

**PROPOSED TURING HOUSE FREE SCHOOL  
HOSPITAL BRIDGE ROAD, TWICKENHAM TW2 6LH**

**PHASE 2 ENVIRONMENTAL AND GEOTECHNICAL SITE INVESTIGATION  
REPORT**

FOR

***EDUCATION FUNDING AGENCY***



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RPS Health, Safety & Environment  
35 New Bridge Street  
London  
EC4V 6BW

**Tel:** 020 7280 3240  
**Email:** [rpslon@rpsgroup.com](mailto:rpslon@rpsgroup.com)

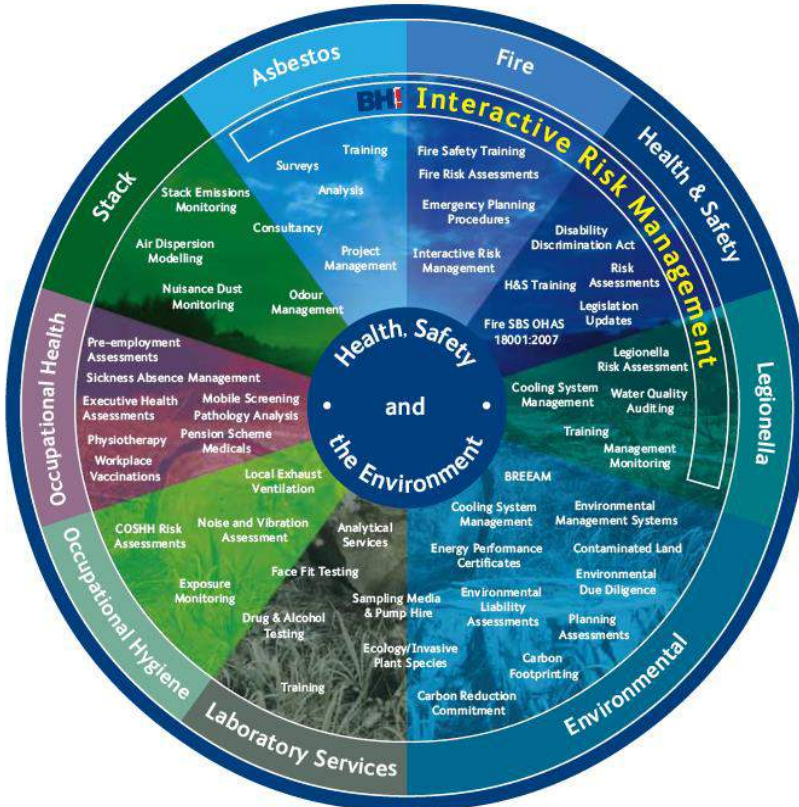


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	<b>Name:</b>	<b>Signature:</b>
<b>Report Author:</b>	Robert Philip	
<b>Technical Reviewer:</b>	Jim Lightbown	
<b>Technical Reviewer:</b>	Alex Carbray	
<b>Date:</b>	August 2017	

*This report has been prepared in the RPS Group Quality Management System to British Standard EN ISO 9001:2008*

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*RPS Health, Safety & Environment (London office) is certified to Environmental Management Standard ISO 14001.*





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## EXECUTIVE SUMMARY

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*RPS Health, Safety & Environment (RPS) was commissioned by The Education Funding Agency to undertake a Phase 2 Environmental and Geotechnical Site Investigation at Bridge Farm Nursery, Hospital Bridge Road, Twickenham TW2 6LH, in relation to its proposed redevelopment as a school.*

*A Geoenvironmental & Geotechnical Desk Study was undertaken for the site by Campbell Reith Consulting Engineers in June 2017 (reference 11677-14). The report concluded that, based on ongoing and historical site uses, the site represented a low risk to identified receptors associated with the site. However, given the sensitive proposed site use, a Phase 2 intrusive site investigation was recommended in order to confirm this and to provide geotechnical parameters on underlying soils for the purposes of foundation design.*

*The site investigation comprised three cable percussion boreholes (BH1 to BH3) to depths of approximately 7.00m below ground level (bgl); in situ geotechnical testing including Standard Penetration Testing (SPT) and sampling throughout the depth of each borehole; the installation of groundwater/gas monitoring wells in each borehole, dynamic cone penetrometer (DCP) testing in eight locations (DCP1 to DCP8) and the excavation of 12 hand dug trial pits to depths of up to 0.50m bgl.*

*Made Ground / poor quality topsoil was encountered from the ground surface at each exploratory hole location on site. This was underlain by the Taplow Gravel Formation, overlying the London Clay Formation.*

*Asbestos fibres were recorded within a sample of Made Ground / poor quality topsoil collected from hand pit HP8, located in the southwest corner of the site. Material representative of this sample of shallow Made Ground / poor quality topsoil analysed from the location of hand pit HP8 should be excavated and segregated for disposal off site. No other contaminants of concern were recorded within samples collected from beneath the site at concentrations in excess of adopted assessment criteria (AC).*

*Based on the available information and the recommended mitigation measures being implemented, the potential risk to human health receptors from concentrations of contaminants of concern detected within soil and groundwater sampled from beneath the site is considered to be **LOW**.*

*Contaminants of concern were not recorded within groundwater samples analysed from beneath the site at concentrations in excess of adopted AC. Based on the available information, the potential risk to controlled water receptors from concentrations of contaminants of concern detected within groundwater sampled from beneath the site is considered to be **LOW**.*

*Based on ground gas monitoring undertaken on site as part of the current investigation CIRIA Characteristic Situation 1 (CS1) is considered applicable to the site, whereby ground gas protection measures are not*



required for new buildings. The risk posed by ground gas to human health receptors and infrastructure is therefore considered to be **LOW**.

