""></lod<>
7	<u>~</u>	024-017-00-8 copper { dicopper (	oxide; copper (I) ox	<mark>ide</mark> }	$\left  \right $			4.400	<u> </u>		0.00500.0/		
<u> </u>		029-002-00-X	215-270-7	1317-39-1		60	mg/kg	1.126	58.771	mg/kg	0.00588 %	$\checkmark$	
8	4	lead {	<mark>te</mark> } 231-846-0	7758-97-6	1	362	mg/kg	1.56	491.248	mg/kg	0.0315 %	$\checkmark$	
9	4	mercury { mercury 080-010-00-X	dichloride } 231-299-8	7487-94-7		1.1	mg/kg	1.353	1.295	mg/kg	0.00013 %	$\checkmark$	
10		nickel { nickel chro		14721-18-7		11	mg/kg	2.976	28.483	mg/kg	0.00285 %	$\checkmark$	
11	4	selenium { nickel s	1	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %	F	<lod< td=""></lod<>
-	2	zinc { zinc sulphate		10000 02 0									
12		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		674	mg/kg	2.469	1447.946	mg/kg	0.145 %	$\checkmark$	
13	0	TPH (C6 to C40) p	etroleum group	ТРН		<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< th=""></lod<>
14	I	tert-butyl methyl et 2-methoxy-2-methy	ylpropane			<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< th=""></lod<>
15		benzene	216-653-1	1634-04-4		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
	1	601-020-00-8	200-753-7	71-43-2		E2OAD (			_				12 of 22

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#			Determinand		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number	CLP			Factor			value	MC /	Used
16		toluene 601-021-00-3	203-625-9	108-88-3	_	<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		ethylbenzene	203-023-9	100-00-3	-								
17	۲	601-023-00-4	202-849-4	100-41-4	_	<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
-		xylene	202-049-4	100-41-4	-								
18		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
19	specified elsewhere in this Annex }			<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>		
	_	006-007-00-5 pH			+								
20	۲	P''		PH	_	7.5	рН		7.5	рН	7.5 pH		
21		naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
22	۲	acenaphthylene	205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
23	۲	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
20			201-469-6	83-32-9		<0.1	ing/kg		<0.1	ing/itg	<0.00001 /0		LOD
24	٥	fluorene	201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
25		phenanthrene	201-581-5	85-01-8		0.13	mg/kg		0.113	mg/kg	0.0000113 %	$\checkmark$	
26	8	anthracene	004 271 1	120-12-7	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
-		fluoranthene	204-371-1	120-12-7	-								
27	8		205-912-4	206-44-0	_	0.4	mg/kg		0.348	mg/kg	0.0000348 %	$\checkmark$	
		pyrene	205-912-4	200-44-0	-								
28			204-927-3	129-00-0		0.36	mg/kg		0.313	mg/kg	0.0000313 %	$\checkmark$	
29		benzo[a]anthracen 601-033-00-9	e 200-280-6	56-55-3		0.15	mg/kg		0.13	mg/kg	0.000013 %	$\checkmark$	
30		chrysene 601-048-00-0	205-923-4	218-01-9		0.26	mg/kg		0.226	mg/kg	0.0000226 %	$\checkmark$	
31		benzo[b]fluoranthe	ne	l		0.29	mg/kg		0.252	mg/kg	0.0000252 %	1	
32		601-034-00-4 benzo[k]fluoranthe	205-911-9 ne	205-99-2	+	<0.1	mg/kg		<0.1		<0.00001 %		<lod< td=""></lod<>
			205-916-6	207-08-9	1	<b>NO.1</b>	ing/kg		<b>NO.1</b>	mg/kg	<b>CO.00001</b> /0		
33		benzo[a]pyrene; be 601-032-00-3	enzo[def]chrysene 200-028-5	50-32-8		0.22	mg/kg		0.191	mg/kg	0.0000191 %	$\checkmark$	
34		indeno[123-cd]pyre	1	193-39-5		0.17	mg/kg		0.148	mg/kg	0.0000148 %	$\checkmark$	
35		dibenz[a,h]anthrac	ene	,		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
36	۲	benzo[ghi]perylene		53-70-3		0.14	mg/kg		0.122	mg/kg	0.0000122 %	√	
		phenol	205-883-8	191-24-2	-								
37		1.	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>
										Total:	0.196 %		

