





Earth Environmental & Geotechnical

# Phase II GeoEnvironmental and Geotechnical Site Investigation

The Albion Inn

Burnage

February 2024

On behalf of

H & K Developments Ltd

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# GEO-ENVIRONMENTAL AND GEOTECHNICAL

# SITE INVESTIGATION

# THE ALBION INN
# BURNAGE

**Report Ref: A5595/SI/V2**

**February 2024**

Prepared on Behalf of:

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# GEO-ENVIRONMENTAL AND GEOTECHNICAL SITE INVESTIGATION

# THE ALBION INN, BURNAGE

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*Prepared by*: Earth Environmental & Geotechnical Ltd
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## 1.0 EXECUTIVE SUMMARY

| | |
|---|---|
| **Appointment** | A Site Investigation has been commissioned by H and K Development Ltd (the Client) to examine ground conditions for a proposed residential development and renovation of the Albion Inn, Burnage Lane, Burnage, M19 1NA. |
| **The Investigation** | The investigation comprised advancing five window sample boreholes with ground gas and water monitoring pipes. |
| **The Site** | The site is in Burnage, approximately 7km south of Manchester city centre. The approximate National Grid Reference for the centre of the site is SJ 86269 91810 (X: 386269, Y: 391810) and the postcode is M19 1NA.<br><br>At the time of the most recent investigation the area was a disused pub with a building in the south and surrounded by hardstanding or concrete and black bound macadam. |
| **Ground Conditions Encountered** | The exploratory holes generally encountered granular MADE GROUND to a maximum depth of 0.85 mbgl and cohesive made ground from a depth of 0.26 to 0.70 mbgl. This was underlain by superficial deposits considered to present Glacial Till comprised of clay and sands to depths of between 0.40 to 2.20 mbgl. This overlies bedrock geology considered to represent the Chester Formation and generally comprised dense reddish sand to depths of between 1.30 to 2.60 mbgl.<br><br>During the site investigation, groundwater was not encountered in any of the exploratory boreholes. |
| **Ground Gas** | Based on Ground Gas Risk assessment utilising the principles of RB17 a low-risk rating has been assigned to the site.<br>As a result, ground gas protection measures are not required. |
| **Contamination Assessment** | Risk from contamination to groundworkers during development – Very Low<br>Risk from contamination to future site users – Medium |
| **Waste Classification** | Soils should be disposed of at a suitable site, registered to take the levels of contamination encountered. The soil samples collected from WS02 have been classified as Hazardous for the purpose of off-site disposal in accordance with Environment Agency guidance WM3.1.<br>The remaining soil samples have been classified as Non-Hazardous for the purpose of off-site disposal in accordance with Environment Agency guidance WM3.1. |
| ***This sheet is intended to provide a summary only of the report. It does not provide a definitive engineering analysis for the purposes of costing or construction and is subject to the limitation of the agreed brief.*** | |

# 2.0 INTRODUCTION

## 2.1 Background

A site investigation has been commissioned by H and K Development Ltd (the Client) to examine ground conditions for a proposed residential development of the Albion Inn, Burnage Lane, Burnage.

## 2.2 Terms of Reference

Earth Environmental and Geotechnical Ltd (EEG) have been commissioned by the Client, to undertake a site investigation of the site in accordance with proposals A5595/V3 dated 27th December 2023.

The objectives of this investigation are as follows:

- *Provide information on the work undertaken including sampling location plan, borehole logs, geotechnical and chemical testing.*
- *Tier 1 (semi-quantitative) risk assessment will be undertaken. This will compare the concentrations of soil and ground gas contaminants identified against current and appropriate published guidelines, in relation to identified receptors, e.g. existing/ future end users and site neighbours.*
- *Assessment of ground gas regime in accordance with CL:AIRE Research Bulletin "A Pragmatic Approach to Ground Gas Risk Assessment," RB17, November 2012.*
- *Classification of soil for offsite disposal.*

## 2.3 Report Scope

This report presents full factual records of the site work carried out, the ground conditions encountered in the exploratory holes, the in situ and laboratory test results. All information collected has been used to provide an interpretation of the ground conditions, with recommendations on geotechnical design and 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. EEG reserve the right to amend either conclusions or recommendations considering 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 particularly at intervening locations. Whilst every effort is made to

## 2.5 Previous Investigations

The desk study highlighted that historically, the site has been developed since the start of the historical mapping in 1849. The site has been continual occupied by the Albion Inn (Public House) since at least the 1938 maps.

The potential onsite source is historical made ground associated with construction of the existing buildings.

Potential offsite sources include an electrical substation adjacent to the northwest of the site with potential for PCB contamination.

Therefore, the Phase I concludes that the risk from soil contamination to end users is concluded to be **LOW** to **MODERATE** based on the current proposed development.

The risk to controlled waters is concluded to be **LOW** due to the absence of any significant sources of mobile contamination.

The risk from ground gas to end users and construction workers is **LOW**.

A Phase II GeoEnvironmental Site Investigation was recommended to examine the ground conditions for the design of foundations, floor slabs, and pavement construction for the proposed development.

As part of the geotechnical investigation, it was recommended that soil samples were recovered for contamination testing as well as ground gas monitoring.

## 3.0 SITE LOCATION & DESCRIPTION

The site is in Burnage, approximately 7km south of Manchester city centre. The approximate National Grid Reference for the centre of the site is SJ 86269 91810 (X: 386269, Y: 391810) and the postcode is M19 1NA. A location plan is shown below as Figure 1.

**Figure 1 Site Location Plan**




The site is a pentagon shaped parcel of land with current access via Burnage Lane immediately south of the site. The maximum dimensions of the proposed site are approximately 43m west to east and 28m north to south. The site occupies an area of approximately 0.14 hectares.

The site is located within an urban area and is the surrounding area is comprised of residential properties with large mature trees of Willow to the western boundary of the site.

Site photographs are presented in Figures 2 overleaf and an approximate distribution of the surface overing is given overleaf in Table 1.

**Table 1. Site Surface Distribution**

| Type of Surface Covering | Distribution (%) |
|---|---|
| Soft Ground (grassed and landscaped areas) | 0 |
| Hardstanding | 75 |
| Roadways | 0 |
| Buildings | 25 |
| Water (ponds, streams) | 0 |

**Figure 2: General Site Photographs**

View of site during initial investigation, looking south




View of site in proposed area of redevelopment



## 3.1 Geology

The British Geological Survey shows the site to be underlain by the geological succession outlined overleaf in Table 2.

**Table 2: Published Geology**

| Geology | Description/Strata |
|---|---|
| Artificial | None |
| Superficial | Glacial Till |
| Bedrock | Chester Pebble Bed Formation |

There are no known artificial deposits recorded underlying the site. However, made ground is anticipated due to previous onsite construction.

The superficial geology recorded underlying the site is shown to be the Glacial Till which is generally described unsorted and unstratified drift, generally over consolidated, consisting of heterogenous mixture of clay, sand, gravel, and boulders, varying widely in size and shape.

The bedrock geology beneath the site is shown to be the Triassic Chester Pebble Bed Formation which is generally described as a reddish-brown sandstone.

### 3.2 Proposed Development

A current proposed development plan is not available at this time.

The proposed development is to convert the current building on site (the former public house/inn) to 11no. new residential apartments, with a two-storey extension with basement to the rear of the building, soft landscaping, and a car park of hardstanding to the east of the site.

A planning permission (application no. 134949/FO/2022) was granted on the 9th June 2023.

Condition No. 4 requires the development of a Preliminary Risk Assessment in relation to potential ground contamination.

**Figure 3: Proposed Development Plan**



# 4.0 SITE INVESTIGATION

## 4.1 Exploratory Fieldwork

The initial fieldwork was carried out by EEG on the 15th January 2024 and comprised:

- Five window sample boreholes (designated WS01 to WS05 inclusive) were advanced to maximum depth of 2.60 mbgl. 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. 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. Standard Penetration Tests (SPTs) were undertaken in the boreholes in accordance with BS EN ISO 22476-3. Groundwater observations were noted where possible. These observations relate to the time of the investigation only, and do not necessarily reflect seasonal fluctuations. Exploratory hole logs are included in Appendix 1.
- All boreholes have 50mm diameter standpipes were installed all of the boreholes to depths between 2.00 and 2.60 mbgl. Installation and backfill details are shown with the appropriate borehole log sheet. On completion, samples recovered from the site were taken to specialist laboratories for chemical and geotechnical testing.

Soil samples were recovered in 250g glass amber jars and 1kg plastic tubs. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the DETS laboratory.

If collection was not possible the same day, then samples were stored in the sample storage fridge at the EEG offices below 4˚C.

Samples were tracked using appropriate Chain of Custody forms provided by DETS Ltd.

It should be noted that hexavalent chromium soil is analysed using the USEPA recommended method of alkaline leach. This method limits chromium (VI) reduction to chromium (III).

The descriptive terminologies such as firm, etc formerly used within older versions of BS5930 to describe strength now solely relate to consistency. Shear strength is now defined related to results obtained in the field (using a hand vane for example) or in the laboratory (from triaxial tests), as detailed in Table 3 overleaf.

**Table 3: Shear Strength Definitions**

| Term based on measurement | Undrained Strength ($c_u$) definition in kN/m² (from BS EN ISO 14688-2: 2004, 5.3, Table 5) |
|---|---|
| Extremely Low Strength | <10 |
| Very Low Strength | 10 to 20 |
| Low Strength | 20 to 40 |
| Medium Strength | 40 to 75 |
| High Strength | 75 to 150 |
| Very High Strength | 150 to 300 |
| Extremely High Strength | 300 to 600 |

## Exploratory hole Locations

Exploratory hole locations were chosen based on the proposed development and located on-site by an EEG engineer avoiding known or suspected services. Each exploratory location was scanned using a Cable Avoidance Tool (CAT) to locate unrecorded underground services, and the exploratory locations were repositioned if necessary. Table 4 below indicates the appropriate features targeted.

**Table 4: Sampling Location Justification**

| Exploratory Hole | Sampling Location |
|---|---|
| WS01 | Location of proposed soft landscaping area |
| WS02 | Location of proposed soft landscaping area |
| WS03 | Location of proposed soft landscaping area |
| WS04 | Adjacent to area of proposed redevelopment |
| WS05 | Beneath Proposed Building Footprint |

A summary of exploratory holes undertaken during the investigation are presented in Table 5, below.

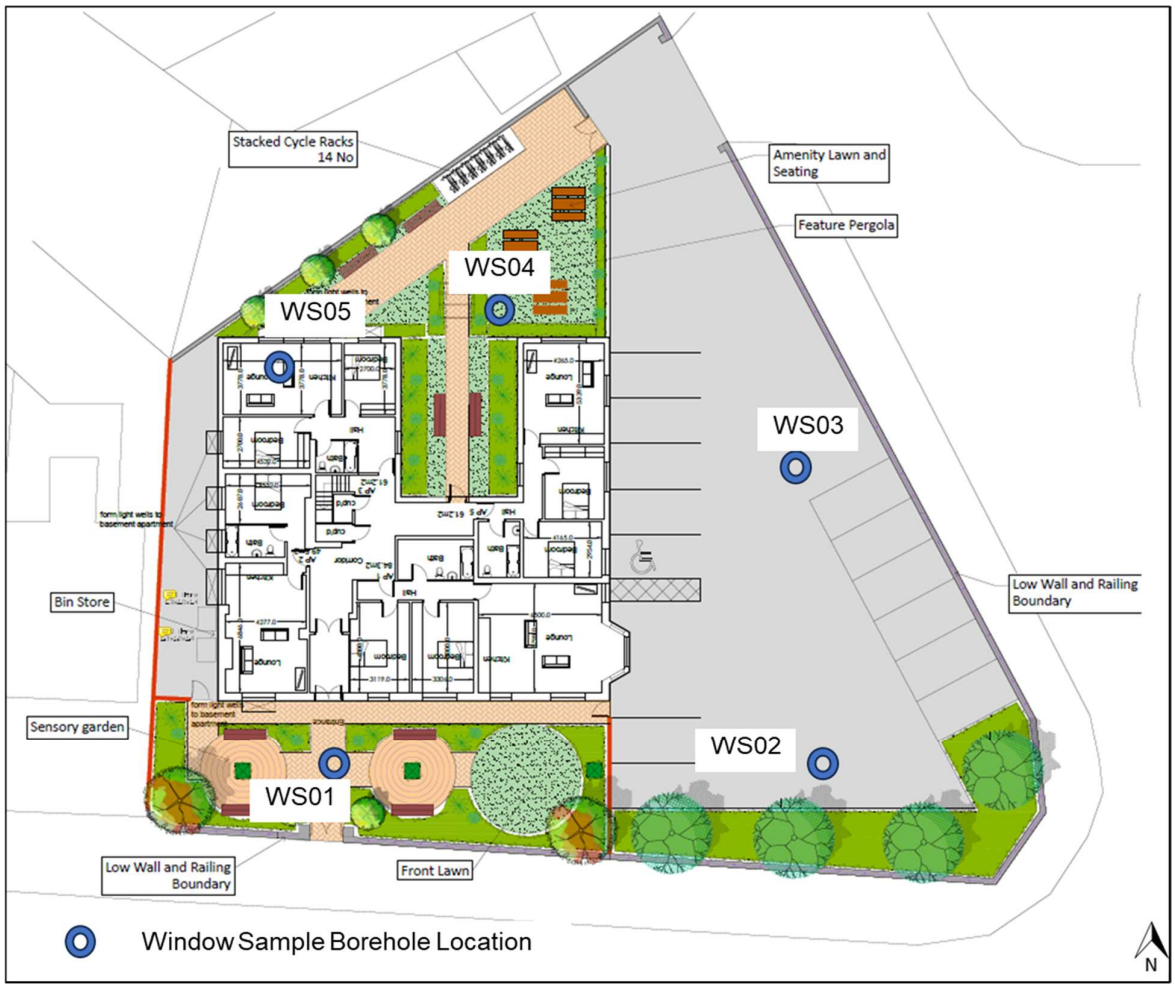
**Table 5: Summary of Exploratory Holes Undertaken**

| Hole | Type* | Depth (m) | Date Started | Date Finished | Easting (m) | Northing (m) | Backfill Details** |
|---|---|---|---|---|---|---|---|
| WS01 | WS | 2.50 | 15/01/2024 | 15/01/2024 | | | MW |
| WS02 | WS | 2.50 | 15/01/2024 | 15/01/2024 | | | MW |
| WS03 | WS | 2.00 | 15/01/2024 | 15/01/2024 | | | MW |
| WS04 | WS | 2.00 | 15/01/2024 | 15/01/2024 | | | MW |
| WS05 | WS | 2.60 | 15/01/2024 | 15/01/2024 | | | MW |

* BH = Window Sample Borehole,
**A=Arisings, MW = Monitoring Well

An Exploratory Hole Location Plan based of the proposed development is presented as Figure 4 overleaf.

**Figure 4: Exploratory Hole Location Plan**




## 4.2 Laboratory Testing

### 4.2.1 *Geotechnical Testing*

A programme of laboratory testing was carried out on samples taken from the various strata to assist in classification and determine the engineering properties of the materials underlying the site. The tests were scheduled by EEG and carried out by Murray Rix. The test procedures used were generally in accordance with the methods described in BS1377:1990. Details of the specific tests used in each case are given in Table 6 overleaf.

**Table 6: Summary of Laboratory Geotechnical Tests Undertaken**

| TEST | STANDARD | No. |
|---|---|---|
| Moisture Content | BS1377:1990 Part 2, Clause 3.2 | 2 |
| Liquid Limit, Plastic Limit, Plasticity Index | BS1377:1990 Part 2, Clause 4/5 | 2 |
| Sulphate content of 2:1 soil: water extract | BS1377:1990 Part 3, Clause 5 | 3 |
| pH value | BS1377:1990 Part 3, Clause 9 | 3 |
| Particle Size Distribution (Wet) | BS1377:1990 Part 2, Clause 9.2 | 1 |

The results of the laboratory geotechnical tests are discussed in Section 6 and included in Appendix 2.

### 4.2.2 *Environmental Testing*

The environmental chemistry of the ground was investigated by specialist chemical analysis of selected samples, scheduled by EEG, and carried out by DETS Ltd a UKAS and MCERTS accredited laboratory.

A total of seven soil samples were submitted for chemical analysis

All seven samples were assessed for the following:

*Asbestos Screen, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Phenol, Sulphate ($SO_4$), Sulphide, pH, Soil Organic Matter, Speciated Polycyclic Aromatic Hydrocarbons (PAH) and Speciated Petroleum Hydrocarbons.*

*Three samples were assessed for Polychlorinated Biphenyl's contamination (PCB's).*

The results of the laboratory contamination tests are discussed in Sections 7 and included in Appendix 3.

# 5.0 GROUND CONDITIONS ENCOUNTERED

## 5.1 Soil Profile Encountered

BGS digital mapping shows that the site is underlain by no known artificial deposits, superficial deposits consisting of Devensian Till and bedrock geology of Chester Pebble Bed Formation. A summary of the ground conditions encountered is given below in Table 7.