Based upon SPT results, the Taplow Gravel Formation is likely to provide a suitable bearing stratum for traditional foundations for light to moderately loaded structures, where it is at least medium dense granular material at formation level and it is present at relatively shallow depth below the ground surface.

The Taplow Gravel Formation is anticipated to be present at floor slab formation level beneath the proposed school building and sports centre at an assumed depth of approximately 0.60m bgl, which should be suitable to support a ground bearing floor slab, subject to confirmatory proof rolling and localised soft spot removal and replacement.

The results of in situ California Bearing Ratio (CBR) testing, using DCP methods, indicate that ground conditions at the likely founding depth for pavements on site (assumed to be at approximately 0.50m to 0.60m bgl) range from approximately 5% to 130%. A design CBR value of 5% is therefore recommended.

Testing has indicated a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures.

The proposed school building is situated adjacent to the cutting slope, located within the adjacent Network Rail land. When the structural design is available and the foundation arrangement known, the influence of those foundations to the stability of the slope should be assessed. Network Rail may require confirmation that the proposed work does not impair the stability of the cutting.

Where to be disposed of to landfill, the two samples from the Taplow Gravel Formation that were submitted for waste acceptance criteria (WAC) analysis would be considered suitable for disposal as inert waste. The two samples from the Made Ground / poor quality topsoil submitted for WAC testing would be considered suitable for disposal as inert and non-hazardous waste, respectively.

Any soils encountered during excavation works which display visual and/or olfactory evidence of significant contamination and are to be disposed of off-site should also be segregated for further analysis prior to disposal. These measures should keep any disposal costs to a minimum.



# 1 INTRODUCTION

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## 1.1 Preamble

RPS Health, Safety & Environment (RPS) was commissioned by *The Education Funding Agency* to undertake a Phase 2 Environmental and Geotechnical Site Investigation at Bridge Farm Nursery, Hospital Bridge Road, Twickenham TW2 6LH, in relation to its proposed redevelopment as a school.

## 1.2 Objectives

The principal objectives of this assessment were as follows:

- To determine the contamination status of soil and groundwater beneath the site;
- To assess whether contamination is present within soil and/or groundwater beneath the site at concentrations that could impact future site users/occupiers and the wider environment;
- To assess the suitability of the site for its proposed end-use; and
- To determine the engineering properties of the underlying soils and to provide geotechnical parameters to assist preliminary foundation and ground slab design.

## 1.3 Legislation and Guidance

This report has been produced in general accordance with:

- *Contaminated Land (England) Regulations 2006 (as amended)*;
- *DEFRA Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012)*;
- DEFRA and Environment Agency (2004) Contaminated Land Report 11 (CLR 11): *Model Procedures for the Management of Land Contamination*;
- *National Planning Policy Framework (2012)*;
- British Standard requirements for the '*Investigation of potentially contaminated sites - Code of practice*' (ref. BS10175:2011+A1:2013);
- CIRIA Document C665 - *Assessing risks posed by hazardous ground gases to buildings (2007)*; and
- British Standard requirements for the '*Code of practice for ground investigations*' (ref. BS5930:2015).

Where appropriate, consideration has also been given to the following:

# RPS

- The potential for environmental liabilities to occur under other associated regimes, for example the *Water Resources Act (1991)* and the *Environmental Damage Regulations (2009)*; and
- Key constraints on site redevelopment.

Details of the limitations of this type of assessment are described in Appendix A.



## **2 BACKGROUND INFORMATION**

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### **2.1 Site Location & Description**

The site is located on Hospital Bridge Road, Twickenham TW2 6LH, at National Grid Coordinates 173592, 513325. The majority of the site is rectangular with an extended L-shaped arm at the northeast corner and has an approximate area of 6.8ha. At the time of the investigation, the site predominantly comprised open fields. A small area in the east of the site was used as a storage area for an adjacent garden centre.

A site location plan is provided as Figure 1 and a site boundary plan as Figure 2. A detailed site description is provided with a previous Geoenvironmental & Geotechnical Desk Study, by Campbell Reith Consulting Engineers in June 2017 (summarised in Section 2.2 below).

### **2.2 Previous Reports**

A Geoenvironmental & Geotechnical Desk Study was undertaken for the site by Campbell Reith Consulting Engineers in June 2017 (reference 11677-14).

The report stated that the site comprised predominantly open fields, with a number of small, isolated structures that were previously used to house livestock. A small area in the east of the site was used as a storage area for an adjacent garden centre. The report also stated that the site had not been subject to previous development. Bunds comprising unknown materials were noted to the south of the storage area, the southwest corner and centre of the site.