Key

ney	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
0	Determinand defined or amended by HazWasteOnline (see Appendix A)
4	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



### **Classification of sample: HP07**



#### Sample details

LoW Code:	
Chapter:	17: Construction and Demolition Wastes (including excavated soil
	from contaminated sites)
Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05
	03)
	Chapter:

### Hazard properties

None identified

#### Determinands

Moisture content: 11.5% Wet Weight Moisture Correction applied (MC)

#		EU CLP index EC Number CAS Number		CLP Note	User entere	d data	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used	
1	4	number arsenic { arsenic tr	<mark>ioxide</mark> }			7	mg/kg	1.32	8.179	mg/kg	0.000818 %	Z	
Ľ		033-003-00-0	215-481-4	1327-53-3					52 0.179			Ŷ	
2	4	beryllium {				0.6	mg/kg	2.775	1.474	mg/kg	0.000147 %	$\checkmark$	
			215-133-1	1304-56-9									
3	4	boron { diboron tric				<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<lod< td=""></lod<>
		005-008-00-8	215-125-8	1303-86-2									
4	4	cadmium {	•			2.9	mg/kg	1.142	2.932	mg/kg	0.000293 %	$\checkmark$	
		048-002-00-0	215-146-2	1306-19-0									
5	4	chromium in chrom chromium(III) oxide	· · ·	ls {		10	mg/kg	1.462	12.935	mg/kg	0.00129 %	$\checkmark$	
			215-160-9	1308-38-9									
6	4	chromium in chrom compounds, with the of compounds spe	nium(VI) compound	ds { chromium (VI) rium chromate and		<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< th=""></lod<>
		024-017-00-8											
7	4	copper { dicopper of		<mark>(ide</mark> }		49	mg/kg	1.126	48.824	mg/kg	0.00488 %	$\checkmark$	
		029-002-00-X	215-270-7	1317-39-1								*	
8	4	lead { lead chroma			1	143	mg/kg	1.56	197.402	mg/kg	0.0127 %	$\checkmark$	
		082-004-00-2	231-846-0	7758-97-6									
9	4	mercury { mercury				<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<lod< td=""></lod<>
		080-010-00-X	231-299-8	7487-94-7								_	
10	4	nickel { nickel chro				10	mg/kg	2.976	26.34	mg/kg	0.00263 %	$\checkmark$	
		028-035-00-7	238-766-5	14721-18-7									
11	4	selenium { nickel s		45000 00 5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<lod< td=""></lod<>
		028-031-00-5 239-125-2 15060-62-5											
12	4					439	mg/kg	2.469	959.359	mg/kg	0.0959 %	$\checkmark$	
12		030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		-00	mg/kg	2.403	000.000	mg/kg	0.0000 /0	Ŷ	
13		TPH (C6 to C40) p	etroleum group			<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
		ТРН			1	N72	ing/kg		<42	ing/kg	<b>10.0042</b> /0		LOD
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		603-181-00-X	216-653-1	1634-04-4			5 5			2 0			
15		benzene				<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< th=""></lod<>
		601-020-00-8	200-753-7	71-43-2		10.00Z			10.00Z		10.000002 /0		
													15 of 22