**Table 7: Summary of Ground Conditions Encountered**

| Hole | Depth to Stratum (m) | | | | Ground water (m bgl) |
|---|---|---|---|---|---|
| | MADE GROUND | | SUPERFICIAL | BEDROCK | |
| | GRANULAR | COHESIVE | | | |
| WS01 | GL –0.40 | | 0.40-2.20 | 2.20-2.50* | - |
| WS02 | GL-0.26 | 0.26-0.70 | 0.70-1.30 | 1.30-2.50* | - |
| WS03 | GL-0.60 | | 0.60-1.47 | 1.47-2.00* | - |
| WS04 | GL-0.85 | | 0.85-1.40 | 1.40-2.00* | - |
| WS05 | Gl-0.40 | | 0.40-1.90 | 1.90-2.60* | - |
| *Refusal in bedrock | | | | | |

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

**Hardstanding**

Hardstanding was encountered in all exploratory borehole locations.

Black bound macadam was encountered in WS02 and WS03 to depth of between 0.06 and 0.1 mbgl.

Concrete was encountered in WS02, WS04 and WS05 to a depth of between 0.06 and 0.25 mbgl.

**Granular Made Ground**

Granular Made Ground materials generally comprised, dark brown sand fine to coarse gravel and brown slightly gravelly fine to coarse sand was encountered in all exploratory borehole locations to depths of between 0.26 to 0.85 mbgl.

**Cohesive Made Ground**

Cohesive made ground materials generally comprised firm, dark brown sand gravelly clay was encountered in WS02 at a depth of 0.26 to 0.70 mbgl.

**Glacial Till**

Superficial deposits considered to represent Glacial Till, were encountered in all exploratory holes, and generally comprised.

- **CLAY** was encountered in all exploratory holes, and generally comprising:
  - Firm dark grey slightly sandy slightly gravelly CLAY with roots and rootlets.

  - Firm to stiff grey mottled brown sandy to very sandy CLAY.
  - Soft brown CLAY.
  - Brown silty gravelly CLAY.
  - Brown sandy CLAY.
  - Brown sandy gravelly CLAY.

- **SAND** was encountered in WS03 and WS05 generally comprising.
  - Light brown fine to coarse SAND.
  - Brown fine to medium SAND.

**Chester Pebble Formation**

Deposits consider representing the Chester Pebble Bed Formation were encountered in all exploratory hole locations and generally comprised dense reddish brown, orange fine to coarse sand from depth of between 1.30 to 2.60 mbgl.

### 5.2 Observable Indications of Contamination

No visual or olfactory indications of contamination were identified during the site investigation aside from generally inert Made Ground gravel.

### 5.3 Obstructions

No obstructions were encountered during the site investigation.

### 5.4 Groundwater

Groundwater was not encountered during the site investigation.

## 6.0 ENGINEERING PROPERTIES OF SOILS ENCOUNTERED

### 6.1 General

The following sections discuss the engineering properties of the strata encountered, based on results of in situ testing obtained during this investigation.

**Table 8: Summary of Laboratory Geotechnical Test Results**

| Location | Depth (m) | Strata* | CLASSIFICATION | | | | | | | | | | CHEMICAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Moisture Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Modified Plasticity Index (%) | PSD Cobbles % | PSD Gravel (%) | PSD Sand (%) | PSD Silt (%) | PSD Clay (%) | pH Value | Water Soluble Sulphate $SO_4$ (mg/l) |
| WS04 | 1.00 | CLAY | 38.6 | 39 | 15 | 24 | 19 | - | - | - | - | - | 7.2 | 80 |
| WS05 | 1.00 | CLAY | 40.3 | 41 | 16 | 25 | 22 | - | - | - | - | - | 7.4 | 90 |
| WS05 | 2.00-2.60 | SAND | - | - | - | - | - | - | 28 | 52 | - | 20 | 7.6 | 120 |

### 6.2 Granular

**SPT N values** of 26-55 were obtained.

**SPT tests** carried out in the granular material were corrected for drilling energy efficiency and overburden pressure and resulted in **N1(60) values** of between 9 - 51, as shown on the SPT v Depth Plot in Figure 5 (overleaf). The results suggest the granular material is medium dense.

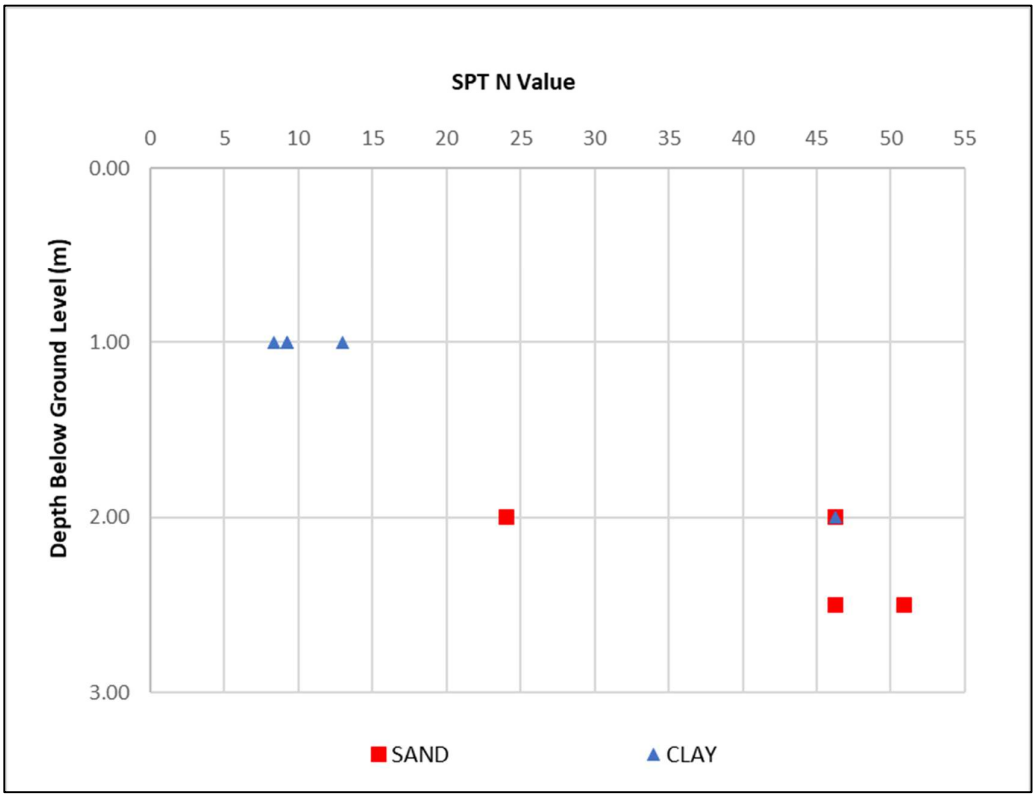
For design purposes, N values of 45 have been adopted. Based on the correlation by Peck, Hanson and Thornburn (1974), this gives an **angle of internal friction** of between $\phi$=40.

**Table 9: Summary of Design Parameters (Granular)**

| Depth | SPT N Value Range | Average N Value | Design N Value* | Equivalent Soil Density | Angle of Internal Friction (degrees$^{o}$)** |
|---|---|---|---|---|---|
| 2.00 | 26-50 | 45 | 45 | Dense | 40 |
| 2.50 | 50-55 | 51.5 | 50 | Very Dense | 41 |
| *Based on lower quartile N value<br>**Based on the correlation by Peck, Hanson and Thornburn (1974) | | | | | |

The **water-soluble sulphate** content of sand sample was 120 mgl with a **pH value** of 7.6.

**Figure 5: SPT N v Depth Plot**




## 6.3 Clay

The clay encountered underwent in-situ standard penetrations testing with a range of N Values from 9 to 14 with an average of 11.40 suggestive of a firm consistency.

Atterberg Limit tests were carried out on two samples of the clay. Results of the test reported **liquid limit** values in the range of 39% to 41% and **plastic limit** values in the range of 24% to 25%, resulting in values of **plasticity index** in the range of 19% to 22%.

These results suggest the clay to be of **intermediate plasticity.**

Results are shown on the Plasticity Chart in Figure 6, overleaf.

**Table 10: Summary of Design Parameters (Clay)**

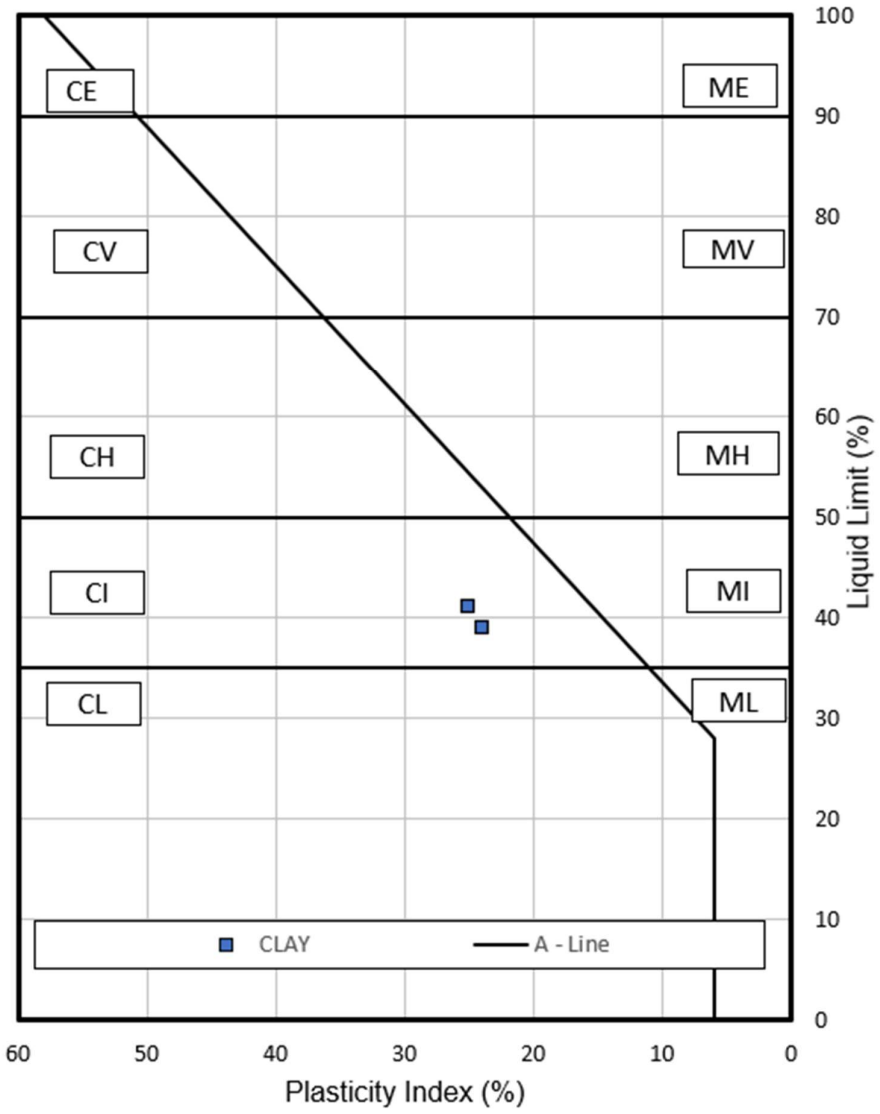
| Depth (m) | SPT N Value Range | Average N Value | Design N Value* | Equivalent Shear Strength** ($kN/m^2$) | Coefficient of Volume Compressibility** (mv) |
|---|---|---|---|---|---|
| 1-2 | 9-14 | 11.4 | 11 | 55 | 0.17 (Medium) |

*Based on lower quartile N value and correlations by Peck Hanson and Thornburn (1974)
**Based on correlation by Stroud & Butler (1975)

It is recommended that for assessing ultimate bearing capacities, where the lower values are critical, the lower quartile value of N values is used.

The **water-soluble sulphate** content of the two clay samples ranged from 80mg/l to 90mg/l $SO_4$, together with **pH values** of 7.2 to 7.2.

**Figure 6: Plasticity Chart**




For design purposes, a value of plasticity index = 24% is recommended, based on the upper quartile value of the results.

The **coefficient of volume compressibility (mv)** has been estimated using the following correlation by Stroud and Butler (1975) for a clay with a plasticity index of 24%, mv = 1 / (450 x N

value). This correlation gives values of coefficient of volume compressibility in the range 0.17m$^2$/MN, as shown in Table 10. The results suggest the clay has a **medium compressibility**.

In accordance with NHBC Chapter 4.2 Building Near Trees [2003] soils can be classified in terms of volume change potential, using the relationship:

$$I'_p = I_p \times \frac{\%\ \text{less than } 425\mu m}{100\%}$$

$I'_p$ = modified plasticity index,
$I_p$ = plasticity index.

Based on the laboratory test results, the above relationship and Table 1 of NHBC Chapter 4.2, the samples of clay are shown to have **low to medium volume change potential**.

The **Natural Moisture Content** (NMC) and **Liquid Limit** (LL) of the soil can be used to give an indication of **soil desiccation**, i.e., where the NMC is less than 40% of the LL, the soil is inferred to be desiccated, as summarised in Table 9, below.

**Table 11: Soil Desiccation Indicators in the Clay**

| Location | Depth (m) | Liquid Limit (%) | 40% Liquid Limit (%) | Natural Moisture Content (%) | Desiccation |
|---|---|---|---|---|---|
| WS04 | 1.00 | 39 | 16 | 38.6 | No |
| WS05 | 1.00 | 41 | 16 | 40.3 | No |

The results in the above table show that two of the clay samples collected show no evidence of desiccation.

# 7.0 SOIL CONTAMINATION RISK ASSESSMENT

## 7.1 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 public during development of contaminated land' (1991) 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 Table 12 below:

**Table 12: Summary of Guideline Values for Protection of Workers and the General Public During Development of Contaminated Land**

| Contaminant | Typical Values* for: | | | | | Test Results | Class |
|---|---|---|---|---|---|---|---|
| | Uncontaminated Soils | Slight Contamination | Contaminated | Heavy Contamination | Unusually Heavy Contamination | | |
| | Class A | Class B | Class C | Class D | Class E | | |
| pH (acid) | 6 - 7 | 5 - 6 | 4 - 5 | 2 - 4 | <2 | - | - |
| pH (alkaline) | 7 - 8 | 8 - 9 | 9 - 10 | 10 - 12 | 12 | 7.2-10.0 | A-D |
| Arsenic | 0 - 30 | 30 - 50 | 50 - 100 | 100 - 500 | 500 | 4-27 | A |
| Cadmium | 0 - 1 | 1 - 3 | 3 - 10 | 10 - 50 | 50 | 0.20-2.10 | A |
| Chromium | 0 - 100 | 100 - 200 | 200 - 500 | 500 - 2500 | 2500 | 5-16.0 | A |
| Copper | 0 - 100 | 100 - 200 | 200 - 500 | 500 - 2500 | 2500 | 11-55 | A |
| Lead | 0 - 500 | 500 - 1000 | 1000 - 2000 | 2000 – 1% | 1.0% | 5-121 | A |
| Mercury | 0 - 1 | 1 - 3 | 3 - 10 | 10 - 50 | 50 | <1-1.2 | A-B |
| Nickel | 0 - 20 | 20 - 50 | 50 - 200 | 200 - 1000 | 1000 | 7-16 | A |
| Zinc | 0 - 250 | 250 - 500 | 500 - 1000 | 1000 - 5000 | 5000 | 3 – 173 | A |
| Boron | 0 - 2 | 2 - 5 | 5 - 50 | 50 - 250 | 250 | < 1-2 | A |
| Selenium | 0 - 1 | 1 - 3 | 3 - 10 | 10 - 50 | 50 | < 2 | A - B |
| Barium | 0-500 | 500-1000 | 1000-2000 | 2000-1.0% | 1.0% | 10-169 | A |
| Beryllium | 0 - 5 | 5 - 10 | 10 - 20 | 20 - 50 | 50 | >0.5 – 1.2 | A |
| Vanadium | 0 - 100 | 100 - 200 | 200 - 500 | 500 - 2500 | 2500 | 2-33 | A |
| Sulphate | 0 - 2000 | 2000 - 5000 | 5000 – 1% | 1% - 5% | 5.05% | < 200 – 5297 | A-B |
| Sulphide | 0 - 10 | 10 - 20 | 20 - 100 | 100 - 500 | 500 | < 5 | A |
| Cyanide (free) | 0 - 1 | 1 - 5 | 5 - 50 | 50 - 100 | 100 | < 1 | A |
| Phenol | 0 - 2 | 2 - 5 | 5 - 50 | 50 - 250 | 250 | < 2 | A |

Based on the above results it is considered there is a **MODERATE to LOW** potential risk from soil contamination to construction workers, ground workers and members of the public during construction. Appropriate measures, such as PPE, site health plans, and appropriate disposal of material arisings will mitigate any risk.