The report listed neighbouring site uses as; a cemetery to the west, a garden centre to the east; and a railway line which formed the northeastern boundary of the site.

The report concluded that, based on ongoing and historical site uses, the site represented a low risk to identified receptors associated with the site. However, given the sensitive proposed site use, a Phase 2 intrusive site investigation was recommended in order to confirm this and to provide geotechnical parameters on underlying soils for the purposes of foundation design.

RPS cannot vouch for the accuracy of information provided by other consultancies and legal reliance should be sought from the original author of the report where its content is considered material to the characterisation of the site.





## 2.3 Proposed Development

The proposed works comprise the construction of a three storey teaching block, a two storey sports centre, an all-weather sports pitch and hard and soft surfaced play / sports areas. The proposed development plan is indicated on Figure 2.

## 2.4 Environmental Setting

### 2.4.1 Geology

Based on British Geological Survey (BGS) mapping (1:50,000-scale) and the Environment Agency (EA) Groundwater Vulnerability mapping (1:100,000-scale), the stratigraphic sequence and aquifer classifications beneath the site are as follows:

**Table 1 – Descriptions of Geological Strata**

Strata	Description & approximate thickness	Aquifer Classification
Taplow Gravel Formation	Sand and gravel. Likely to be up to several metres in thickness in the vicinity of the site.	Principal
London Clay Formation	Clay, sand and silt and gravel. Likely to be up to 70m in thickness beneath the site.	Unproductive Stratum

In addition to the strata detailed above, a limited thickness of Made Ground is likely to be present beneath the site as a result of previous construction and demolition activities. No site investigation reports have been reviewed to verify this.

### 2.4.2 Hydrogeology

The site is located above a Principal Aquifer, relating to the Taplow Gravel Formation. These are layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

The London Clay Formation is classified as an Unproductive Stratum. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

According to EA data, the site is not located within a groundwater Source Protection Zone (SPZ).



Information provided by the EA indicates that there are no records of active licensed groundwater abstraction within 1km of the site.

The chemical quality of groundwater beneath the site has been classified as ~~good~~ under the EA Local River Basin Management Plan.

### **2.4.3 Surface Water**

Under the Water Framework Directive, the EA identifies one watercourse within 1km of the site which is classified within the local River Basin Management Plan. This relates to the River Crane, located approximately 695m to the southwest of the site, which is indicated to have ~~good~~ chemical quality and ~~poor~~ ecological quality.

An unnamed drainage ditch is also present approximately 10m to the north of the site. This is not classified under the local River Basin Management Plan.

Information provided by the EA indicates that there are no records of any active licensed surface water abstractions within 1km of the site.



## 3 PRELIMINARY CONCEPTUAL SITE MODEL

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### 3.1 Background

A preliminary conceptual site model (CSM) consists of an appraisal of the *source-pathway-receptor* 'contaminant linkages' which is central to the approach used to determine the existence of 'contaminated land' according to the definition set out under Part 2A of the Environmental Protection Act 1990. For a risk to exist (under Part 2A), all three of the following components must be present to facilitate a potential 'pollutant linkage'.

- **Source** referring to the source of contamination (Hazard).
- **Pathway** for the contaminant to move/migrate to receptor(s).
- **Receptor** (Target) that could be affected by the contaminant(s).

Receptors include human beings, other living organisms, crops, controlled waters and buildings / structures. The National Planning Policy Framework, used to address contaminated land through the planning process, follows the same principles as those set out under Part 2A. Further details on the Part 2A regime are presented within Appendix B.

### 3.2 Potential Pollutant Linkages

Each stage of the potential pollutant linkages have been assessed individually on the basis of information presented within Campbell Reith Consulting Engineers' Geoenvironmental and Geotechnical Desk Study (reference 11677-14) and are discussed in the following section.

#### 3.2.1 Potential Contaminant Sources

The current and historical use of the site as open fields is not considered to represent a potential source of contaminants of concern. However, Made Ground beneath the site and material present in bunds identified as part of the previous assessment by Campbell Reith may represent a potential source of contaminants of concern and / or ground gas. *It should be noted that the soil bunds were not identified by RPS during subsequent environmental site investigation works in July 2017.*

Neighbouring potentially contaminative site uses comprise the railway line, which forms the northeastern boundary of the site and the garden centre to the east.



### **3.2.2 Potential Pathways**

Following redevelopment, the potential risks to future site users via the dermal contact and ingestion pathways in areas of the site comprising building cover and hardstanding will be mitigated. In areas of soft landscaping, the dermal contact and ingestion pathways could still be active. Furthermore, there would be potential for the airborne off-site migration of soil/dust from these areas.

There is the potential for ground gas and volatile contaminants of concern in soil and/or groundwater (if present) beneath the site to impact future site users *via* the inhalation pathway in indoor areas.

Shallow groundwater within granular horizons of the Made Ground and underlying Taplow Gravel Formation may constitute a potential pathway for the on or off-site migration of contaminants of concern. The pathways of dermal contact, ingestion and vapour inhalation to off-site human health receptors from potential contaminants of concern originating from the site may therefore also be active.

### **3.2.3 Potential Receptors**

Potential human health receptors include future site users and neighbouring commercial and residential properties.