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#			Determinand		CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number	CLP			1 actor			Value	MC /	Useu
16		toluene 601-021-00-3	203-625-9	108-88-3	_	<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
		ethylbenzene	203-023-9	100-00-3									
17	۲	601-023-00-4	202-849-4	100-41-4	_	<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
		xylene	202-043-4	100-41-4								H	
18		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }			<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>		
	_	006-007-00-5 pH										H	
20	Θ	pri	1	PH	_	7.5	pН		7.5	рН	7.5 pH		
		naphthalene		ГП									
21		601-052-00-2	202-049-5	91-20-3	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		acenaphthylene	202-049-5	91-20-3									
22	۲	acenapritriyiene	205-917-1	208-96-8	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		acconceptitions	205-917-1	208-96-8								$\vdash$	
23	Θ	acenaphthene	201 460 6	02 22 0	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		fluorene	201-469-6	83-32-9									
24	۲	liuorene	201-695-5	06 70 7	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		nhananthrana	201-695-5	86-73-7								$\square$	
25	Θ	phenanthrene	201-581-5	85-01-8		0.24	mg/kg		0.212	mg/kg	0.0000212 %	$\checkmark$	
		anthracene	201-361-3	03-01-0	-								
26	8	antinacene	204-371-1	120-12-7	_	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
	_	fluoranthene	204-371-1	120-12-1	+							H	
27	۲	liuoranimene	205-912-4	206-44-0	_	0.73	mg/kg		0.646	mg/kg	0.0000646 %	$\checkmark$	
		pyrene	203-912-4	200-44-0									
28	8	pyrene	204-927-3	129-00-0	_	0.61	mg/kg		0.54	mg/kg	0.000054 %	$\checkmark$	
		benzo[a]anthracen		129-00-0									
29		601-033-00-9	200-280-6	56-55-3	-	0.19	mg/kg		0.168	mg/kg	0.0000168 %	$\checkmark$	
		chrysene	200 200 0	00 00 0									
30		601-048-00-0	205-923-4	218-01-9	-	0.35	mg/kg		0.31	mg/kg	0.000031 %	$\checkmark$	
		benzo[b]fluoranthe	Ļ	F.0 01 0								$\vdash$	
31			205-911-9	205-99-2	-	0.37	mg/kg		0.327	mg/kg	0.0000327 %	$\checkmark$	
		benzo[k]fluoranthe			+							$\square$	
32		601-036-00-5	205-916-6	207-08-9	-	0.12	mg/kg		0.106	mg/kg	0.0000106 %	$\checkmark$	
		benzo[a]pyrene; be	1	1									
33		601-032-00-3	200-028-5	50-32-8	-	0.28	mg/kg		0.248	mg/kg	0.0000248 %	$\checkmark$	
		indeno[123-cd]pyre									0.0000.000.00		
34			205-893-2	193-39-5	-	0.19	mg/kg		0.168	mg/kg	0.0000168 %	$\checkmark$	
25		dibenz[a,h]anthrac				.0.4			.0.4	m a //	-0.00004.0/		1.00
35		601-041-00-2	200-181-8	53-70-3	-	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
		benzo[ghi]perylene				0.47			0.45		0.000015.0/		
36			205-883-8	191-24-2	-	0.17	mg/kg		0.15	mg/kg	0.000015 %	$\checkmark$	
~-		phenol							•		0.0000.01		1.05
37		604-001-00-2	203-632-7	108-95-2	-	<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>
		1						l		Total:	0.125 %	Γ	

Key

n,	еу	
		User supplied data
		Determinand values ignored for classification, see column 'Conc. Not Used' for reason
G	D	Determinand defined or amended by HazWasteOnline (see Appendix A)
- 64	2	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<	LOD	Below limit of detection
С	LP: Note 1	Only the metal concentration has been used for classification



#### **Classification of sample: HP08**



### Sample details

LoW Code:	
Chapter:	17: Construction and Demolition Wastes (including excavated soil
	from contaminated sites)
Entry:	17 05 03 * (Soil and stones containing hazardous substances)
	Chapter:

### **Hazard properties**

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinand:

zinc sulphate: (compound conc.: 0.475%)

#### **Determinands**

Moisture content: 30.3% Wet Weight Moisture Correction applied (MC)