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

The following section provides a Human Health Soil Assessment for future site users. The following section compares the results of contamination analyses to Residential End Use with Plant Uptake commercial types of end development as specified by Defra/LQM/CIEH. As part of the contamination assessment, the chemical results obtained by EEG have been screened against accepted compliance criteria, namely:

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

The soil chemical testing results from the investigation are summarised in Table 13 below.

**Table 13: Soil Results Comparison with C4SL/S4UL Values – Initial Investigation**

| Determinand | C4SL/S4UL Levels Residential with home grown produce (SOM 1%) (mg/kg) | WS01 0.3m MG | WS01 0.6m MG | WS02 0.5m MG | WS02 0.5m MG | WS03 0.3m MG | WS04 0.3m MG | WS05 0.3m MG | No of Exceedances |
|---|---|---|---|---|---|---|---|---|---|
| ***Metals*** | | | | | | | | | |
| Arsenic | 37 | 12 | 5 | 15 | 27 | 8 | 4 | < 2 | 0 |
| Beryllium | 1.7 | 1 | < 0.5 | 0.6 | 1.2 | < 0.5 | < 0.5 | < 0.5 | 0 |
| Boron | 290 | < 1 | < 1 | 2 | 1.3 | < 1 | < 1 | < 1 | 0 |
| Cadmium | 22 | < 0.2 | < 0.2 | 2.1 | 0.9 | 0.3 | < 0.2 | < 0.2 | 0 |
| Chromium | 910 | 10 | 10 | 16 | 13 | 6 | 5 | < 2 | 0 |
| Chromium VI | 21 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 0 |
| Copper | 2400 | 44 | 11 | 32 | 55 | 26 | 14 | < 4 | 0 |
| Lead | 200 | 79 | 17 | 47 | 121 | 39 | 27 | 5 | 0 |
| Mercury | 1.2 | 1.2 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | 0 |
| Nickel | 180 | 16 | 7 | 12 | 16 | 8 | < 3 | < 3 | 0 |
| Selenium | 250 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 0 |
| Vanadium | 410 | 23 | 13 | 33 | 30 | 11 | 7 | 2 | 0 |
| Zinc | 3700 | 45 | 20 | 173 | 138 | 29 | 15 | 3 | 0 |
| ***Petroleum Hydrocarbons*** | | | | | | | | | |
| Benzene | 0.2 | **0.736** | **0.561** | **0.107** | 0.045 | < 0.002 | < 0.002 | < 0.002 | **3** |
| Toluene | 130 | 0.259 | 0.028 | 0.012 | 0.007 | < 0.005 | < 0.005 | < 0.005 | 0 |
| Ethylbenzene | 47 | 0.045 | 0.027 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0 |
| o-xylenes | 60 | 0.217 | 0.126 | 0.004 | 0.003 | < 0.002 | < 0.002 | < 0.002 | 0 |
| m-xylenes | 59 | 0.072 | 0.039 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0 |
| p-xylenes | 56 | 0.736 | 0.561 | 0.107 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 0 |
| Aliphatic EC >5-6 | 42 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0 |
| Aliphatic EC >6-8 | 100 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0 |
| Aliphatic EC >8-10 | 27 | 16 | < 2 | 3 | < 2 | 4 | < 2 | < 2 | 0 |
| Aliphatic EC >10-12 | 130 (v) | 8 | < 2 | 15 | < 2 | 2 | < 2 | < 2 | 0 |
| Aliphatic EC >12-16 | 1100 (s) | 7 | < 3 | 254 | < 3 | 10 | < 3 | < 3 | 0 |
| Aliphatic EC >16-21 | 65000 (s) | 16 | < 3 | 753 | 3 | 55 | < 3 | < 3 | 0 |
| Aliphatic EC >21-35 | 65000 (s) | 154 | < 10 | 1878 | 42 | 46 | 56 | 21 | 0 |
| Aromatic EC >5-7 | 70 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0 |
| Aromatic EC >7-8 | 130 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0 |
| Aromatic EC >8-10 | 34 | 15 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 0 |
| Aromatic EC >10-12 | 74 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 0 |
| Aromatic EC >12-16 | 140 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 0 |
| Aromatic EC >16-21 | 260 | 4 | < 3 | 11 | 32 | < 3 | < 3 | < 3 | 0 |
| Aromatic EC >21-35 | 1100 | 60 | < 10 | 318 | 608 | < 10 | < 10 | < 10 | 0 |
| ***Polycyclic Aromatic Hydrocarbons*** | | | | | | | | | |
| Naphthalene | 2.3 | 0.48 | < 0.1 | 0.42 | 0.16 | 0.23 | < 0.1 | < 0.1 | 0 |
| Acenaphthylene | 170 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.13 | < 0.1 | < 0.1 | 0 |
| Acenaphthene | 210 | 0.91 | < 0.1 | 0.13 | < 0.1 | 2.47 | < 0.1 | < 0.1 | 0 |
| Fluorene | 170 | 0.96 | < 0.1 | 0.35 | < 0.1 | 1.97 | < 0.1 | < 0.1 | 0 |
| Phenanthrene | 95 | 10 | < 0.1 | 1.37 | 0.98 | 19.70 | < 0.1 | < 0.1 | 0 |
| Anthracene | 2400 | 1.86 | < 0.1 | 0.22 | 0.21 | 8.56 | < 0.1 | < 0.1 | 0 |
| Fluoranthene | 280 | 8.89 | < 0.1 | 0.88 | 1.03 | 35.80 | < 0.1 | < 0.1 | 0 |
| Pyrene | 620 | 7.98 | < 0.1 | 0.87 | 0.96 | 28.50 | < 0.1 | < 0.1 | 0 |
| Benzo(a)anthracene | 7.2 | 3.03 | < 0.1 | 0.54 | 0.57 | **16** | < 0.1 | < 0.1 | **1** |
| Chrysene | 15 | 2.86 | < 0.1 | 0.61 | 0.50 | 13.40 | < 0.1 | < 0.1 | 0 |
| Benzo(a)pyrene | 5 | 2.32 | < 0.1 | 0.42 | 0.62 | **13.60** | < 0.1 | < 0.1 | **1** |
| Benzo(b)fluoranthene | 2.6 | 0.82 | < 0.1 | < 0.1 | 0.20 | **5.61** | < 0.1 | < 0.1 | **1** |
| Benzo(k)fluoranthene | 77 | 2 | < 0.1 | 0.35 | 0.50 | 13.60 | < 0.1 | < 0.1 | 0 |
| Indeno(1,2,3-cd) pyrene | 27 | 0.90 | < 0.1 | < 0.1 | 0.26 | 6.74 | < 0.1 | < 0.1 | 0 |
| Dibenzo (a, h) anthracene | 0.24 | 0.21 | < 0.1 | < 0.1 | < 0.1 | **1.82** | < 0.1 | < 0.1 | **1** |
| Benzo(ghi)perylene | 320 | 0.75 | < 0.1 | < 0.1 | 0.22 | 5.55 | < 0.1 | < 0.1 | 0 |
| ***Phenols*** | | | | | | | | | |
| Phenol | 280 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | 0 |

**Polychlorinated Biphenyl's contamination (PCB's).**

*Three samples were assessed for PCB's, WS03 at 0.3 mbgl, WS04 at 0.3 mbgl and WS05 at 0.5 mbgl. All three samples returned result below the limit of detection for all PCB Congeners.*

**Asbestos** was not identified during the site investigation.

Seven elevated concentrations of contaminant of concern, with respect to the long-term protection of human health, was identified in a sample collected from site when compared to residential end use assessment criteria.

The elevated contaminants of concern are summarised in Table 14, below.

**Table 14: Summary of Contaminants**

| Location | Contaminant |
|---|---|
| WS01 @ 0.30 m | Benzene |
| WS01 @ 0.60 m | Benzene |
| WS02 @ 0.50 m | Benzene |
| WS03 @ 0.30 m | Benzo(a)anthracene |
| WS03 @ 0.30 m | Benzo(a)pyrene |
| WS03 @ 0.30 m | Benzo(b)fluoranthene |
| WS03 @ 0.30 m | Dibenzo (a, h) anthracene |

### 7.3 Soil Waste Assessment

An assessment of the disposal characteristics of the soil in accordance with Environment Agency guidance WM3.1, edition of June 2018, "Guidance on the classification and assessment of waste" has been carried out on soils recovered from the site, using HazWasteOnline.

The results are summarised in Table 15 below and presented in full in Appendix 4.

**Table 15: Waste Classification of Soils**

| Location | Depth (m bgl) | WM3.1 Classification | Comments |
|---|---|---|---|
| WS01 | 0.30 | Non-Hazardous | - |
| WS01 | 0.60 | Non-Hazardous | - |
| WS02 | 0.20 | Hazardous | TPH, BTEX |
| WS03 | 0.30 | Non-Hazardous | - |
| WS04 | 0.30 | Non-Hazardous | - |
| WS05 | 0.50 | Non-Hazardous | - |

The above table shows that one of the tested samples collected during this investigation were classified as **Hazardous** in accordance with WM3.1, due to elevated concentrations of TPH and BTEX.

The remaining samples collected during this investigation were classified as **Non-Hazardous** in accordance with WM3.1.

Further Waste Acceptance Criteria (WAC) testing may prove that this material is acceptable as inert waste.

## 8.0 GROUND GAS RISK ASSESSMENT

The ground gas risk assessment has been conducted using the principles of RB 17 (ISSN 2047-6450), as the site has been categorised as low risk in the Phase 1 Desk Study and thus ground gas monitoring was not undertaken.

The made ground across is less than one metre in thickness and did not contain any biodegradable material, additionally it is estimated to be older than 20 years based on the previous Phase 1 investigation.

The chemical testing results available in Appendix 3 with relevant Soil Organic Matter and calculated Total Organic Carbon (TOC) summarised in Table 16 below.

**Table 16: Soil Organic Matter Data**

| Location | WS01 | WS01 | WS02 | WS02 | WS03 | WS04 | WS05 |
|---|---|---|---|---|---|---|---|
| Depth (mbgl) | 0.30 | 0.60 | 0.20 | 0.50 | 0.30 | 0.30 | 0.50 |
| SOM (%) | 16.8 | 2 | 2.4 | 9.4 | 4.2 | 1.6 | 1 |
| TOC (%) | 9.7 | 1.2 | 1.4 | 5.5 | 2.4 | 0.9 | 0.6 |

*Conversion of SOM to TOC is SOM/1.724

Although WS01, WS02 and WS03 have TOC >1%, these samples are taken from boreholes are not located within the area of the proposed extension, and the impermeable cohesive ground conditions make any limited gas migration unlikely.

Whereas WS04 and WS05 have a TOC <1% and are hence a low risk to ground gas.

Thus, using Table 1 of RB 17 (ISSN 2047-6450), and WS04 and WS05 a characteristic situation of CS1 can be applied to the site.

**Protection Measures**

On the basis of the foregoing preliminary assessment, ground gas protection measures are not considered necessary at the site.

# 9.0 CONCLUSIONS & RECOMMENDATIONS

## 9.1 Soil Contamination

There is a **MODERATE to LOW 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 mitigate this risk.

Based on the results of the chemical testing, exceedances of contaminant concentrations have been identified at three borehole locations (WS01, WS02 and WS03), based on the screening criteria relevant to a residential end use with homegrown produce.

Based on the proposed development, the area around WS03 will be covered with hardstanding as part of the parking area removing the potential pathway resulting in no pollutant linkage. Therefore, no remediation is required in this area.

No contamination was identified within the regions of WS04 and WS05 and therefore no remediation is required in the garden areas in that area of the proposed development.

Due to exceedance in Benzene around the garden areas of WS01 and WS02 the contaminated soil will need to be removed and replaced with clean cover comprising a combination of subsoil and topsoil. The minimum thickness of 600mm of which 150mm is topsoil. The imported soil should be free from any deleterious components e.g. glass, plastic, wood, ash and metal soils. The soil will need to be validated to use it does not contain any potential contaminants above the assessment criteria for a residential end use with plant uptake assessment criteria. Testing should be carried out at a frequency of one sample per 100m$^3$ batch of soil.

## 9.2 Ground Gas

Based on Ground Gas Risk assessment utilising the principles of RB17 a low-risk rating has been assigned to the site.

As a result, ground gas protection measures are not required.

## 9.3 Asbestos

Asbestos fibres and fragments were not identified in any of the soil samples tested.

## 9.4 Soil Disposal

Soils should be disposed of at a suitable site, registered to take the levels of contamination encountered. The soil samples collected from WS02 have been classified as Hazardous for the purpose of off-site disposal in accordance with Environment Agency guidance WM3.1.

The remaining soil samples have been classified as Non-Hazardous for the purpose of off-site disposal in accordance with Environment Agency guidance WM3.1.

Further Waste Acceptance Criteria (WAC) testing may prove that the material is acceptable as inert waste.

## 9.5 Risk to Buried (Water) Services

Due to elevated concentrations of BTEX in three of the tested locations, standard materials are unlikely to be appropriate for new water pipes. Further advice should be sought from the local water company.

Previous guidance on buried water pipes was contained in Water Regulations Advisory Scheme (WRAS) Guidance Note No. 9-04-03(2002), however this has been superseded by the UK Water Industry Research Report 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' Ref 10/WM/03/21 (January 2011).

## 9.6 Site Personnel

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.

## 9.7 Other Matters

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 Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Stockport
SK5 6DA

# Borehole Log

Borehole No.
**WS01**
Sheet 1 of 1

| | | | |
|---|---|---|---|
| Project Name: The Albion Inn, Burnage Lane | Project No. A5595 | Co-ords: - | Hole Type WS |
| Location: The Albion Inn, 576 Burnage Lane, Manchester M18 1NA | | Level: | Scale 1:35 |
| Client: H and K Developments | | Dates: 15/01/2024 - 15/01/2024 | Logged By LW |

| Well | Water Strikes | Samples and In Situ Testing | | | Depth (m) | Level (m) | Legend | Stratum Description |
|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | Type | Results | | | | |
| | | | | | 0.20 | | | MADE GROUND: Grey clast supported CONCRETE with 5mm rebar at 0.18m depth |
| | | 0.30 | ES | | 0.40 | | | MADE GROUND: Dark brown, sandy fine to coarse GRAVEL of angular brick. |
| | | 0.50 - 0.60 | ES | | | | | Firm, dark grey slightly sandy slightly gravelly organic CLAY with roots and rootlets. Sand is fine to coarse. Gravel is fine of rounded quartzite. [GLACIALL TILL] |
| | | 1.20 | | N=10 (1,2/2,2,3,3) | 1.30 | | | Firm, light grey slightly sandy slightly gravelly orangic CLAY with roots and rootlets. Sand is fine to coarse. Gravel is fine of rounded qurazite. [GLACIAL TILL] |
| | | | | | | | | *Grey fine to coarse clayey SAND.* |
| | | 2.00 | | N=50 (3,4/50 for 235mm) | 2.20 | | | Dense, reddish orange fine to coarse SAND. [RESIDUAL CHESTER FORMATION] |
| | | 2.50 | | 50 (9,13/50 for 220mm) | 2.50 | | | End of borehole at 2.50 m |

Remarks
1. Borehole was scanned and inspection pit dug. 2. No visual or olfactory evidence of contamination. 3. Groundwater was not encountered. 4. The borehole was terminated at 2.5 mbgl due to SPT refusal. 5. Borehole installed with 1m plain pipe and 1.5m slotted pipe.

Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Stockport
SK5 6DA

# Borehole Log

Borehole No.
**WS02**
Sheet 1 of 1

| | | | |
|---|---|---|---|
| Project Name: The Albion Inn, Burnage Lane | Project No. A5595 | Co-ords: - | Hole Type WS |
| Location: The Albion Inn, 576 Burnage Lane, Manchester M18 1NA | | Level: | Scale 1:35 |
| Client: H and K Developments | | Dates: 15/01/2024 - 15/01/2024 | Logged By LW |

| Well | Water Strikes | Samples and In Situ Testing | | | Depth (m) | Level (m) | Legend | Stratum Description |
|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | Type | Results | | | | |
| | | | | | 0.06 | | | MADE GROUND: Black Bound Macadam |
| | | 0.20 | ES | | 0.26 | | | MADE GROUND: Grey clast supported CONCRETE with 5mm rebar at 0.18m depth |
| | | 0.50 | ES | | | | | MADE GROUND: Firm, dark brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse of angular brick, coal and sandstone. |
| | | | | | 0.70 | | | |
| | | | | | 0.80 | | | Firm, grey mottled brown very sandy CLAY. Sand is fine to coarse. [GLACIAL TILL] |
| | | 1.20 | | N=9 (1,2/2,2,2,3) | | | | Firm, grey mottled brown and orange sandy CLAY. Sand is fine to coarse. [GLACIAL TILL] |
| | | | | | 1.30 | | | Dense, reddish orange fine to coarse SAND. [RESIDUAL CHESTER FORMATION] |
| | | 2.00 | | N=26 (2,3/3,4,7,12) | | | | |
| | | 2.50 | | 55 (9,15/55 for 195mm) | 2.50 | | | End of borehole at 2.50 m |

Remarks
1. Borehole was scanned and inspection pit dug. 2. No visual or olfactory evidence of contamination. 3. Groundwater was not encountered. 4. The borehole was terminated at 2.5 mbgl due to SPT refusal. 5. Borehole installed with 1m plain pipe and 1.5 m slotted pipe.