Provided construction workers adopt appropriate levels of hygiene and personal protection equipment, they are not considered to be at significant risk from potential contaminants of concern and have not been considered further as part of this assessment.

The site is situated above Principal Aquifer, relating to the Taplow Gravel Formation. However, the site is not located within a groundwater SPZ and no licensed groundwater abstractions are indicated to be present within 1km of the site.

The nearest surface water feature is an unnamed drainage ditch, located approximately 10m to the north of the site. The River Crane is located approximately 695m to the southwest. However, given its distance from the site, the River Crane is not considered a potential receptor and has therefore not been considered further.

## **3.3 Preliminary Conceptual Site Model**

A preliminary CSM has been developed on the basis of the information presented above. The CSM is used to identify potential sources, pathways and receptors (i.e. potential pollutant linkages) on site and is summarised in the table below:



**Table 2 – Preliminary Conceptual Site Model**

Potential Source	Contaminants of Concern	Via	Potential Pathways	Linkage Potentially Active?	Receptors
<b>On site – current and historical:</b> Made Ground and bunds of unknown material (now removed)	Metals, hydrocarbons and asbestos	Soil	Direct contact/ingestion	✓	Future site users
			Inhalation of volatiles	✓	
			Airborne migration of soil or dust	✓	Off-site users
			Leaching of mobile contaminants	✓	Taplow Gravel Formation Principal Aquifer
		Groundwater	Direct contact/ingestion	✓ ✓	Future site users Off-site users
			Inhalation of volatiles	✓ ✓	Future site users Off-site users
			Vertical and lateral migration in permeable strata	✓ ✓	Taplow Gravel Formation Principal Aquifer Unnamed drainage ditch
<b>Off site – current and historical:</b> Railway and garden centre	Metals, hydrocarbons and asbestos	Groundwater	Direct contact/ingestion	✓	Future site users
			Inhalation of volatiles	✓	Future site users
<b>On and off-site –</b> Made Ground / bunds / natural strata or bio-degradation of contamination	Carbon dioxide and methane	Ground Gas	Inhalation of ground gas	✓ ✓	Future site users Off-site users
			Explosive risks	✓ ✓	Future site users Off-site users



## 4 INTRUSIVE SITE INVESTIGATION

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### 4.1 Introduction

An intrusive site investigation has been carried out in order to provide an assessment of whether pollutant linkages identified within the preliminary CSM (presented as Table 2) are currently active or will be made active upon redevelopment of the site. The investigation also provided information on ground conditions and data for the assessment of geotechnical properties of the strata underlying the site.

### 4.2 Description of Works

The site investigation was carried out from 28<sup>th</sup> and 29<sup>th</sup> June 2017 and comprised:

- Three cable percussion boreholes (BH1 to BH3) to depths of approximately 7.00m below ground level (bgl);
- Standard Penetration Testing (SPT) and geotechnical soil sampling throughout the depth of each borehole;
- Installation of groundwater/gas monitoring wells in each borehole;
- Dynamic Cone Penetrometer (DCP) in eight locations; and
- 12 hand dug pits to depths of up to 0.50m bgl.

An exploratory hole location plan is provided as Figure 2.

The rationale for the exploratory hole locations was as follows:

- Boreholes BH1 to BH3 were positions within the footprint of the proposed school building and sports hall in order to provide contamination data on soils, to install groundwater and ground gas monitoring wells and to provide geotechnical soil parameters to enable foundation and floor slab design;
- DCP1 to DCP8 were undertaken in the location of the proposed car parking, hard surfaced play areas and an all-weather sports pitch in order to calculate California Bearing Ratio (CBR) values to enable pavement design by others; and
- Hand pits HP1 to HP12 were positioned in proposed soft landscaped areas in order to provide contamination data on shallow soils.



The soil arisings from each exploratory hole were carefully examined for visual and olfactory evidence of contamination. Headspace testing was undertaken on site for ionisable volatile organic compounds (iVOCs) using a portable Photo-Ionisation Detector (PID).

A return visit for groundwater sampling was carried out on 19<sup>th</sup> July 2017. The monitoring wells were inspected for the presence of free-phase hydrocarbon product using an oil/water interface probe and the depth to groundwater was recorded prior to sampling.

Ground gas monitoring was undertaken on three occasions, from 11<sup>th</sup> to 27<sup>th</sup> July 2017. Installations were monitored for concentrations of methane, carbon dioxide, oxygen and iVOCs. In addition, the flow rate and barometric pressure were recorded.

### **4.3 Laboratory Testing**

#### **4.3.1 Environmental Laboratory Testing - Soil**

15 samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation were submitted to a UKAS/MCERTS accredited laboratory and analysed for a number of determinands including:

***Inorganic Determinands:***

*pH, arsenic, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, sulphide, total cyanide, sulphate, sulphur, selenium, zinc and asbestos.*

***Organic Determinands:***

*Speciated polycyclic aromatic hydrocarbons (PAH), speciated total petroleum hydrocarbons (TPH CWG) including benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tert-butyl ether (MTBE) and monohydric phenol.*

#### **4.3.2 Waste Classification**

Two samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation were submitted for Waste Acceptance Criteria (WAC) analysis.