#		Determinand         Second		CLP Note	User entered d	ata	Conv. Factor	Compound	conc.	Classification value	MC Applied	Conc. Not Used	
1	4	arsenic { arsenic tr	<mark>ioxide</mark> }			46 m	g/kg	1.32	42.332	mg/kg	0.00423 %	$\checkmark$	
Ľ		033-003-00-0	215-481-4	1327-53-3		40 111	ig/itg	1.02	42.002	iiig/kg	0.00420 /0	~	
2	4	beryllium {	<mark>m oxide</mark> }			1 m	g/kg	2.775	1.934	mg/kg	0.000193 %	$\checkmark$	
_		004-003-00-8	215-133-1	1304-56-9			.g/ng	2.110	1.001	iiig/iig		~	
3	4	boron { diboron tric	<mark>xide</mark> }			2 mg/kg		3.22	4,489	mg/kg	0.000449 %	$\checkmark$	
Ľ		005-008-00-8	215-125-8	1303-86-2		2	.g/ng	0.22		iiig/iig		~	
4	4	cadmium { cadmiu	m oxide }			13.2 m	g/kg	1.142	10.51	mg/kg	0.00105 %	$\checkmark$	
Ľ		048-002-00-0	215-146-2	1306-19-0			9,9					Ň	
5	4	chromium in chrom <mark>chromium(III) oxide</mark>	e (worst case) }	- (		18 m	ig/kg	1.462	18.337	mg/kg	0.00183 %	$\checkmark$	
			215-160-9	1308-38-9									
6	4	chromium in chrom compounds, with th of compounds spe	ne exception of bar	ium chromate and		<2 m	ıg/kg	2.27	<4.54	mg/kg	<0.000454 %		<lod< th=""></lod<>
		024-017-00-8										_	
7	4	copper { dicopper ( 029-002-00-X	<mark>oxide; copper (I) ox</mark> 215-270-7	<mark>ide</mark>		169 m	g/kg	1.126	132.622	mg/kg	0.0133 %	$\checkmark$	
8	æ	lead { lead chromate }				685 m	a/11a	1.56	744.726		0.0477 %	,	
°		082-004-00-2	231-846-0	7758-97-6	1	111 COO	ig/kg	1.00	744.720	mg/kg	0.0477 %	$\checkmark$	
9	4	mercury { mercury 080-010-00-X	dichloride } 231-299-8	7487-94-7		<1 m	ig/kg	1.353	<1.353	mg/kg	<0.000135 %		<lod< th=""></lod<>
-				/40/-94-/						_		-	
10	~	nickel { nickel chron 028-035-00-7	238-766-5	14721-18-7		23 m	g/kg	2.976	47.713	mg/kg	0.00477 %	$\checkmark$	
11	2	selenium { nickel s	elenate }			0		0.554	E 400		0.000544.00		<lod< th=""></lod<>
11	<b>_</b>	028-031-00-5	239-125-2	15060-62-5		<2 m	ig/kg	2.554	<5.108	mg/kg	<0.000511 %		<lod< td=""></lod<>
	2	zinc { zinc sulphate	• }						.469 4750.235	mg/kg			
12			231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		2760 m	ig/kg	2.469			0.475 %	√	



#		Determinand		CLP Note	User entere	d data	Conv. Factor Compound conc.		Classification value	MC Applied	Conc. Not Used		
		EU CLP index number	EC Number	CAS Number	CLP			Factor			value	MC /	Useu
13	8	TPH (C6 to C40) p	etroleum group	TPH	_	<42	mg/kg		<42	mg/kg	<0.0042 %		<lod< td=""></lod<>
14		tert-butyl methyl et 2-methoxy-2-methy 603-181-00-X		1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
15		benzene 601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
16		toluene	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<lod< td=""></lod<>
17	8	ethylbenzene	202-849-4	100-41-4	-	<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
18		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	_	<0.002	mg/kg		<0.002	mg/kg	<0.000002 %		<lod< td=""></lod<>
19	4	cyanides { salts exception of compl ferricyanides and n specified elsewhere 006-007-00-5	ex cyanides such nercuric oxycyani	as ferrocyanides,		<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<lod< td=""></lod<>
20	8	pH		PH	-	7.4	рН		7.4	pН	7.4 pH		
21		naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
22	8	acenaphthylene	205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
23	0	acenaphthene	201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
24	8	fluorene	201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
25	8	phenanthrene	201-581-5	85-01-8		0.9	mg/kg		0.627	mg/kg	0.0000627 %	$\checkmark$	
26	6	anthracene	204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
27	8	fluoranthene	205-912-4	206-44-0		2.2	mg/kg		1.533	mg/kg	0.000153 %	$\checkmark$	
28	8		204-927-3	129-00-0		1.78	mg/kg		1.241	mg/kg	0.000124 %	$\checkmark$	
29			e 200-280-6	56-55-3		0.55	mg/kg		0.383	mg/kg	0.0000383 %	√	
30		chrysene 601-048-00-0	205-923-4	218-01-9	-	0.9	mg/kg		0.627	mg/kg	0.0000627 %	~	
31			205-911-9	205-99-2	-	0.96	mg/kg		0.669	mg/kg	0.0000669 %	$\checkmark$	
32			205-916-6	207-08-9	-	0.37	mg/kg		0.258	mg/kg	0.0000258 %	~	
33			200-028-5	50-32-8		0.73	mg/kg		0.509	mg/kg	0.0000509 %	~	
34	Θ		205-893-2	193-39-5	-	0.55	mg/kg		0.383	mg/kg	0.0000383 %	√	
35			200-181-8	53-70-3	-	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<lod< td=""></lod<>
36	8		205-883-8	191-24-2		0.46	mg/kg		0.321	mg/kg	0.0000321 %	√	
37		phenol 604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<lod< td=""></lod<>



Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
Θ	Determinand defined or amended by HazWasteOnline (see Appendix A)
4	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<lod< th=""><th>Below limit of detection</th></lod<>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



#### Appendix A: Classifier defined and non GB MCL determinands

#### • chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806 Data source date: 17 Jul 2015 Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

#### • TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013 Data source: WM3 1st Edition 2015 Data source date: 25 May 2015 Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

#### • ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4 Description/Comments: Additional Hazard Statement(s): Carc. 2; H351 Reason for additional Hazards Statement(s): 20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

#### • salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5 Description/Comments: Conversion factor based on a worst case compound: sodium cyanide Additional Hazard Statement(s): EUH032 >= 0.2 % Reason for additional Hazards Statement(s): 20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• pH (CAS Number: PH)

Description/Comments: Appendix C4 Data source: WM3 1st Edition 2015 Data source date: 25 May 2015 Hazard Statements: None.

#### acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 17 Jul 2015 Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

#### acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 17 Jul 2015 Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

#### <sup>e</sup> fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 06 Aug 2015 Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

#### • phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 06 Aug 2015 Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

• anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410



#### <sup>e</sup> fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 21 Aug 2015 Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

#### pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014 Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 21 Aug 2015 Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

#### • indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 06 Aug 2015 Hazard Statements: Carc. 2; H351

#### • benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015 Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database Data source date: 23 Jul 2015 Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

#### Appendix B: Rationale for selection of metal species

#### arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

#### beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics (edit as required)

#### boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

#### cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

#### chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

#### copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

#### lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

#### nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)



#### zinc {zinc sulphate}

#### No staining, signs of contamination

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

#### **Appendix C: Version**

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021 HazWasteOnline Classification Engine Version: 2024.22.5926.10967 (22 Jan 2024) HazWasteOnline Database: 2024.22.5926.10967 (22 Jan 2024)

This classification utilises the following guidance and legislation: WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021 CLP Regulation - Regulation 1272/2008/EC of 16 December 2008 1st ATP - Regulation 790/2009/EC of 10 August 2009 2nd ATP - Regulation 286/2011/EC of 10 March 2011 3rd ATP - Regulation 618/2012/EU of 10 July 2012 4th ATP - Regulation 487/2013/EU of 8 May 2013 Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013 5th ATP - Regulation 944/2013/EU of 2 October 2013 6th ATP - Regulation 605/2014/EU of 5 June 2014 WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014 Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014 7th ATP - Regulation 2015/1221/EU of 24 July 2015 8th ATP - Regulation (EU) 2016/918 of 19 May 2016 9th ATP - Regulation (EU) 2016/1179 of 19 July 2016 10th ATP - Regulation (EU) 2017/776 of 4 May 2017 HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017 13th ATP - Regulation (EU) 2018/1480 of 4 October 2018 14th ATP - Regulation (EU) 2020/217 of 4 October 2019 15th ATP - Regulation (EU) 2020/1182 of 19 May 2020 The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020 The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020 GB MCL List - version 1.1 of 09 June 2021 GB MCL List v2.0 - version 2.0 of 20th October 2023



# **APPENDIX 7**

# **REPORT LIMITATIONS**



## **REPORT LIMITATIONS**

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

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The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth



Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.