Earth Environmental & Geotechnical Ltd
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Houldsworth Street
Stockport
SK5 6DA

# Borehole Log

Borehole No.
**WS03**
Sheet 1 of 1

| | | | |
|---|---|---|---|
| Project Name: The Albion Inn, Burnage Lane | Project No. A5595 | Co-ords: - | Hole Type WS |
| Location: The Albion Inn, 576 Burnage Lane, Manchester M18 1NA | | Level: | Scale 1:35 |
| Client: H and K Developments | | Dates: 15/01/2024 - 15/01/2024 | Logged By LW |

| Well | Water Strikes | Samples and In Situ Testing | | | Depth (m) | Level (m) | Legend | Stratum Description |
|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | Type | Results | | | | |
| | | 0.10 | ES | | 0.01 | | | MADE GROUND: Black Bound Macadam |
| | | 0.30 | ES | | | | | MADE GROUND: Grey sandy fine to coarse GRAVEL of angular sandstone and limestone. [ENGINEERING FILL] |
| | | | | | 0.60 | | | Light brown fine to coarse SAND. [GLACIAL TILL] |
| | | | | | 1.00 | | | Firm, grey mottled brown and orange sandy CLAY. Sand is fine to coarse. [GLACIAL TILL] |
| | | 1.20 | | N=10 (1,2/2,3,2,3) | | | | |
| | | | | | 1.47 | | | Dense, reddish orange fine to coarse SAND. [RESIDUAL CHESTER FORMATION] |
| | | 2.00 | | 50 (5,8/50 for 190mm) | 2.00 | | | End of borehole at 2.00 m |

Remarks
1. Borehole was scanned and inspection pit dug. 2. No visual or olfactory evidence of contamination. 3. Groundwater was not encountered. 4. The borehole was terminated at 2.00 mbgl due to SPT refusal. 5. Borehole installed with 1m plain pipe and 1.0m slotted pipe.

Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Stockport
SK5 6DA

# Borehole Log

Borehole No.
**WS04**
Sheet 1 of 1

| | | | |
|---|---|---|---|
| Project Name: The Albion Inn, Burnage Lane | Project No. A5595 | Co-ords: - | Hole Type WS |
| Location: The Albion Inn, 576 Burnage Lane, Manchester M18 1NA | | Level: | Scale 1:35 |
| Client: H and K Developments | | Dates: 15/01/2024 - 15/01/2024 | Logged By LW |

| Well | Water Strikes | Samples and In Situ Testing | | | Depth (m) | Level (m) | Legend | Stratum Description |
|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | Type | Results | | | | |
| | | | | | 0.01 | | | CONCRETE FLAG |
| | | 0.30 | ES | | 0.25 | | | MADE GROUND: Grey matrix supported CONCRETE |
| | | | | | | | | MADE GROUND: Brown, slightly gravelly fine to coarse SAND. Gravel is fine to coarse of angular brick and sandstone. |
| | | | | | 0.85 | | | Stiff, brown mottled grey sandy CLAY. Sand is fine to coarse. [GLACIAL TILL] |
| | | 1.00 | D | | | | | |
| | | 1.20 | | N=14 (2,2/2,3,4,5) | | | | |
| | | 1.40 - 2.00 | B | | 1.40 | | | *Grey fine to coarse clayey SAND.* Dense, reddish orange fine to coarse SAND. [RESIDUAL CHESTER FORMATION] |
| | | 2.00 | | 50 (8,14/50 for 125mm) | 2.00 | | | End of borehole at 2.00 m |

Remarks
1. Borehole was scanned and inspection pit dug. 2. No visual or olfactory evidence of contamination. 3. Groundwater was not encountered. 4. The borehole was terminated at 2.0 mbgl due to SPT refusal. 5. Borehole installed with 1m plain pipe and 1.0 m slotted pipe.

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Houldsworth Mill Business Centre
Houldsworth Street
Stockport
SK5 6DA

# Borehole Log

Borehole No.
**WS05**
Sheet 1 of 1

| | | | |
|---|---|---|---|
| Project Name: The Albion Inn, Burnage Lane | Project No. A5595 | Co-ords: - | Hole Type WS |
| Location: The Albion Inn, 576 Burnage Lane, Manchester M18 1NA | | Level: | Scale 1:35 |
| Client: H and K Developments | | Dates: 15/01/2024 - 15/01/2024 | Logged By LW |

| Well | Water Strikes | Samples and In Situ Testing | | | Depth (m) | Level (m) | Legend | Stratum Description |
|---|---|---|---|---|---|---|---|---|
| | | Depth (m) | Type | Results | | | | |
| | | | | | 0.10 | | | MADE GROUND: Grey matrix supported CONCRETE |
| | | 0.50 | ES | | 0.40 | | | MADE GROUND: grey and red sandy fine to coarse GRAVEL of angular brick and concrete with low cobble content of brick. Sand is fine to coarse. Brown fine to coarse SAND. |
| | | 1.00 | D | | 0.85 | | | Stiff, brown mottled grey sandy CLAY. Sand is fine to coarse. |
| | | 1.00 - 2.00 | D | | | | | |
| | | 1.20 | | N=14 (2,2/2,4,4,4) | | | | |
| | | 2.00 | | N=50 (7,11/50 for 255mm) | 1.90 | | | Dense, reddish orange fine to coarse SAND. [RESIDUAL CHESTER FORMATION] |
| | | 2.00 - 2.60 | B | | | | | |
| | | 2.60 | D | | 2.60 | | | End of borehole at 2.60 m |
| | | 2.60 | | 50 (25 for 45mm/50 for 60mm) | | | | |

1
2
3
4
5
6
7

Remarks
1. Borehole was scanned and inspection pit dug. 2. No visual or olfactory evidence of contamination. 3. Groundwater was not encountered. 4. The borehole was terminated at 2.6 mbgl due to SPT refusal. 5. Borehole installed with 1m plain pipe and 1.6 m slotted pipe.

# APPENDIX 2

# GEOTECHNICAL TESTING RESULTS

MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

# TEST REPORT

**Client** Earth Environmental & Geotechnical Ltd

**Address** Houldsworth Mill Business & Arts Centre
Houldsworth Mill
Reddish
Stockport
SK5 6DA

**Contract** A5595 -
Burnage Lane

**Job Number** MRN 24055/9
**Date of Issue** 05 February 2024


Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870


UKAS TESTING 1580

## TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892-4:2016

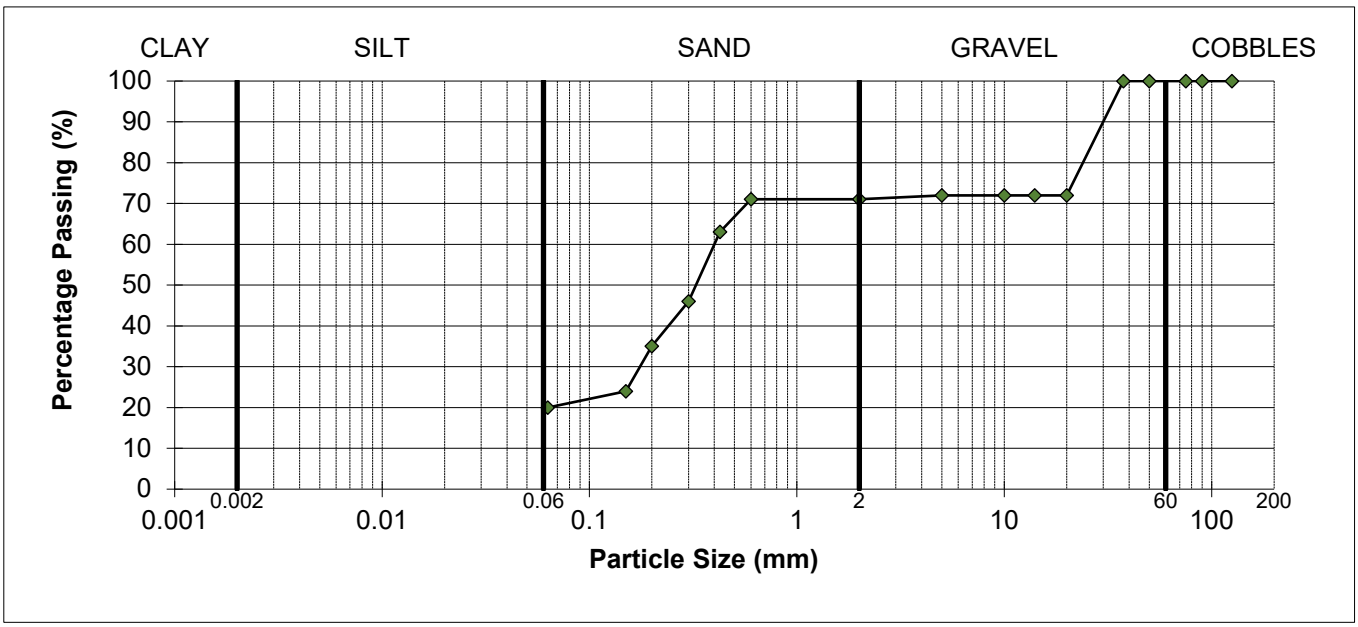
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

| | |
|---|---|
| CLIENT | Earth Environmental & Geotechnical Ltd |
| SITE | A5595 - Burnage Lane |
| JOB NUMBER | MRN 24055/9 |

| | | | |
|---|---|---|---|
| SAMPLE LABEL | WS05 2.00-2.60m | DATE SAMPLED | 15-Jan-24 |
| LAB SAMPLE No | 406706 | DATE RECEIVED | 16-Jan-24 |
| DATE TESTED | 17-Jan-24 | SAMPLED BY | Client |

| | |
|---|---|
| MATERIAL | Red silty gravelly SAND |
| ADVISED SOURCE | Site Investigation Sample |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|---|---|---|---|---|---|
| 125 | 100 | | 5 | 72 | |
| 90 | 100 | | 2 | 71 | |
| 75 | 100 | | 0.6 | 71 | |
| 50 | 100 | | 0.425 | 63 | |
| 37.5 | 100 | | 0.3 | 46 | |
| 20 | 72 | | 0.2 | 35 | |
| 14 | 72 | | 0.15 | 24 | |
| 10 | 72 | | 0.063 | 20 | |




REMARKS

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 05-Feb-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

**TEST CERTIFICATE**

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

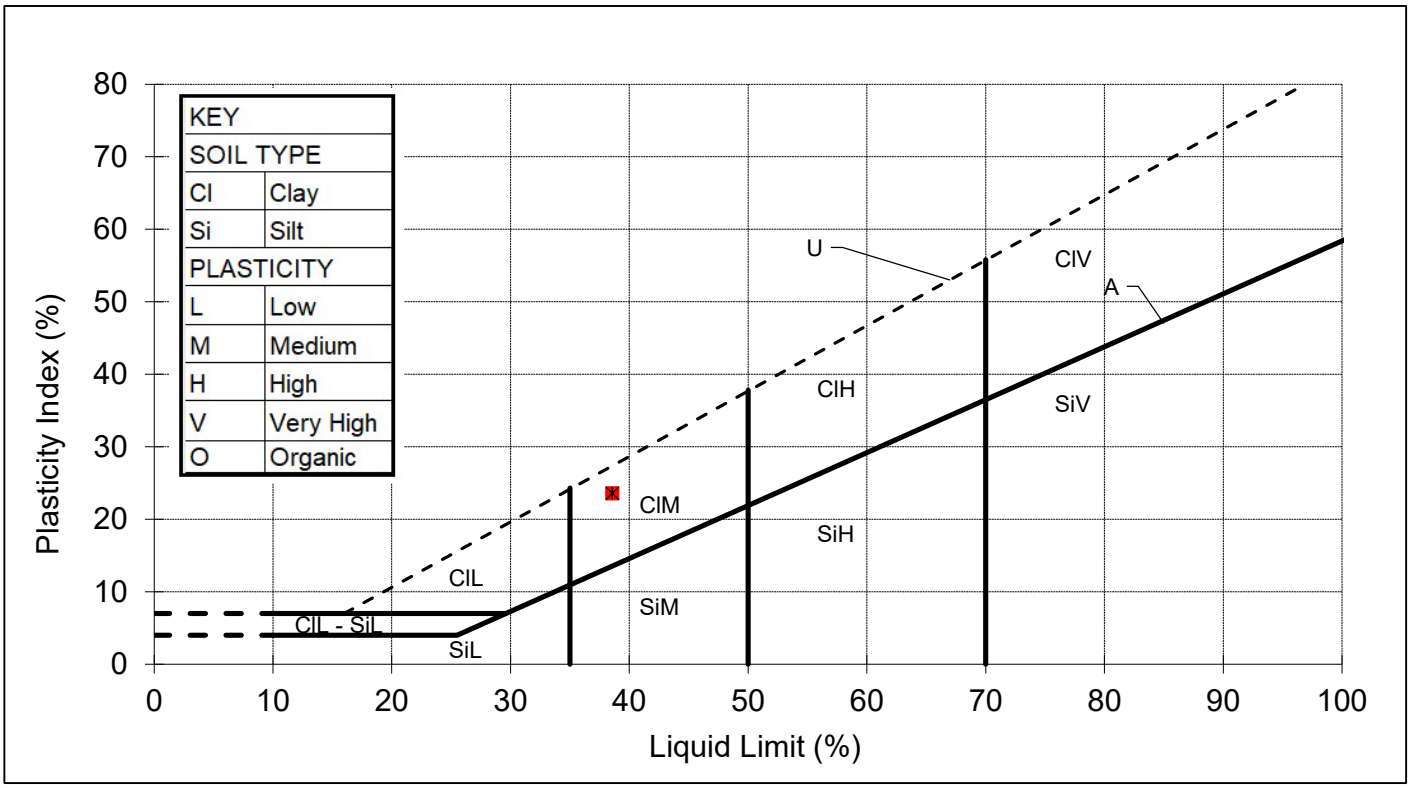
| | |
|---|---|
| CLIENT | Earth Environmental & Geotechnical Ltd |
| SITE | A5595 - Burnage Lane |
| JOB NUMBER | MRN 24055/9 |

| | | | |
|---|---|---|---|
| SAMPLE LABEL | WS04 1.00m | DATE SAMPLED | 15-Jan-24 |
| SAMPLE No. | 406701 | DATE RECEIVED | 16-Jan-24 |
| DATE TESTED | 17-Jan-24 | SAMPLED BY | Client |

| | | | |
|---|---|---|---|
| MATERIAL | Brown silty slightly sandy slightly gravelly CLAY | | |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT | Increasing |
| SAMPLE HISTORY | Natural State | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) | | Moisture Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|---|---|---|---|---|
| Determination 1 (avg) | 20.1 | 38.6 | 0.999 | |
| Determination 2 (avg) | 20.1 | 38.6 | | |

| Natural Moisture Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---|---|---|---|---|
| 21.6 | 39 | 15 | 24 | 81 |




REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 05-Feb-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

**TEST CERTIFICATE**

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD
PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5
WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