#### **4.3.3 Environmental Laboratory Testing - Groundwater**

Groundwater samples were collected from monitoring wells BH1 to BH3 during the second monitoring visit. Monitoring wells were screened across the Taplow Gravel Formation. The groundwater samples were analysed by a UKAS/MCERTS accredited laboratory for a number of determinands including:

***Inorganic Determinands:***

*pH, arsenic, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium, zinc, sulphate, sulphide and total cyanide.*

***Organic Determinands:***

*Speciated PAH, TPH CWG including BTEX and MTBE and monohydric phenol.*

#### **4.3.4 Geotechnical Laboratory Testing**

Samples of the Taplow Gravel Formation and London Clay Formation were submitted to a UKAS accredited geotechnical testing laboratory and analysed for soil classification, total stress parameters, consolidation characteristics, pH and water soluble sulphate content.





## 5 SITE INVESTIGATION FINDINGS

### 5.1 Ground Conditions

#### 5.1.1 Geology

The strata encountered during the intrusive investigation are summarised in the table below, and described in the following section.

**Table 3 – Encountered Strata**

Strata	Depth to Top of Strata m bgl (m AOD)	Thickness (m)
Made Ground / Poor Quality Topsoil	Ground level (18.75 to 20.01)	0.30 to 0.45
Taplow Gravel Formation	0.30 to 0.45 (18.55 to 19.56)	3.05 to 4.30 (where proven)
London Clay Formation	3.40 to 4.70 (14.25 to 15.66)	Proven to a maximum depth of 7.00m bgl (11.85m AOD)

Made Ground / poor quality topsoil was encountered from the ground surface at each exploratory hole location on site. This was underlain by the Taplow Gravel Formation, overlying the London Clay Formation.

General descriptions of the strata encountered during the intrusive investigation are summarised below. Reference should be made to the exploratory hole logs within Appendix C of this report for full descriptions of ground conditions underlying the site.

#### **Made Ground / Poor Quality Topsoil**

Made Ground / Poor Quality Topsoil was encountered at each exploratory hole location and ranged in thickness from 0.30m to 0.45m. The stratum was variable in nature but generally comprised light brown gravelly clayey fine to medium sand. Gravel comprised fine to medium, angular to subrounded flint and brick.

#### **Taplow Gravel Formation**

The Taplow Gravel Formation was encountered underlying Made Ground / Poor Quality Topsoil across the site and ranged in thickness from 3.05m to 4.30m. The stratum generally comprised orange-brown sandy fine to coarse subrounded to rounded flint gravel. A clayey layer, ranging in thickness from 0.20m to 0.25m (where proven), was encountered at the surface of the stratum in the majority of exploratory hole positions.



11 SPTs undertaken within the Taplow Gravel Formation at depths ranging from approximately 1.20m to 4.00m bgl (14.85m to 17.86m AOD) gave results ranging from N = 19 to in excess of N = 50, which is indicative of medium dense, ranging to very dense granular material. A plot of SPT value against depth is presented as Figure 3 of this report.

Particle Size Distribution (PSD) testing was undertaken on four samples collected from the Taplow Gravel Formation at depths ranging from approximately 0.50m to 4.50m bgl (14.51m to 18.56m AOD). The constituents of the samples are summarised below:

- Gravel: 46% to 94%
- Sand: 5% to 42%
- Silt and Clay: 1% to 12%

Geotechnical laboratory certificates are presented as Appendix D.

### **London Clay Formation**

The London Clay Formation was encountered beneath the Taplow Gravel Formation within boreholes BH1 to BH3 at depths ranging from approximately 3.40m to 4.70m bgl (14.25m to 15.66m AOD) and was proven to a maximum depth of approximately 7.00m bgl (11.85m AOD). The stratum generally comprised grey clay. A weathered, brown layer, ranging in thickness from approximately 0.30m to 0.40m, was encountered at the surface of the stratum in each borehole.

Atterberg Limit testing was undertaken on six soil samples collected from the London Clay Formation at depths ranging from approximately 4.70m to 7.00m bgl (12.06m to 14.31m AOD). This testing was undertaken to determine values for Liquid Limit (LL), Plastic Limit (PL) and Plasticity Index (PI). The results for LL ranged from 59% to 69%. The results for PL ranged from 24% to 28%. The results for PI ranged from 35% to 41%. This is indicative of a high plasticity clay. Modified plasticity index values indicate that samples of the London Clay Formation analysed have a moderate, ranging to a high volume change potential.

Seven SPT results obtained from within the London Clay Formation at depths ranging from approximately 4.00m bgl to 7.00m bgl (11.85 m to 15.06m AOD) generally gave results ranging from N = 11 to N = 25.

Approximate undrained shear strengths were calculated from SPT results using the correlation by Stroud:

$$C = f_1 \times N$$



Where, a conservative value for high plasticity clays,  $f_1 = 4.5$ .

The SPT results correspond approximately to undrained shear strength values ranging from  $50\text{kN/m}^2$  to  $113\text{kN/m}^2$ , which is indicative of a medium, ranging to a high strength cohesive material. A plot of undrained shear strength against depth is presented as Figure 4 of this report.

One SPT result, obtained at a depth of approximately 4.00m bgl (15.06m AOD) within borehole BH1 gave a result of  $N = 50$ . It is considered that this is representative of a claystone band, or large flint at the base of the Taplow Gravel Formation, rather than of very high strength clay.

Three quick undrained triaxial compression tests undertaken on samples collected from the London Clay Formation at depths ranging from approximately 5.00m to 6.95m bgl (12.06m to 14.06m AOD) gave results ranging from  $84\text{kN/m}^2$  to  $115\text{kN/m}^2$ . This is indicative of a high strength material. The results of triaxial tests were consistent with those derived from SPTs. The natural moisture content of these samples ranged from 27% to 29%. Bulk density ranged from  $1.99\text{Mg/m}^3$  to  $2.13\text{Mg/m}^3$ . Dry density ranged from  $1.57\text{Mg/m}^3$  to  $1.67\text{Mg/m}^3$ .

One oedometer consolidation test was undertaken on a sample collected from the London Clay Formation at a depth of approximately 6.00m bgl (13.01m AOD) within borehole BH2. Between a pressure range of  $100\text{kN/m}^2$  to  $200\text{kN/m}^2$ , a coefficient of compression ( $m_v$ ) value of  $0.148\text{m}^2/\text{MN}$  was recorded. This is indicative of a low compressibility material.

## 5.2 Groundwater

The depth to water strikes during intrusive works could not be determined due to water added to aid drilling through granular strata.

Groundwater levels recorded during subsequent monitoring visits to site are summarised in the table below:

**Table 4 - Groundwater Data**

Monitoring Well ID	Well Screen Depth m bgl (m AOD)	Strata	Depth to Groundwater m bgl (m AOD)		
			11 <sup>th</sup> July 2017	19 <sup>th</sup> July 2017	27 <sup>th</sup> July 2017
BH1	1.00 to 4.00 (15.06 to 18.06)	Taplow Gravel Formation	2.50 (16.56)	2.56 (16.50)	2.51 (16.55)
BH2	1.00 to 5.00 (14.01 to 18.01)	Taplow Gravel Formation	2.40 (16.61)	2.62 (16.49)	2.58 (16.53)
BH3	1.00 to 5.00 (13.85 to 17.85)	Taplow Gravel Formation	2.54 (16.31)	2.48 (16.37)	2.44 (16.41)

Free-phase product was not observed on groundwater in any of the monitoring wells during the



monitoring visits.

The results are considered indicative of a continuous groundwater table within the Taplow Gravel Formation. No discernible groundwater flow direction could be determined from the groundwater elevation data.

### **5.3 Field Evidence of Contamination**

#### ***5.3.1 Visual and Olfactory Evidence of Contamination***

No visual or olfactory evidence of contamination was encountered within other exploratory holes during the intrusive investigation. No visual or olfactory evidence of contamination was observed in the groundwater sampled from monitoring wells beneath the site.

#### ***5.3.2 Photo-Ionisation Detector Readings***

Soil arisings from each borehole and hand pit were screened for the presence of iVOCs using a PID. All readings were below the instrument limit of detection (<0.1ppm).

### **5.4 Ground Gas Monitoring**

Ground gas monitoring has been undertaken on three occasions from 11<sup>th</sup> to 27<sup>th</sup> July 2017. Installations were monitored for concentrations of methane, carbon dioxide and oxygen. In addition, the flow rate and barometric pressure were recorded. The results of the ground gas monitoring are presented in Appendix E.

Methane was not recorded at above the instrument limit of detection (0.1% by volume (v/v)) in any of the monitoring wells during any of the three monitoring rounds. Carbon dioxide was recorded at a maximum concentration of 4.6% v/v in monitoring well BH1 (screened in the Taplow Gravel Formation) on 19<sup>th</sup> July 2017. The lowest recorded oxygen concentration was 15.7% v/v within monitoring well BH3 (screened in the Taplow gravel Formation) on 19<sup>th</sup> July 2017.

Ground gas flow rates of up to 0.3 litres per hours were recorded within monitoring well BH3 on 27<sup>th</sup> July 2017. Atmospheric pressure ranged from 1010mb to 1002mb during the monitoring visits.

During the monitoring, each monitoring well was measured for the presence of iVOCs using a PID. iVOCs were not recorded at levels in excess of the instrument limit of detection (<0.1ppm).

The CIRIA Report C665 *Assessing risks posed by hazardous ground gases to buildings* outlines indicative guideline concentrations for carbon dioxide and methane in association with gas flow rates for which gas protection measures may be required in new residential or commercial developments. The methodology is based on the Modified Wilson and Card approach that characterises the gas regime into a series of Characteristic Situations (1 to 5), with corresponding indicative gas protection measures. Using this methodology, the ground gas regime assessment for the site corresponds to Characteristic Situation 1 (CS1), whereby no specific gas protection measures are required.



## 6 CHEMICAL RESULTS AND ASSESSMENT

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The field investigation findings indicate that pathways are present by which contaminants of concern can impact identified receptors. Chemical analysis has been carried out on soil and groundwater sampled from beneath the site. The concentrations of contaminants of concern within soil and groundwater can be compared to assessment criteria (AC) to determine whether these represent an unacceptable risk to identified receptors. The derivation of AC to be used and the comparison of these criteria to the results of the chemical analyses are presented below.