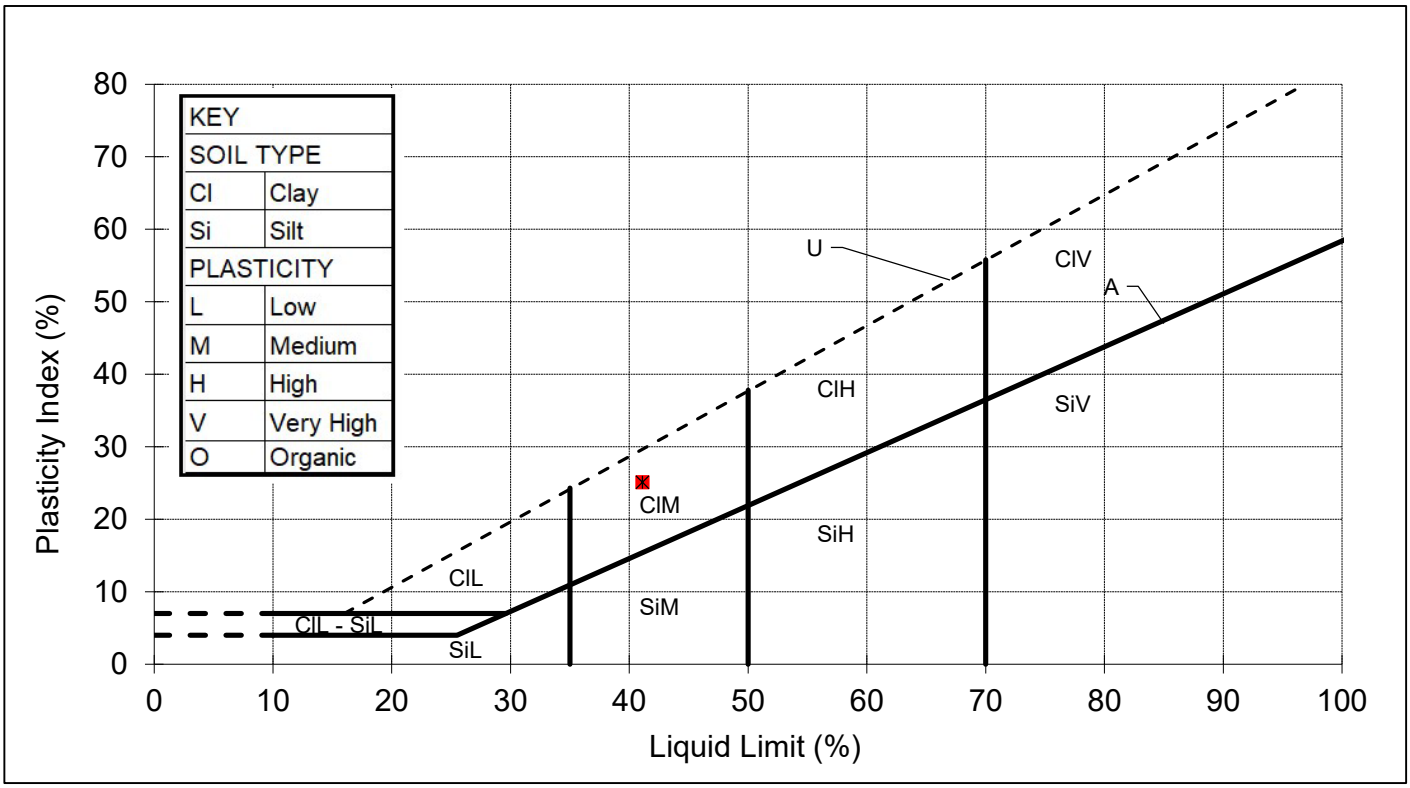
| | |
|---|---|
| CLIENT | Earth Environmental & Geotechnical Ltd |
| SITE | A5595 - Burnage Lane |
| JOB NUMBER | MRN 24055/9 |

| | | | |
|---|---|---|---|
| SAMPLE LABEL | WS05 1.00m | DATE SAMPLED | 15-Jan-24 |
| SAMPLE No. | 406704 | DATE RECEIVED | 16-Jan-24 |
| DATE TESTED | 17-Jan-24 | SAMPLED BY | Client |

| | | | |
|---|---|---|---|
| MATERIAL | Brown silty slightly sandy slightly gravelly CLAY | | |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT | Increasing |
| SAMPLE HISTORY | Natural State | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) | | Moisture Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|---|---|---|---|---|
| Determination 1 (avg) | 18.8 | 40.3 | 1.020 | |
| Determination 2 (avg) | 18.8 | 40.3 | | |

| Natural Moisture Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---|---|---|---|---|
| 23.0 | 41 | 16 | 25 | 88 |




REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 05-Feb-24

# M U R R A Y  R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870


**TEST CERTIFICATE**

DETERMINATION OF WATER-SOLUBLE SULPHATE IN SOIL
& DETERMINATION OF THE pH VALUE
BS 1377-3:2018+A1:2021, Cl. 7.3 & Cl. 12

| | |
|---|---|
| CLIENT | Earth Environmental & Geotechnical Ltd |
| SITE | A5595 - Burnage Lane |
| JOB NUMBER | MRN 24055/9 |

| | | | |
|---|---|---|---|
| DATE TESTED | 17-Jan-24 | DATE SAMPLED | 15-Jan-24 |
| SAMPLED BY | Client | DATE RECEIVED | 16-Jan-24 |
| PRE-TREATMENT | Air Dried | ADVISED SOURCE | Site Investigation Samples |

| Sample Number | Sample Label | Material | % Ret. 2mm | pH Value | Water Soluble Sulphate as $SO_4$ (mg/l) |
|---|---|---|---|---|---|
| 406702 | WS04 1.00m | Brown silty slightly sandy slightly gravelly CLAY | 6 | 7.2 | 80 |
| 406704 | WS05 1.00m | Brown silty slightly sandy slightly gravelly CLAY | 4 | 7.4 | 90 |
| 406705 | WS05 2.60m | Red silty gravelly SAND | 15 | 7.6 | 120 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 05-Feb-24

# APPENDIX 3

# CHEMICAL TESTING RESULTS

Adam Czarnecki
Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
Houldsworth Street
Reddish
Stockport
Cheshire
SK5 6DA

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

# DETS Report No: 24-00434

| | |
|---|---|
| **Site Reference:** | Burnage Lane, Manchester |
| **Project / Job Ref:** | A5595 |
| **Order No:** | None Supplied |
| **Sample Receipt Date:** | 17/01/2024 |
| **Sample Scheduled Date:** | 17/01/2024 |
| **Report Issue Number:** | 1 |
| **Reporting Date:** | 23/01/2024 |

**Authorised by:**

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.

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

4480

| Soil Analysis Certificate | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS01 | WS01 | WS02 | WS02 | WS03 |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.60 | 0.20 | 0.50 | 0.30 |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694435 | 694436 | 694437 | 694438 | 694439 |

| Determinand | Unit | RL | Accreditation | (n) | | | (n) | |
|---|---|---|---|---|---|---|---|---|
| Asbestos Screen (S) | N/a | N/a | ISO17025 | Not Detected | Not Detected | Not Detected | Not Detected | Not Detected |
| pH | pH Units | N/a | MCERTS | 10.0 | 7.2 | 8.8 | 8.0 | 7.6 |
| 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 $SO_4$ | mg/kg | < 200 | MCERTS | 1206 | < 200 | 5297 | 1768 | 222 |
| Total Sulphate as $SO_4$ | % | < 0.02 | MCERTS | 0.12 | < 0.02 | 0.53 | 0.18 | 0.02 |
| W/S Sulphate as $SO_4$ (2:1) | mg/l | < 10 | MCERTS | 115 | 13 | 725 | 348 | 10 |
| W/S Sulphate as $SO_4$ (2:1) | g/l | < 0.01 | MCERTS | 0.12 | 0.01 | 0.72 | 0.35 | 0.01 |
| Sulphide | mg/kg | < 5 | NONE | < 5 | 18 | < 5 | < 5 | < 5 |
| Organic Matter (SOM) | % | < 0.1 | MCERTS | 16.8 | 2 | 2.4 | 9.4 | 4.2 |
| Arsenic (As) | mg/kg | < 2 | MCERTS | 12 | 5 | 15 | 27 | 8 |
| Barium (Ba) | mg/kg | < 2.5 | MCERTS | 104 | 95 | 169 | 134 | 36 |
| Beryllium (Be) | mg/kg | < 0.5 | MCERTS | 1 | < 0.5 | 0.6 | 1.2 | < 0.5 |
| W/S Boron | mg/kg | < 1 | NONE | < 1 | < 1 | 2 | 1.3 | < 1 |
| Cadmium (Cd) | mg/kg | < 0.2 | MCERTS | < 0.2 | < 0.2 | 2.1 | 0.9 | 0.3 |
| Chromium (Cr) | mg/kg | < 2 | MCERTS | 10 | 10 | 16 | 13 | 6 |
| Chromium (hexavalent) | mg/kg | < 2 | NONE | < 2 | < 2 | < 2 | < 2 | < 2 |
| Copper (Cu) | mg/kg | < 4 | MCERTS | 44 | 11 | 32 | 55 | 26 |
| Lead (Pb) | mg/kg | < 3 | MCERTS | 79 | 17 | 47 | 121 | 39 |
| Mercury (Hg) | mg/kg | < 1 | MCERTS | 1.2 | < 1 | < 1 | < 1 | < 1 |
| Nickel (Ni) | mg/kg | < 3 | MCERTS | 16 | 7 | 12 | 16 | 8 |
| Selenium (Se) | mg/kg | < 2 | MCERTS | < 2 | < 2 | < 2 | < 2 | < 2 |
| Vanadium (V) | mg/kg | < 1 | MCERTS | 23 | 13 | 33 | 30 | 11 |
| Zinc (Zn) | mg/kg | < 3 | MCERTS | 45 | 20 | 173 | 138 | 29 |
| Total Phenols (monohydric) | mg/kg | < 2 | NONE | < 2 | < 2 | < 2 | < 2 | < 2 |
| TPH (EPH EC10-EC40) : EH_1D_Total | mg/kg | < 6 | MCERTS | 538 | 7 | 7070 | 317 | 617 |

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

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

4480

| Soil Analysis Certificate | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | | | |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | | | |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS04 | WS05 | | | |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | | | |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.50 | | | |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694440 | 694441 | | | |

| Determinand | Unit | RL | Accreditation | (n) | | | | |
|---|---|---|---|---|---|---|---|---|
| Asbestos Screen (S) | N/a | N/a | ISO17025 | Not Detected | Not Detected | | | |
| pH | pH Units | N/a | MCERTS | 7.9 | 7.6 | | | |
| Total Cyanide | mg/kg | < 1 | NONE | < 1 | < 1 | | | |
| Complex Cyanide | mg/kg | < 1 | NONE | < 1 | < 1 | | | |
| Free Cyanide | mg/kg | < 1 | NONE | < 1 | < 1 | | | |
| Total Sulphate as $SO_4$ | mg/kg | < 200 | MCERTS | 335 | < 200 | | | |
| Total Sulphate as $SO_4$ | % | < 0.02 | MCERTS | 0.03 | < 0.02 | | | |
| W/S Sulphate as $SO_4$ (2:1) | mg/l | < 10 | MCERTS | 31 | 22 | | | |
| W/S Sulphate as $SO_4$ (2:1) | g/l | < 0.01 | MCERTS | 0.03 | 0.02 | | | |
| Sulphide | mg/kg | < 5 | NONE | < 5 | < 5 | | | |
| Organic Matter (SOM) | % | < 0.1 | MCERTS | 1.6 | 1 | | | |
| Arsenic (As) | mg/kg | < 2 | MCERTS | 4 | < 2 | | | |
| Barium (Ba) | mg/kg | < 2.5 | MCERTS | 34 | 10 | | | |
| Beryllium (Be) | mg/kg | < 0.5 | MCERTS | < 0.5 | < 0.5 | | | |
| W/S Boron | mg/kg | < 1 | NONE | < 1 | < 1 | | | |
| Cadmium (Cd) | mg/kg | < 0.2 | MCERTS | < 0.2 | < 0.2 | | | |
| Chromium (Cr) | mg/kg | < 2 | MCERTS | 5 | < 2 | | | |
| Chromium (hexavalent) | mg/kg | < 2 | NONE | < 2 | < 2 | | | |
| Copper (Cu) | mg/kg | < 4 | MCERTS | 14 | < 4 | | | |
| Lead (Pb) | mg/kg | < 3 | MCERTS | 27 | 5 | | | |
| Mercury (Hg) | mg/kg | < 1 | MCERTS | < 1 | < 1 | | | |
| Nickel (Ni) | mg/kg | < 3 | MCERTS | < 3 | < 3 | | | |
| Selenium (Se) | mg/kg | < 2 | MCERTS | < 2 | < 2 | | | |
| Vanadium (V) | mg/kg | < 1 | MCERTS | 7 | 2 | | | |
| Zinc (Zn) | mg/kg | < 3 | MCERTS | 15 | 3 | | | |
| Total Phenols (monohydric) | mg/kg | < 2 | NONE | < 2 | < 2 | | | |
| TPH (EPH EC10-EC40) : EH_1D_Total | mg/kg | < 6 | MCERTS | < 6 | < 6 | | | |

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)

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

| Soil Analysis Certificate - Speciated PAHs | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS01 | WS01 | WS02 | WS02 | WS03 |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.60 | 0.20 | 0.50 | 0.30 |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694435 | 694436 | 694437 | 694438 | 694439 |

| Determinand | Unit | RL | Accreditation | | | | | |
|---|---|---|---|---|---|---|---|---|
| Naphthalene | mg/kg | < 0.1 | MCERTS | 0.48 | < 0.1 | 0.42 | 0.16 | 0.23 |
| Acenaphthylene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.13 |
| Acenaphthene | mg/kg | < 0.1 | MCERTS | 0.91 | < 0.1 | 0.13 | < 0.1 | 2.47 |
| Fluorene | mg/kg | < 0.1 | MCERTS | 0.96 | < 0.1 | 0.35 | < 0.1 | 1.97 |
| Phenanthrene | mg/kg | < 0.1 | MCERTS | 10 | < 0.1 | 1.37 | 0.98 | 19.70 |
| Anthracene | mg/kg | < 0.1 | MCERTS | 1.86 | < 0.1 | 0.22 | 0.21 | 8.56 |
| Fluoranthene | mg/kg | < 0.1 | MCERTS | 8.89 | < 0.1 | 0.88 | 1.03 | 35.80 |
| Pyrene | mg/kg | < 0.1 | MCERTS | 7.98 | < 0.1 | 0.87 | 0.96 | 28.50 |
| Benzo(a)anthracene | mg/kg | < 0.1 | MCERTS | 3.03 | < 0.1 | 0.54 | 0.57 | 16 |
| Chrysene | mg/kg | < 0.1 | MCERTS | 2.86 | < 0.1 | 0.61 | 0.50 | 13.40 |
| Benzo(b)fluoranthene | mg/kg | < 0.1 | MCERTS | 2.32 | < 0.1 | 0.42 | 0.62 | 13.60 |
| Benzo(k)fluoranthene | mg/kg | < 0.1 | MCERTS | 0.82 | < 0.1 | < 0.1 | 0.20 | 5.61 |
| Benzo(a)pyrene | mg/kg | < 0.1 | MCERTS | 2 | < 0.1 | 0.35 | 0.50 | 13.60 |
| Indeno(1,2,3-cd)pyrene | mg/kg | < 0.1 | MCERTS | 0.90 | < 0.1 | < 0.1 | 0.26 | 6.74 |
| Dibenz(a,h)anthracene | mg/kg | < 0.1 | MCERTS | 0.21 | < 0.1 | < 0.1 | < 0.1 | 1.82 |
| Benzo(ghi)perylene | mg/kg | < 0.1 | MCERTS | 0.75 | < 0.1 | < 0.1 | 0.22 | 5.55 |
| Total EPA-16 PAHs | mg/kg | < 1.6 | MCERTS | 44 | < 1.6 | 6.2 | 6.2 | 174 |

(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

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

| Soil Analysis Certificate - Speciated PAHs | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | | | |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | | | |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS04 | WS05 | | | |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | | | |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.50 | | | |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694440 | 694441 | | | |

| Determinand | Unit | RL | Accreditation | (n) | | | | |
|---|---|---|---|---|---|---|---|---|
| Naphthalene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Acenaphthylene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Acenaphthene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Fluorene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Phenanthrene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Anthracene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Fluoranthene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Pyrene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Benzo(a)anthracene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Chrysene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Benzo(b)fluoranthene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Benzo(k)fluoranthene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Benzo(a)pyrene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Indeno(1,2,3-cd)pyrene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Dibenz(a,h)anthracene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Benzo(ghi)perylene | mg/kg | < 0.1 | MCERTS | < 0.1 | < 0.1 | | | |
| Total EPA-16 PAHs | mg/kg | < 1.6 | MCERTS | < 1.6 | < 1.6 | | | |

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

| Soil Analysis Certificate - TPH CWG Banded | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS01 | WS01 | WS02 | WS02 | WS03 |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.60 | 0.20 | 0.50 | 0.30 |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694435 | 694436 | 694437 | 694438 | 694439 |

| Determinand | Unit | RL | Accreditation | (n) | | | (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 | 16 | < 2 | 3 | < 2 | 4 |
| Aliphatic >C10 - C12 : EH_CU_1D_AL | mg/kg | < 2 | MCERTS | 8 | < 2 | 15 | < 2 | 2 |
| Aliphatic >C12 - C16 : EH_CU_1D_AL | mg/kg | < 3 | MCERTS | 7 | < 3 | 254 | < 3 | 10 |
| Aliphatic >C16 - C21 : EH_CU_1D_AL | mg/kg | < 3 | MCERTS | 16 | < 3 | 753 | 3 | 55 |
| Aliphatic >C21 - C34 : EH_CU_1D_AL | mg/kg | < 10 | MCERTS | 154 | < 10 | 1878 | 42 | 46 |
| Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL | mg/kg | < 21 | NONE | 201 | < 21 | 2903 | 45 | 117 |
| Aromatic >C5 - C7 : HS_1D_MS_AR | mg/kg | < 0.01 | NONE | 0.74 | 0.56 | 0.11 | 0.04 | < 0.01 |
| Aromatic >C7 - C8 : HS_1D_MS_AR | mg/kg | < 0.05 | NONE | 0.26 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Aromatic >C8 - C10 : EH_CU_1D_AR | mg/kg | < 2 | MCERTS | 36 | 4 | 3 | 3 | < 2 |
| Aromatic >C10 - C12 : EH_CU_1D_AR | mg/kg | < 2 | MCERTS | 9 | < 2 | 3 | < 2 | < 2 |
| Aromatic >C12 - C16 : EH_CU_1D_AR | mg/kg | < 2 | MCERTS | 17 | < 2 | 88 | 4 | 13 |
| Aromatic >C16 - C21 : EH_CU_1D_AR | mg/kg | < 3 | MCERTS | 80 | 12 | 578 | 24 | 123 |
| Aromatic >C21 - C35 : EH_CU_1D_AR | mg/kg | < 10 | MCERTS | 66 | < 10 | 1907 | 32 | 116 |
| Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR | mg/kg | < 21 | NONE | 208 | < 21 | 2578 | 63 | 251 |
| Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total | mg/kg | < 42 | NONE | 410 | < 42 | 5481 | 109 | 368 |