### 6.1 Human Health Assessment Criteria

In order to assess risks to future site users, concentrations of contaminants of concern have been compared to Suitable 4 Use Levels (S4UL) generic AC published by Land Quality Management: Chartered Institute of Environmental Health (LQM:CIEH) in 2015. In accordance with the copyright notice the Publication Number for RPS Group is S4UL3177.

It is proposed to redevelop the site as a school. In the area of proposed sports fields in the west of the site, contaminant concentrations within soil samples analysed from hand pits HP1 to HP12 have been compared to criteria protective of public open space (parks). Given the limited duration that future site users will occupy this area (likely for physical education lessons and sports matches only), these criteria are considered more appropriate than the more conservative public open space (residential) criteria . which would be applied for more sustained land use.

In areas closer to school buildings, where there is considered to be potential for growing of produce, as a conservative measure, contaminant concentrations within soil samples collected from boreholes BH1 to BH3 have been compared to criteria protective of residential site users (with plant uptake).

Soil Organic Matter (SOM) for soil samples collected in the location of proposed soft landscaped sports pitches ranged from 2.40% to 4.90%, with an average of 3.50%. Therefore, concentrations of contaminants of concern within these samples have been compared to S4UL (2.50% SOM) values for public open space (parks). SOM for soil samples collected in the vicinity of the proposed school building and sports ranged from 1.30% to 6.60%, with an average of 3.88%. Therefore, concentrations of contaminants of concern within these samples have been compared to S4UL (2.50% SOM) values for residential land use (with plant uptake).

A notable exclusion from the S4ULs is lead. In the absence of a S4UL for lead, the Category 4 Screening Level (C4SL) has been selected, published by DEFRA in 2014. Again, lead concentrations within soil samples collected in the location of proposed soft landscaped sports pitches have been



compared to C4SL (2.50% SOM) values for public open space (parks). Lead concentrations within soil samples collected in the vicinity of the proposed school building and sports hall have been compared to C4SL (2.50% SOM) values for residential land use (with plant uptake).

It is noted that the C4SL are based on the acceptance of a low level of toxicological concern, rather than the more conservative standard adopted in the derivation of S4ULs, which are based on a tolerable or minimal level of risk.

The potential risk posed to controlled waters from contaminants of concern within soils beneath the site is not addressed by these screening criteria.

## **6.2 Comparison of Soil Analyses to Assessment Criteria**

Chemical analysis was undertaken on 15 samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation. A comparison of soil analyses to the relevant assessment criteria is summarised below and presented as Appendix F. Analytical certificates for soils are presented in Appendix G.

### **6.2.1 Inorganic Determinands**

Inorganic contaminants of concern were not recorded within soil samples analysed from beneath the area of proposed sports pitches, or the area of the proposed school building and sports hall, at concentrations in excess of their respective AC.

### **6.2.2 PAH**

PAH contaminants of concern were not recorded within soil samples analysed from beneath the area of proposed sports pitches, or the area of the proposed school building and sports hall, at concentrations in excess of their respective AC.

### **6.2.3 TPH CWG (incl. BTEX/MTBE)**

TPH CWG contaminants of concern were not recorded within soil samples analysed from beneath the area of proposed sports pitches, or the area of the proposed school building and sports hall, at concentrations in excess of their respective AC.



#### **6.2.4 Other Organic Determinands**

Total phenols were not recorded within soil samples analysed from beneath the area of proposed sports pitches, or the area of the proposed school building and sports hall, at concentrations in excess of their respective AC.

#### **6.2.5 Asbestos**

Chrysotile asbestos fibres were recorded in a sample of Made Ground / poor quality topsoil collected from hand pit HP8, located in the southwest corner of the site, at a depth of approximately 0.25m bgl (19.38m AOD).

Asbestos containing materials (ACMs) were not identified in any of the other 16 soil samples submitted for screening.

### **6.3 Groundwater Assessment Criteria**

The site is situated above a Secondary A Aquifer, relating to the Taplow Gravel Formation. The site is not located within a groundwater SPZ and no licensed groundwater abstractions are indicated to be present within 1km of the site. As such, the results of the groundwater analysis have therefore been compared to the Environmental Quality Standards (EQS) values for inland freshwater. Where such values are not available, the UK Drinking Water Standards (DWS) have been used.

The potential risk to on site human health receptors from contaminants of concern in groundwater is not addressed by these screening values.

### **6.4 Comparison of Groundwater Analysis to Controlled Waters Assessment Criteria**

Chemical analysis was undertaken on groundwater samples collected from monitoring wells BH1 to BH3, screened across the Taplow Gravel Formation. Analytical certificates for the groundwater sample are presented in Appendix F. A comparison of groundwater analyses to the relevant assessment criteria is summarised below and presented as Appendix G.

No contaminants were recorded at concentrations in excess of their relevant AC.





## 7 REVISED CONCEPTUAL SITE MODEL

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### 7.1 Introduction

The UK approach to the management of land contamination through the development process is risk-based, as was formerly implemented by Planning Policy Statement Number 23 (PPS23). PPS23 was formally withdrawn on 27<sup>th</sup> March 2012 and replaced by the National Planning Policy Framework.