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

| Soil Analysis Certificate - TPH CWG Banded | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | | | |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | | | |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS04 | WS05 | | | |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | | | |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.50 | | | |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694440 | 694441 | | | |

| Determinand | Unit | RL | Accreditation | (n) | | | | |
|---|---|---|---|---|---|---|---|---|
| Aliphatic >C5 - C6 : HS_1D_MS_AL | mg/kg | < 0.01 | NONE | < 0.01 | < 0.01 | | | |
| Aliphatic >C6 - C8 : HS_1D_MS_AL | mg/kg | < 0.05 | NONE | < 0.05 | < 0.05 | | | |
| Aliphatic >C8 - C10 : EH_CU_1D_AL | mg/kg | < 2 | **MCERTS** | 4 | 6 | | | |
| Aliphatic >C10 - C12 : EH_CU_1D_AL | mg/kg | < 2 | **MCERTS** | 4 | 2 | | | |
| Aliphatic >C12 - C16 : EH_CU_1D_AL | mg/kg | < 3 | **MCERTS** | < 3 | < 3 | | | |
| Aliphatic >C16 - C21 : EH_CU_1D_AL | mg/kg | < 3 | **MCERTS** | < 3 | < 3 | | | |
| Aliphatic >C21 - C34 : EH_CU_1D_AL | mg/kg | < 10 | **MCERTS** | < 10 | < 10 | | | |
| Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL | mg/kg | < 21 | NONE | < 21 | < 21 | | | |
| Aromatic >C5 - C7 : HS_1D_MS_AR | mg/kg | < 0.01 | NONE | < 0.01 | < 0.01 | | | |
| Aromatic >C7 - C8 : HS_1D_MS_AR | mg/kg | < 0.05 | NONE | < 0.05 | < 0.05 | | | |
| Aromatic >C8 - C10 : EH_CU_1D_AR | mg/kg | < 2 | **MCERTS** | < 2 | < 2 | | | |
| Aromatic >C10 - C12 : EH_CU_1D_AR | mg/kg | < 2 | **MCERTS** | < 2 | < 2 | | | |
| Aromatic >C12 - C16 : EH_CU_1D_AR | mg/kg | < 2 | **MCERTS** | < 2 | < 2 | | | |
| Aromatic >C16 - C21 : EH_CU_1D_AR | mg/kg | < 3 | **MCERTS** | < 3 | < 3 | | | |
| Aromatic >C21 - C35 : EH_CU_1D_AR | mg/kg | < 10 | **MCERTS** | < 10 | < 10 | | | |
| Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR | mg/kg | < 21 | NONE | < 21 | < 21 | | | |
| Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total | mg/kg | < 42 | NONE | < 42 | < 42 | | | |

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**Maidstone**
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**Tel : 01622 850410**

| Soil Analysis Certificate - BTEX / MTBE | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 | 11/01/24 |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS01 | WS01 | WS02 | WS02 | WS03 |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | None Supplied | None Supplied | None Supplied |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.60 | 0.20 | 0.50 | 0.30 |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694435 | 694436 | 694437 | 694438 | 694439 |

| Determinand | Unit | RL | Accreditation | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benzene : HS_1D_MS | ug/kg | < 2 | MCERTS | 736 | 561 | 107 | 45 (n) | < 2 |
| Toluene : HS_1D_MS | ug/kg | < 5 | MCERTS | 259 | 28 | 12 | 7 | < 5 |
| Ethylbenzene : HS_1D_MS | ug/kg | < 2 | MCERTS | 45 | 27 | < 2 | < 2 | < 2 |
| p & m-xylene : HS_1D_MS | ug/kg | < 2 | MCERTS | 217 | 126 | 4 | 3 | < 2 |
| o-xylene : HS_1D_MS | ug/kg | < 2 | MCERTS | 72 | 39 | < 2 | < 2 | < 2 |
| MTBE : HS_1D_MS | ug/kg | < 5 | MCERTS | < 5 | < 5 | < 5 | < 5 | < 5 |

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| Soil Analysis Certificate - BTEX / MTBE | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | | | |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | | | |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS04 | WS05 | | | |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | | | |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.50 | | | |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694440 | 694441 | | | |

| Determinand | Unit | RL | Accreditation | (n) | | | | |
|---|---|---|---|---|---|---|---|---|
| Benzene : HS_1D_MS | ug/kg | < 2 | MCERTS | < 2 | < 2 | | | |
| Toluene : HS_1D_MS | ug/kg | < 5 | MCERTS | < 5 | < 5 | | | |
| Ethylbenzene : HS_1D_MS | ug/kg | < 2 | MCERTS | < 2 | < 2 | | | |
| p & m-xylene : HS_1D_MS | ug/kg | < 2 | MCERTS | < 2 | < 2 | | | |
| o-xylene : HS_1D_MS | ug/kg | < 2 | MCERTS | < 2 | < 2 | | | |
| MTBE : HS_1D_MS | ug/kg | < 5 | MCERTS | < 5 | < 5 | | | |

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| **Soil Analysis Certificate - PCB (7 Congeners)** | | | | | | |
|---|---|---|---|---|---|---|
| **DETS Report No: 24-00434** | **Date Sampled** | 11/01/24 | 11/01/24 | 11/01/24 | | |
| **Earth Environmental & Geotechnical Ltd** | **Time Sampled** | None Supplied | None Supplied | None Supplied | | |
| **Site Reference: Burnage Lane, Manchester** | **TP / BH No** | WS03 | WS04 | WS05 | | |
| **Project / Job Ref: A5595** | **Additional Refs** | None Supplied | None Supplied | None Supplied | | |
| **Order No: None Supplied** | **Depth (m)** | 0.30 | 0.30 | 0.50 | | |
| **Reporting Date: 23/01/2024** | **DETS Sample No** | 694439 | 694440 | 694441 | | |

| **Determinand** | **Unit** | **RL** | **Accreditation** | | | (n) | | |
|---|---|---|---|---|---|---|---|---|
| PCB Congener 28 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| PCB Congener 52 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| PCB Congener 101 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| PCB Congener 118 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| PCB Congener 138 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| PCB Congener 153 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| PCB Congener 180 | mg/kg | < 0.008 | NONE | < 0.008 | < 0.008 | < 0.008 | | |
| Total PCB (7 Congeners) | mg/kg | < 0.1 | NONE | < 0.1 | < 0.1 | < 0.1 | | |

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| Soil Analysis Certificate - Sample Descriptions |
|---|
| DETS Report No: 24-00434 |
| Earth Environmental & Geotechnical Ltd |
| Site Reference: Burnage Lane, Manchester |
| Project / Job Ref: A5595 |
| Order No: None Supplied |
| Reporting Date: 23/01/2024 |

| DETS Sample No | TP / BH No | Additional Refs | Depth (m) | Moisture Content (%) | Sample Matrix Description |
|---|---|---|---|---|---|
| 694435 | WS01 | None Supplied | 0.30 | 8.8 | Black sandy gravel with stones and concrete |
| 694436 | WS01 | None Supplied | 0.60 | 14.6 | Brown sandy clay |
| 694437 | WS02 | None Supplied | 0.20 | 10.3 | Light brown sandy clay with brick and concrete |
| 694438 | WS02 | None Supplied | 0.50 | 14.6 | Brown sandy gravel with stones and concrete |
| 694439 | WS03 | None Supplied | 0.30 | 8.9 | Black sandy clay with stones |
| 694440 | WS04 | None Supplied | 0.30 | 13.1 | Brown sandy clay with stones and brick |
| 694441 | WS05 | None Supplied | 0.50 | 8.2 | Brown sand with stones |

*Moisture content is part of procedure E003 & is not an accredited test*
Insufficient Sample I/S
Unsuitable Sample U/S

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4480

| **Soil Analysis Certificate - Methodology & Miscellaneous Information** |
|---|
| **DETS Report No: 24-00434** |
| **Earth Environmental & Geotechnical Ltd** |
| **Site Reference: Burnage Lane, Manchester** |
| **Project / Job Ref: A5595** |
| **Order No: None Supplied** |
| **Reporting Date: 23/01/2024** |

| Matrix | Analysed On | Determinand | Brief Method Description | Method No |
|---|---|---|---|---|
| Soil | D | Boron - Water Soluble | Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES | E012 |
| Soil | AR | BTEX | Determination of BTEX by headspace GC-MS | E001 |
| Soil | D | Cations | Determination of cations in soil by aqua-regia digestion followed by ICP-OES | E002 |
| Soil | D | Chloride - Water Soluble (2:1) | Determination of chloride by extraction with water & analysed by ion chromatography | E009 |
| Soil | AR | Chromium - Hexavalent | Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry | E016 |
| Soil | AR | Cyanide - Complex | Determination of complex cyanide by distillation followed by colorimetry | E015 |
| Soil | AR | Cyanide - Free | Determination of free cyanide by distillation followed by colorimetry | E015 |
| Soil | AR | Cyanide - Total | Determination of total cyanide by distillation followed by colorimetry | E015 |
| Soil | D | Cyclohexane Extractable Matter (CEM) | Gravimetrically determined through extraction with cyclohexane | E011 |
| Soil | AR | Diesel Range Organics (C10 - C24) | Determination of hexane/acetone extractable hydrocarbons by GC-FID | E004 |
| Soil | AR | Electrical Conductivity | Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement | E022 |
| Soil | AR | Electrical Conductivity | Determination of electrical conductivity by addition of water followed by electrometric measurement | E023 |
| Soil | D | Elemental Sulphur | Determination of elemental sulphur by solvent extraction followed by GC-MS | E020 |
| Soil | AR | EPH (C10 – C40) | Determination of acetone/hexane extractable hydrocarbons by GC-FID | E004 |
| Soil | AR | EPH Product ID | Determination of acetone/hexane extractable hydrocarbons by GC-FID | E004 |
| Soil | AR | EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40) | Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS | E004 |
| Soil | D | Fluoride - Water Soluble | Determination of Fluoride by extraction with water & analysed by ion chromatography | E009 |
| Soil | D | Fraction Organic Carbon (FOC) | Determination of TOC by combustion analyser. | E027 |
| Soil | D | Organic Matter (SOM) | Determination of TOC by combustion analyser. | E027 |
| Soil | D | TOC (Total Organic Carbon) | Determination of TOC by combustion analyser. | E027 |
| Soil | AR | Exchangeable Ammonium | Determination of ammonium by discrete analyser. | E029 |
| Soil | D | FOC (Fraction Organic Carbon) | Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate | E010 |
| Soil | D | Loss on Ignition @ 450oC | Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace | E019 |
| Soil | D | Magnesium - Water Soluble | Determination of water soluble magnesium by extraction with water followed by ICP-OES | E025 |
| Soil | D | Metals | Determination of metals by aqua-regia digestion followed by ICP-OES | E002 |
| Soil | AR | Mineral Oil (C10 - C40) | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge | E004 |
| Soil | AR | Moisture Content | Moisture content; determined gravimetrically | E003 |
| Soil | D | Nitrate - Water Soluble (2:1) | Determination of nitrate by extraction with water & analysed by ion chromatography | E009 |
| Soil | D | Organic Matter | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate | E010 |
| Soil | AR | PAH - Speciated (EPA 16) | Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards | E005 |
| Soil | AR | PCB - 7 Congeners | Determination of PCB by extraction with acetone and hexane followed by GC-MS | E008 |
| Soil | D | Petroleum Ether Extract (PEE) | Gravimetrically determined through extraction with petroleum ether | E011 |
| Soil | AR | pH | Determination of pH by addition of water followed by electrometric measurement | E007 |
| Soil | AR | Phenols - Total (monohydric) | Determination of phenols by distillation followed by colorimetry | E021 |
| Soil | D | Phosphate - Water Soluble (2:1) | Determination of phosphate by extraction with water & analysed by ion chromatography | E009 |
| Soil | D | Sulphate (as SO4) - Total | Determination of total sulphate by extraction with 10% HCl followed by ICP-OES | E013 |
| Soil | D | Sulphate (as SO4) - Water Soluble (2:1) | Determination of sulphate by extraction with water & analysed by ion chromatography | E009 |
| Soil | D | Sulphate (as SO4) - Water Soluble (2:1) | Determination of water soluble sulphate by extraction with water followed by ICP-OES | E014 |
| Soil | AR | Sulphide | Determination of sulphide by distillation followed by colorimetry | E018 |
| Soil | D | Sulphur - Total | Determination of total sulphur by extraction with aqua-regia followed by ICP-OES | E024 |
| Soil | AR | SVOC | Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS | E006 |
| Soil | AR | Thiocyanate (as SCN) | Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry | E017 |
| Soil | D | Toluene Extractable Matter (TEM) | Gravimetrically determined through extraction with toluene | E011 |
| Soil | D | Total Organic Carbon (TOC) | Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate | E010 |
| Soil | AR | TPH 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-C35) | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS | E004 |
| Soil | AR | TPH LQM (ali: C5-C6, C6-C8, C8-C10, 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) | Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS | E004 |
| Soil | AR | VOCs | Determination of volatile organic compounds by headspace GC-MS | E001 |
| Soil | AR | VPH (C6-C8 & C8-C10) | Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID | E001 |

**D Dried**
**AR As Received**

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

| **List of HWOL Acronyms and Operators** |
|---|
| **DETS Report No: 24-00434** |
| **Earth Environmental & Geotechnical Ltd** |
| **Site Reference: Burnage Lane, Manchester** |
| **Project / Job Ref: A5595** |
| **Order No: None Supplied** |
| **Reporting Date: 23/01/2024** |

| **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 |
| _ | 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 (EPH EC10-EC40) - EH_1D_Total |
| 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 4

# SOIL WASTE ASSESSMENT

# Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** 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)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

48FWK-ABOM1-O72ZW

## Job name

A5595-22 Albion Inn, Burnage Lane

## Description/Comments

## Project

A5595-22

## Site

Albion Inn, Burnage Lane

## Classified by

Name:
**Luke Glover**
Date:
**24 Jan 2024 16:12 GMT**
Telephone:

Company:
**Earth Environmental & Geotechnical Ltd**

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

**HazWasteOnline™ Certification:** -

| Course | Date |
|---|---|
| Hazardous Waste Classification | - |

## Purpose of classification

2 - Material Characterisation

## Address of the waste

Albion Inn, 576 Burnage Lane, Manchester **Post Code** M18 1NA

## SIC for the process giving rise to the waste

## Description of industry/producer giving rise to the waste

Existing material on site.

## Description of the specific process, sub-process and/or activity that created the waste

Preliminary investigation only.

## Description of the waste

Made ground clay, sand and gravel.

## Job summary

| # | Sample name | Depth [m] | Classification Result | Hazard properties | Page |
|---|---|---|---|---|---|
| 1 | WS01 | 0.30 | Non Hazardous | | 3 |
| 2 | WS01[2] | 0.60 | Non Hazardous | | 6 |
| 3 | WS02 | 0.20 | Hazardous | HP 3(i), HP 7, HP 11 | 9 |
| 4 | WS02[2] | 0.50 | Non Hazardous | | 12 |
| 5 | WS03 | 0.30 | Non Hazardous | | 15 |
| 6 | WS04 | 0.30 | Non Hazardous | | 18 |
| 7 | WS05 | 0.50 | Non Hazardous | | 21 |

## Related documents

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

## Report

Created by: Luke Glover

Created date: 24 Jan 2024 16:12 GMT


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## Classification of sample: WS01

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**WS01**
Sample Depth:
**0.30 m**
Moisture content:
**8.8%**
(dry weight correction)

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)

## Hazard properties

None identified

## Determinands

Moisture content: 8.8% Dry Weight Moisture Correction applied (MC)

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 12 mg/kg | 1.32 | 14.562 mg/kg | 0.00146 % | ✓ | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 104 mg/kg | 2.775 | 265.29 mg/kg | 0.0265 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 1 mg/kg | 3.22 | 2.959 mg/kg | 0.000296 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | <1 mg/kg | 1.142 | <1.142 mg/kg | <0.000114 % | | <**LOD** |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | <0.2 mg/kg | 1.462 | <0.292 mg/kg | <0.0000292 % | | <**LOD** |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | 10 mg/kg | 2.27 | 20.864 mg/kg | 0.00209 % | ✓ | |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 mg/kg | 1.126 | <2.252 mg/kg | <0.000225 % | | <**LOD** |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 44 mg/kg | 1.56 | 63.081 mg/kg | 0.00404 % | ✓ | |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 79 mg/kg | 2.749 | 199.574 mg/kg | 0.02 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | 1.2 mg/kg | 1.353 | 1.493 mg/kg | 0.000149 % | ✓ | |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 16 mg/kg | 1.5 | 22.062 mg/kg | 0.00221 % | ✓ | |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 mg/kg | 2.976 | <5.953 mg/kg | <0.000595 % | | <**LOD** |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 23 mg/kg | 2.554 | 53.987 mg/kg | 0.0054 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 45 mg/kg | 2.774 | 114.74 mg/kg | 0.0115 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | 538 mg/kg | | 494.485 mg/kg | 0.0494 % | ✓ | |

| # | | 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 | | | | | | | | | |
| 16 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <**LOD** |
| | | 603-181-00-X | 216-653-1 | 1634-04-4 | | | | | | | | | |
| 17 | | benzene | | | | 0.736 | mg/kg | | 0.676 | mg/kg | 0.0000676 % | ✓ | |
| | | 601-020-00-8 | 200-753-7 | 71-43-2 | | | | | | | | | |
| 18 | | toluene | | | | 0.259 | mg/kg | | 0.238 | mg/kg | 0.0000238 % | ✓ | |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 19 | | ethylbenzene | | | | 0.045 | mg/kg | | 0.0414 | mg/kg | 0.00000414 % | ✓ | |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 20 | | xylene | | | | 0.072 | mg/kg | | 0.0662 | mg/kg | 0.00000662 % | ✓ | |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 21 | | 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** |
| | | 006-007-00-5 | | | | | | | | | | | |
| 22 | | pH | | | | 10 | pH | | 10 | pH | 10pH | | |
| | | | | PH | | | | | | | | | |
| 23 | | naphthalene | | | | 0.48 | mg/kg | | 0.441 | mg/kg | 0.0000441 % | ✓ | |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 24 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 25 | | acenaphthene | | | | 0.91 | mg/kg | | 0.836 | mg/kg | 0.0000836 % | ✓ | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 26 | | fluorene | | | | 0.96 | mg/kg | | 0.882 | mg/kg | 0.0000882 % | ✓ | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 27 | | phenanthrene | | | | 10 | mg/kg | | 9.191 | mg/kg | 0.000919 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 28 | | anthracene | | | | 1.86 | mg/kg | | 1.71 | mg/kg | 0.000171 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 29 | | fluoranthene | | | | 8.89 | mg/kg | | 8.171 | mg/kg | 0.000817 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 30 | | pyrene | | | | 7.98 | mg/kg | | 7.335 | mg/kg | 0.000733 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 31 | | benzo[a]anthracene | | | | 3.03 | mg/kg | | 2.785 | mg/kg | 0.000278 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 32 | | chrysene | | | | 2.86 | mg/kg | | 2.629 | mg/kg | 0.000263 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 33 | | benzo[b]fluoranthene | | | | 2.32 | mg/kg | | 2.132 | mg/kg | 0.000213 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 34 | | benzo[k]fluoranthene | | | | 0.82 | mg/kg | | 0.754 | mg/kg | 0.0000754 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 35 | | benzo[a]pyrene; benzo[def]chrysene | | | | 2 | mg/kg | | 1.838 | mg/kg | 0.000184 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 36 | | indeno[123-cd]pyrene | | | | 0.9 | mg/kg | | 0.827 | mg/kg | 0.0000827 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 37 | | dibenz[a,h]anthracene | | | | 0.21 | mg/kg | | 0.193 | mg/kg | 0.0000193 % | ✓ | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 38 | | benzo[ghi]perylene | | | | 0.75 | mg/kg | | 0.689 | mg/kg | 0.0000689 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 39 | | phenol | | | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <**LOD** |
| | | 604-001-00-2 | 203-632-7 | 108-95-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.129 % | | |

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

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase product.

Hazard Statements hit:

**Flam. Liq. 2; H225** "Highly flammable liquid and vapour."

Because of determinands:

benzene: (conc.: 0.00006%)
toluene: (conc.: 0.00002%)
ethylbenzene: (conc.: 4.14e-06%)

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.0494%)
xylene: (conc.: 6.62e-06%)

## Classification of sample: WS01[2]

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**WS01[2]**
Sample Depth:
**0.60 m**
Moisture content:
**14.6%**
(dry weight correction)

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)

## Hazard properties

None identified

## Determinands

Moisture content: 14.6% Dry Weight Moisture Correction applied (MC)

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 5 mg/kg | 1.32 | 5.761 mg/kg | 0.000576 % | ✓ | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 95 mg/kg | 2.775 | 230.068 mg/kg | 0.023 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.5 mg/kg | 3.22 | <1.61 mg/kg | <0.000161 % | | <LOD |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | <1 mg/kg | 1.142 | <1.142 mg/kg | <0.000114 % | | <LOD |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | <0.2 mg/kg | 1.462 | <0.292 mg/kg | <0.0000292 % | | <LOD |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | 10 mg/kg | 2.27 | 19.808 mg/kg | 0.00198 % | ✓ | |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 mg/kg | 1.126 | <2.252 mg/kg | <0.000225 % | | <LOD |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 11 mg/kg | 1.56 | 14.972 mg/kg | 0.00096 % | ✓ | |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 17 mg/kg | 2.749 | 40.773 mg/kg | 0.00408 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <1 mg/kg | 1.353 | <1.353 mg/kg | <0.000135 % | | <LOD |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 7 mg/kg | 1.5 | 9.163 mg/kg | 0.000916 % | ✓ | |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 mg/kg | 2.976 | <5.953 mg/kg | <0.000595 % | | <LOD |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 13 mg/kg | 2.554 | 28.97 mg/kg | 0.0029 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 20 mg/kg | 2.774 | 48.414 mg/kg | 0.00484 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | 7 mg/kg | | 6.108 mg/kg | 0.000611 % | ✓ | |

| # | | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <**LOD** |
| 17 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | 0.561 | mg/kg | | 0.49 | mg/kg | 0.000049 % | ✓ | |
| 18 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | 0.028 | mg/kg | | 0.0244 | mg/kg | 0.00000244 % | ✓ | |
| 19 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | 0.027 | mg/kg | | 0.0236 | mg/kg | 0.00000236 % | ✓ | |
| 20 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | 0.039 | mg/kg | | 0.034 | mg/kg | 0.0000034 % | ✓ | |
| 21 | | 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 } | 006-007-00-5 | | | | <1 | mg/kg | 1.884 | <1.884 | mg/kg | <0.000188 % | | <**LOD** |
| 22 | | pH | | | PH | | 7.2 | pH | | 7.2 | pH | 7.2 pH | | |
| 23 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 24 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 25 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 26 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 27 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 28 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 29 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 30 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 31 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 32 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 33 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 34 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 35 | | 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** |
| 36 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 37 | | 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** |
| 38 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 39 | | phenol | 604-001-00-2 | 203-632-7 | 108-95-2 | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <**LOD** |
| | | | | | | | | | | | Total: | 0.0422 % | | |

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

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase product.

Hazard Statements hit:

**Flam. Liq. 2; H225** "Highly flammable liquid and vapour."

Because of determinands:

benzene: (conc.: 0.00004%)
toluene: (conc.: 2.44e-06%)
ethylbenzene: (conc.: 2.36e-06%)

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.00061%)
xylene: (conc.: 3.4e-06%)

## Classification of sample: WS02

**Hazardous Waste**
Classified as **17 05 03 ***
in the List of Waste

## Sample details

Sample name:
**WS02**
Sample Depth:
**0.20 m**
Moisture content:
**10.3%**
(dry weight correction)

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

## Hazard properties

**HP 7: Carcinogenic** "waste which induces cancer or increases its incidence"

Hazard Statements hit:

**Carc. 1B; H350** "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.641%)

**HP 11: Mutagenic** "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

**Muta. 1B; H340** "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.641%)

## Hazard properties (substances considered hazardous until shown otherwise)

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

**Flam. Liq. 2; H225** "Highly flammable liquid and vapour."

Because of determinands:

benzene: (conc.: 9.7e-06%)
toluene: (conc.: 1.09e-06%)

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.641%)

## Determinands

Moisture content: 10.3% Dry Weight Moisture Correction applied (MC)

| # | | 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 | | | | | | | |
| 1 | | arsenic { arsenic trioxide } | | | | 15 mg/kg | 1.32 | 17.955 mg/kg | 0.0018 % | ✓ | |
| | | 033-003-00-0 | 215-481-4 | 1327-53-3 | | | | | | | |

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 169 | mg/kg | 2.775 | 425.234 | mg/kg | 0.0425 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 0.6 | mg/kg | 3.22 | 1.752 | mg/kg | 0.000175 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 2 | mg/kg | 1.142 | 2.071 | mg/kg | 0.000207 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 2.1 | mg/kg | 1.462 | 2.783 | mg/kg | 0.000278 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | 16 | mg/kg | 2.27 | 32.928 | mg/kg | 0.00329 % | ✓ | |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 | mg/kg | 1.126 | <2.252 | mg/kg | <0.000225 % | | <LOD |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 32 | mg/kg | 1.56 | 45.253 | mg/kg | 0.0029 % | ✓ | |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 47 | mg/kg | 2.749 | 117.119 | mg/kg | 0.0117 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <1 | mg/kg | 1.353 | <1.353 | mg/kg | <0.000135 % | | <LOD |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 12 | mg/kg | 1.5 | 16.321 | mg/kg | 0.00163 % | ✓ | |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 | mg/kg | 2.976 | <5.953 | mg/kg | <0.000595 % | | <LOD |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 33 | mg/kg | 2.554 | 76.407 | mg/kg | 0.00764 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 173 | mg/kg | 2.774 | 435.111 | mg/kg | 0.0435 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | 7070 | mg/kg | | 6409.791 | mg/kg | 0.641 % | ✓ | |
| 16 | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <LOD |
| 17 | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | 0.107 | mg/kg | | 0.097 | mg/kg | 0.0000097 % | ✓ | |
| 18 | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | 0.012 | mg/kg | | 0.0109 | mg/kg | 0.00000109 % | ✓ | |
| 19 | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 20 | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| 21 | 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 } | 006-007-00-5 | | | | <1 | mg/kg | 1.884 | <1.884 | mg/kg | <0.000188 % | | <LOD |
| 22 | pH | | | PH | | 8.8 | pH | | 8.8 | pH | 8.8 pH | | |
| 23 | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.42 | mg/kg | | 0.381 | mg/kg | 0.0000381 % | ✓ | |
| 24 | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| 25 | acenaphthene | | 201-469-6 | 83-32-9 | | 0.13 | mg/kg | | 0.118 | mg/kg | 0.0000118 % | ✓ | |
| 26 | fluorene | | 201-695-5 | 86-73-7 | | 0.35 | mg/kg | | 0.317 | mg/kg | 0.0000317 % | ✓ | |

| # | | 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 | | | | | | | | | |
| 27 | | phenanthrene | | | | 1.37 | mg/kg | | 1.242 | mg/kg | 0.000124 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 28 | | anthracene | | | | 0.22 | mg/kg | | 0.199 | mg/kg | 0.0000199 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 29 | | fluoranthene | | | | 0.88 | mg/kg | | 0.798 | mg/kg | 0.0000798 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 30 | | pyrene | | | | 0.87 | mg/kg | | 0.789 | mg/kg | 0.0000789 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 31 | | benzo[a]anthracene | | | | 0.54 | mg/kg | | 0.49 | mg/kg | 0.000049 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 32 | | chrysene | | | | 0.61 | mg/kg | | 0.553 | mg/kg | 0.0000553 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 33 | | benzo[b]fluoranthene | | | | 0.42 | mg/kg | | 0.381 | mg/kg | 0.0000381 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 34 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 35 | | benzo[a]pyrene; benzo[def]chrysene | | | | 0.35 | mg/kg | | 0.317 | mg/kg | 0.0000317 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 36 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 37 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 38 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 39 | | phenol | | | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <**LOD** |
| | | 604-001-00-2 | 203-632-7 | 108-95-2 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.759 % | | |

Key

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

## Classification of sample: WS02[2]

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**WS02[2]**
Sample Depth:
**0.50 m**
Moisture content:
**14.6%**
(dry weight correction)

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)

## Hazard properties

None identified

## Determinands

Moisture content: 14.6% Dry Weight Moisture Correction applied (MC)

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 27 mg/kg | 1.32 | 31.107 mg/kg | 0.00311 % | ✓ | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 134 mg/kg | 2.775 | 324.517 mg/kg | 0.0325 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | 1.2 mg/kg | 3.22 | 3.372 mg/kg | 0.000337 % | ✓ | |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | 1.3 mg/kg | 1.142 | 1.296 mg/kg | 0.00013 % | ✓ | |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 0.9 mg/kg | 1.462 | 1.148 mg/kg | 0.000115 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | 13 mg/kg | 2.27 | 25.75 mg/kg | 0.00258 % | ✓ | |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 mg/kg | 1.126 | <2.252 mg/kg | <0.000225 % | | <LOD |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 55 mg/kg | 1.56 | 74.86 mg/kg | 0.0048 % | ✓ | |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 121 mg/kg | 2.749 | 290.206 mg/kg | 0.029 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <1 mg/kg | 1.353 | <1.353 mg/kg | <0.000135 % | | <LOD |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 16 mg/kg | 1.5 | 20.945 mg/kg | 0.00209 % | ✓ | |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 mg/kg | 2.976 | <5.953 mg/kg | <0.000595 % | | <LOD |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 30 mg/kg | 2.554 | 66.854 mg/kg | 0.00669 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 138 mg/kg | 2.774 | 334.06 mg/kg | 0.0334 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | 317 mg/kg | | 276.614 mg/kg | 0.0277 % | ✓ | |

| # | | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <**LOD** |
| 17 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | 0.045 | mg/kg | | 0.0393 | mg/kg | 0.00000393 % | ✓ | |
| 18 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | 0.007 | mg/kg | | 0.0061 | mg/kg | 0.000000611 % | ✓ | |
| 19 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <**LOD** |
| 20 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <**LOD** |
| 21 | | 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 } | 006-007-00-5 | | | | <1 | mg/kg | 1.884 | <1.884 | mg/kg | <0.000188 % | | <**LOD** |
| 22 | | pH | | | PH | | 8 | pH | | 8 | pH | 8pH | | |
| 23 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | 0.16 | mg/kg | | 0.14 | mg/kg | 0.000014 % | ✓ | |
| 24 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 25 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 26 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 27 | | phenanthrene | | 201-581-5 | 85-01-8 | | 0.98 | mg/kg | | 0.855 | mg/kg | 0.0000855 % | ✓ | |
| 28 | | anthracene | | 204-371-1 | 120-12-7 | | 0.21 | mg/kg | | 0.183 | mg/kg | 0.0000183 % | ✓ | |
| 29 | | fluoranthene | | 205-912-4 | 206-44-0 | | 1.03 | mg/kg | | 0.899 | mg/kg | 0.0000899 % | ✓ | |
| 30 | | pyrene | | 204-927-3 | 129-00-0 | | 0.96 | mg/kg | | 0.838 | mg/kg | 0.0000838 % | ✓ | |
| 31 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | 0.57 | mg/kg | | 0.497 | mg/kg | 0.0000497 % | ✓ | |
| 32 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | 0.5 | mg/kg | | 0.436 | mg/kg | 0.0000436 % | ✓ | |
| 33 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | 0.62 | mg/kg | | 0.541 | mg/kg | 0.0000541 % | ✓ | |
| 34 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | 0.2 | mg/kg | | 0.175 | mg/kg | 0.0000175 % | ✓ | |
| 35 | | benzo[a]pyrene; benzo[def]chrysene | 601-032-00-3 | 200-028-5 | 50-32-8 | | 0.5 | mg/kg | | 0.436 | mg/kg | 0.0000436 % | ✓ | |
| 36 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | 0.26 | mg/kg | | 0.227 | mg/kg | 0.0000227 % | ✓ | |
| 37 | | 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** |
| 38 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | 0.22 | mg/kg | | 0.192 | mg/kg | 0.0000192 % | ✓ | |
| 39 | | phenol | 604-001-00-2 | 203-632-7 | 108-95-2 | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <**LOD** |
| | | | | | | | | | | | Total: | 0.145 % | | |

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

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase product.

Hazard Statements hit:

**Flam. Liq. 2; H225** "Highly flammable liquid and vapour."

Because of determinands:

benzene: (conc.: 3.93e-06%)
toluene: (conc.: 6.11e-07%)

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0277%)

## Classification of sample: WS03

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**WS03**
Sample Depth:
**0.30 m**
Moisture content:
**8.9%**
(dry weight correction)

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)

## Hazard properties

None identified

## Determinands

Moisture content: 8.9% Dry Weight Moisture Correction applied (MC)

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 8 mg/kg | 1.32 | 9.699 mg/kg | 0.00097 % | ✓ | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 36 mg/kg | 2.775 | 91.747 mg/kg | 0.00917 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.5 mg/kg | 3.22 | <1.61 mg/kg | <0.000161 % | | <**LOD** |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | <1 mg/kg | 1.142 | <1.142 mg/kg | <0.000114 % | | <**LOD** |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | 0.3 mg/kg | 1.462 | 0.403 mg/kg | 0.0000403 % | ✓ | |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | 6 mg/kg | 2.27 | 12.507 mg/kg | 0.00125 % | ✓ | |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 mg/kg | 1.126 | <2.252 mg/kg | <0.000225 % | | <**LOD** |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 26 mg/kg | 1.56 | 37.241 mg/kg | 0.00239 % | ✓ | |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 39 mg/kg | 2.749 | 98.433 mg/kg | 0.00984 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <1 mg/kg | 1.353 | <1.353 mg/kg | <0.000135 % | | <**LOD** |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | 8 mg/kg | 1.5 | 11.021 mg/kg | 0.0011 % | ✓ | |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 mg/kg | 2.976 | <5.953 mg/kg | <0.000595 % | | <**LOD** |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 11 mg/kg | 2.554 | 25.796 mg/kg | 0.00258 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 29 mg/kg | 2.774 | 73.875 mg/kg | 0.00739 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | 617 mg/kg | | 566.575 mg/kg | 0.0567 % | ✓ | |

| # | | 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 | | | | | | | | | |
| 16 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <LOD |
| | | 603-181-00-X | 216-653-1 | 1634-04-4 | | | | | | | | | |
| 17 | | benzene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-020-00-8 | 200-753-7 | 71-43-2 | | | | | | | | | |
| 18 | | toluene | | | | <0.005 | mg/kg | | <0.005 | mg/kg | <0.0000005 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 19 | | ethylbenzene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 20 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 21 | | 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 |
| | | 006-007-00-5 | | | | | | | | | | | |
| 22 | | pH | | | | 7.6 | pH | | 7.6 | pH | 7.6 pH | | |
| | | | | PH | | | | | | | | | |
| 23 | | naphthalene | | | | 0.23 | mg/kg | | 0.211 | mg/kg | 0.0000211 % | ✓ | |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 24 | | acenaphthylene | | | | 0.13 | mg/kg | | 0.119 | mg/kg | 0.0000119 % | ✓ | |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 25 | | acenaphthene | | | | 2.47 | mg/kg | | 2.268 | mg/kg | 0.000227 % | ✓ | |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 26 | | fluorene | | | | 1.97 | mg/kg | | 1.809 | mg/kg | 0.000181 % | ✓ | |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 27 | | phenanthrene | | | | 19.7 | mg/kg | | 18.09 | mg/kg | 0.00181 % | ✓ | |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 28 | | anthracene | | | | 8.56 | mg/kg | | 7.86 | mg/kg | 0.000786 % | ✓ | |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 29 | | fluoranthene | | | | 35.8 | mg/kg | | 32.874 | mg/kg | 0.00329 % | ✓ | |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 30 | | pyrene | | | | 28.5 | mg/kg | | 26.171 | mg/kg | 0.00262 % | ✓ | |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 31 | | benzo[a]anthracene | | | | 16 | mg/kg | | 14.692 | mg/kg | 0.00147 % | ✓ | |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 32 | | chrysene | | | | 13.4 | mg/kg | | 12.305 | mg/kg | 0.00123 % | ✓ | |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 33 | | benzo[b]fluoranthene | | | | 13.6 | mg/kg | | 12.489 | mg/kg | 0.00125 % | ✓ | |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 34 | | benzo[k]fluoranthene | | | | 5.61 | mg/kg | | 5.152 | mg/kg | 0.000515 % | ✓ | |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 35 | | benzo[a]pyrene; benzo[def]chrysene | | | | 13.6 | mg/kg | | 12.489 | mg/kg | 0.00125 % | ✓ | |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 36 | | indeno[123-cd]pyrene | | | | 6.74 | mg/kg | | 6.189 | mg/kg | 0.000619 % | ✓ | |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 37 | | dibenz[a,h]anthracene | | | | 1.82 | mg/kg | | 1.671 | mg/kg | 0.000167 % | ✓ | |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 38 | | benzo[ghi]perylene | | | | 5.55 | mg/kg | | 5.096 | mg/kg | 0.00051 % | ✓ | |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 39 | | phenol | | | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <LOD |
| | | 604-001-00-2 | 203-632-7 | 108-95-2 | | | | | | | | | |
| 40 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.109 % | | |

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

## Supplementary Hazardous Property Information

**HP 3(i): Flammable** "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No free phase product.

Hazard Statements hit:

**Flam. Liq. 3; H226** "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0567%)

## Classification of sample: WS04

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**WS04**
Sample Depth:
**0.30 m**
Moisture content:
**13.1%**
(dry weight correction)

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)

## Hazard properties

None identified

## Determinands

Moisture content: 13.1% Dry Weight Moisture Correction applied (MC)

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | 4 mg/kg | 1.32 | 4.67 mg/kg | 0.000467 % | ✓ | |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 34 mg/kg | 2.775 | 83.432 mg/kg | 0.00834 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.5 mg/kg | 3.22 | <1.61 mg/kg | <0.000161 % | | <LOD |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | <1 mg/kg | 1.142 | <1.142 mg/kg | <0.000114 % | | <LOD |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | <0.2 mg/kg | 1.462 | <0.292 mg/kg | <0.0000292 % | | <LOD |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | 5 mg/kg | 2.27 | 10.035 mg/kg | 0.001 % | ✓ | |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 mg/kg | 1.126 | <2.252 mg/kg | <0.000225 % | | <LOD |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | 14 mg/kg | 1.56 | 19.308 mg/kg | 0.00124 % | ✓ | |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 27 mg/kg | 2.749 | 65.616 mg/kg | 0.00656 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <1 mg/kg | 1.353 | <1.353 mg/kg | <0.000135 % | | <LOD |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | <3 mg/kg | 1.5 | <4.501 mg/kg | <0.00045 % | | <LOD |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 mg/kg | 2.976 | <5.953 mg/kg | <0.000595 % | | <LOD |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 7 mg/kg | 2.554 | 15.806 mg/kg | 0.00158 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 15 mg/kg | 2.774 | 36.792 mg/kg | 0.00368 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | <6 mg/kg | | <6 mg/kg | <0.0006 % | | <LOD |

| # | | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | | Conv. Factor | Compound conc. | | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | 603-181-00-X | 216-653-1 | 1634-04-4 | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <**LOD** |
| 17 | | benzene | 601-020-00-8 | 200-753-7 | 71-43-2 | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <**LOD** |
| 18 | | toluene | 601-021-00-3 | 203-625-9 | 108-88-3 | | <0.005 | mg/kg | | <0.005 | mg/kg | <0.0000005 % | | <**LOD** |
| 19 | | ethylbenzene | 601-023-00-4 | 202-849-4 | 100-41-4 | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <**LOD** |
| 20 | | xylene | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <**LOD** |
| 21 | | 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 } | 006-007-00-5 | | | | <1 | mg/kg | 1.884 | <1.884 | mg/kg | <0.000188 % | | <**LOD** |
| 22 | | pH | | | PH | | 7.9 | pH | | 7.9 | pH | 7.9 pH | | |
| 23 | | naphthalene | 601-052-00-2 | 202-049-5 | 91-20-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 24 | | acenaphthylene | | 205-917-1 | 208-96-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 25 | | acenaphthene | | 201-469-6 | 83-32-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 26 | | fluorene | | 201-695-5 | 86-73-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 27 | | phenanthrene | | 201-581-5 | 85-01-8 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 28 | | anthracene | | 204-371-1 | 120-12-7 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 29 | | fluoranthene | | 205-912-4 | 206-44-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 30 | | pyrene | | 204-927-3 | 129-00-0 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 31 | | benzo[a]anthracene | 601-033-00-9 | 200-280-6 | 56-55-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 32 | | chrysene | 601-048-00-0 | 205-923-4 | 218-01-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 33 | | benzo[b]fluoranthene | 601-034-00-4 | 205-911-9 | 205-99-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 34 | | benzo[k]fluoranthene | 601-036-00-5 | 205-916-6 | 207-08-9 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 35 | | 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** |
| 36 | | indeno[123-cd]pyrene | | 205-893-2 | 193-39-5 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 37 | | 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** |
| 38 | | benzo[ghi]perylene | | 205-883-8 | 191-24-2 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| 39 | | phenol | 604-001-00-2 | 203-632-7 | 108-95-2 | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <**LOD** |
| 40 | | polychlorobiphenyls; PCB | 602-039-00-4 | 215-648-1 | 1336-36-3 | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <**LOD** |
| | | | | | | | | | | | Total: | 0.0262 % | | |

Key

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

## Classification of sample: WS05

**Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

## Sample details

Sample name:
**WS05**
Sample Depth:
**0.50 m**
Moisture content:
**8.2%**
(dry weight correction)

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)

## Hazard properties

None identified

## Determinands

Moisture content: 8.2% Dry Weight Moisture Correction applied (MC)

| # | Determinand | EU CLP index number | EC Number | CAS Number | CLP Note | User entered data | Conv. Factor | Compound conc. | Classification value | MC Applied | Conc. Not Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | arsenic { arsenic trioxide } | 033-003-00-0 | 215-481-4 | 1327-53-3 | | <2 mg/kg | 1.32 | <2.641 mg/kg | <0.000264 % | | <LOD |
| 2 | beryllium { beryllium oxide } | 004-003-00-8 | 215-133-1 | 1304-56-9 | | 10 mg/kg | 2.775 | 25.65 mg/kg | 0.00257 % | ✓ | |
| 3 | boron { diboron trioxide } | 005-008-00-8 | 215-125-8 | 1303-86-2 | | <0.5 mg/kg | 3.22 | <1.61 mg/kg | <0.000161 % | | <LOD |
| 4 | cadmium { cadmium oxide } | 048-002-00-0 | 215-146-2 | 1306-19-0 | | <1 mg/kg | 1.142 | <1.142 mg/kg | <0.000114 % | | <LOD |
| 5 | chromium in chromium(III) compounds { chromium(III) oxide (worst case) } | | 215-160-9 | 1308-38-9 | | <0.2 mg/kg | 1.462 | <0.292 mg/kg | <0.0000292 % | | <LOD |
| 6 | chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex } | 024-017-00-8 | | | | <2 mg/kg | 2.27 | <4.54 mg/kg | <0.000454 % | | <LOD |
| 7 | copper { dicopper oxide; copper (I) oxide } | 029-002-00-X | 215-270-7 | 1317-39-1 | | <2 mg/kg | 1.126 | <2.252 mg/kg | <0.000225 % | | <LOD |
| 8 | lead { lead chromate } | 082-004-00-2 | 231-846-0 | 7758-97-6 | 1 | <4 mg/kg | 1.56 | <6.239 mg/kg | <0.0004 % | | <LOD |
| 9 | manganese { manganese sulphate } | 025-003-00-4 | 232-089-9 | 7785-87-7 | | 5 mg/kg | 2.749 | 12.701 mg/kg | 0.00127 % | ✓ | |
| 10 | mercury { mercury dichloride } | 080-010-00-X | 231-299-8 | 7487-94-7 | | <1 mg/kg | 1.353 | <1.353 mg/kg | <0.000135 % | | <LOD |
| 11 | molybdenum { molybdenum(VI) oxide } | 042-001-00-9 | 215-204-7 | 1313-27-5 | | <3 mg/kg | 1.5 | <4.501 mg/kg | <0.00045 % | | <LOD |
| 12 | nickel { nickel chromate } | 028-035-00-7 | 238-766-5 | 14721-18-7 | | <2 mg/kg | 2.976 | <5.953 mg/kg | <0.000595 % | | <LOD |
| 13 | selenium { nickel selenate } | 028-031-00-5 | 239-125-2 | 15060-62-5 | | 2 mg/kg | 2.554 | 4.721 mg/kg | 0.000472 % | ✓ | |
| 14 | zinc { zinc chromate } | 024-007-00-3 | 236-878-9 | 13530-65-9 | | 3 mg/kg | 2.774 | 7.692 mg/kg | 0.000769 % | ✓ | |
| 15 | TPH (C6 to C40) petroleum group | | | TPH | | <6 mg/kg | | <6 mg/kg | <0.0006 % | | <LOD |

| # | | 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 | | | | | | | | | |
| 16 | | tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane | | | | <5 | mg/kg | | <5 | mg/kg | <0.0005 % | | <LOD |
| | | 603-181-00-X | 216-653-1 | 1634-04-4 | | | | | | | | | |
| 17 | | benzene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-020-00-8 | 200-753-7 | 71-43-2 | | | | | | | | | |
| 18 | | toluene | | | | <0.005 | mg/kg | | <0.005 | mg/kg | <0.0000005 % | | <LOD |
| | | 601-021-00-3 | 203-625-9 | 108-88-3 | | | | | | | | | |
| 19 | | ethylbenzene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-023-00-4 | 202-849-4 | 100-41-4 | | | | | | | | | |
| 20 | | xylene | | | | <0.002 | mg/kg | | <0.002 | mg/kg | <0.0000002 % | | <LOD |
| | | 601-022-00-9 | 202-422-2 [1]<br>203-396-5 [2]<br>203-576-3 [3]<br>215-535-7 [4] | 95-47-6 [1]<br>106-42-3 [2]<br>108-38-3 [3]<br>1330-20-7 [4] | | | | | | | | | |
| 21 | | 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 |
| | | 006-007-00-5 | | | | | | | | | | | |
| 22 | | pH | | | | 7.6 | pH | | 7.6 | pH | 7.6 pH | | |
| | | | | PH | | | | | | | | | |
| 23 | | naphthalene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-052-00-2 | 202-049-5 | 91-20-3 | | | | | | | | | |
| 24 | | acenaphthylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-917-1 | 208-96-8 | | | | | | | | | |
| 25 | | acenaphthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-469-6 | 83-32-9 | | | | | | | | | |
| 26 | | fluorene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-695-5 | 86-73-7 | | | | | | | | | |
| 27 | | phenanthrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 201-581-5 | 85-01-8 | | | | | | | | | |
| 28 | | anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-371-1 | 120-12-7 | | | | | | | | | |
| 29 | | fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-912-4 | 206-44-0 | | | | | | | | | |
| 30 | | pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 204-927-3 | 129-00-0 | | | | | | | | | |
| 31 | | benzo[a]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-033-00-9 | 200-280-6 | 56-55-3 | | | | | | | | | |
| 32 | | chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-048-00-0 | 205-923-4 | 218-01-9 | | | | | | | | | |
| 33 | | benzo[b]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-034-00-4 | 205-911-9 | 205-99-2 | | | | | | | | | |
| 34 | | benzo[k]fluoranthene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-036-00-5 | 205-916-6 | 207-08-9 | | | | | | | | | |
| 35 | | benzo[a]pyrene; benzo[def]chrysene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-032-00-3 | 200-028-5 | 50-32-8 | | | | | | | | | |
| 36 | | indeno[123-cd]pyrene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-893-2 | 193-39-5 | | | | | | | | | |
| 37 | | dibenz[a,h]anthracene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 601-041-00-2 | 200-181-8 | 53-70-3 | | | | | | | | | |
| 38 | | benzo[ghi]perylene | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | | 205-883-8 | 191-24-2 | | | | | | | | | |
| 39 | | phenol | | | | <2 | mg/kg | | <2 | mg/kg | <0.0002 % | | <LOD |
| | | 604-001-00-2 | 203-632-7 | 108-95-2 | | | | | | | | | |
| 40 | | polychlorobiphenyls; PCB | | | | <0.1 | mg/kg | | <0.1 | mg/kg | <0.00001 % | | <LOD |
| | | 602-039-00-4 | 215-648-1 | 1336-36-3 | | | | | | | | | |
| | | | | | | | | | | Total: | 0.00956 % | | |

Key

| | |
|---|---|
| | User supplied data |
| | Determinand values ignored for classification, see column 'Conc. Not Used' for reason |
| | Determinand defined or amended by HazWasteOnline (see Appendix A) |
| | Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration |
| **<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

- **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

**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

**polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

## 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)

**manganese {manganese sulphate}**

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)

**molybdenum {molybdenum(VI) oxide}**

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 chromate}**

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

**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 6

# REPORT LIMITATIONS

# REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd based on 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.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2024 and should be read considering any subsequent changes in legislation, statutory requirements, and industry best practices. Ground conditions can also change over time and further investigations, or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

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 of 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.