The Local Authority is likely to have based their strategy for the implementation of the National Planning Policy Framework on the withdrawn PPS23. Therefore, this risk assessment will be based primarily on the withdrawn PPS23, with broad consideration for the contents of the National Planning Policy Framework.

The risk assessment methods adopted by PPS23 reflected those adopted by Part 2A of the Environmental Protection Act (1990). Part 2A identifies that harm to human health and the environment arises not solely from the presence of contaminating substances or sources but from their migration along a pathway to where they can impact a receptor.

The potential pollutant linkages identified as part of the outline CSM have been assessed in light of the findings of the site investigation and are discussed below for each of the individual receptors identified.

### 7.2 Future Site Users

Asbestos fibres were recorded within a sample of Made Ground / poor quality topsoil collected from hand pit HP8, located in the southwest corner of the site. Material representative of this sample of shallow Made Ground / poor quality topsoil analysed from the location of hand pit HP8 should be excavated and segregated for disposal off site.

No other contaminants of concern were recorded within samples collected from beneath the site at concentrations in excess of adopted AC.

Concentrations of contaminants of concern considered to represent a significant risk to future site users were not recorded within groundwater samples analysed from beneath the site.

Based on the available information, and subject to the recommended mitigation measures being implemented, the potential risk to future site users from concentrations of contaminants of concern detected within soils and groundwater sampled from beneath the site is considered to be **LOW**.



### 7.3 Off-site Human Health Receptors

Following redevelopment, for areas of the site covered by building footprint or hardstanding there is limited potential for the air-borne migration of soil or dust to impact neighbouring receptors. Material representative of the sample of shallow Made Ground / poor quality topsoil analysed from the location of hand pit HP8 should be excavated and segregated for disposal off site.

No other contaminants of concern were recorded within samples collected from beneath the site at concentrations in excess of adopted AC, protective of human health receptors.

Concentrations of contaminants of concern considered to represent a significant risk to neighbouring site users were not recorded within groundwater samples analysed from beneath the site.

Based on the available information, and subject to the recommended mitigation measures being implemented, the potential risk to off-site human health receptors from concentrations of contaminants of concern detected within soils and groundwater sampled from beneath the site is considered to be **LOW**.

### 7.4 Construction/Maintenance Workers

Contaminants of concern were not recorded within samples collected from beneath the site at concentrations in excess of S4UL screening criteria. S4UL screening criteria cannot be used to assess the acute (short term exposure) risk that personnel in close contact with exposed soils may experience during construction/site maintenance duties.

Potential risks to construction/maintenance workers can be controlled by the use of appropriate personal protection equipment (e.g. disposable coveralls, gloves and particulate/vapour masks) and by adopting high levels of personal hygiene.

Asbestos fibres were recorded within a sample of Made Ground / poor quality topsoil collected in the southwest corner of the site. Therefore, it is recommended that a formal Asbestos Management Plan is implemented prior to work commencing on site and that any Made Ground material to be removed from site should be disposed of appropriately.

Depleted oxygen and elevated methane and carbon dioxide levels may represent a risk to ground workers and appropriate precautions should be applied for personnel entering below ground confined spaces.



Providing construction/maintenance workers undertake and implement a site specific risk assessment and such measures are taken, based on the available information, the potential risk is considered to be **LOW**.

## **7.5 Groundwater**

Contaminants of concern were not recorded within groundwater samples analysed from beneath the site at concentrations in excess of adopted AC.

Based on the available information, the potential risk to groundwater receptors from concentrations of contaminants of concern detected within groundwater sampled from beneath the site is considered to be **LOW**.

## **7.6 Surface Water**

Contaminants of concern were not recorded within groundwater samples analysed from beneath the site at concentrations in excess of adopted AC. Therefore, the potential risk posed by the site to the drainage ditch located approximately 10m to the north of the site is considered to be **LOW**.

## **7.7 Structures and Infrastructure**

### **7.7.1 Buildings (on site and off site)**

Based on ground gas monitoring undertaken on site as part of the current investigation CIRIA CS1 is considered applicable to the site, whereby ground gas protection measures are not required for new buildings.

The risk posed by ground gas to human health receptors and infrastructure is therefore considered to be **LOW**.

### **7.7.2 Polymeric Utility Pipes**

Elevated concentrations of hydrocarbon contaminants were recorded within a sample of Made Ground / poor quality topsoil collected from hand pit HP11, located in the southeast corner of the site. Standard polymeric utility pipes may therefore be unsuitable in this area. Proposed development in this area is understood to be limited. However, barriers may be required for new underground utilities, should they be required, or service pipes laid in dedicated trenches and backfilled with clean, inert material.



Standard polymeric utility pipes are considered likely to be suitable in remaining areas of the site.

Requirements for buried utility pipes should be discussed with service providers before the development stage. Provided the recommended mitigation measures are adopted, the risk posed to buried services is considered to be **LOW**.

### 7.8 Conceptual Model

The potential source-pathway-receptor linkages and associated risks upon completion of the proposed development at the site, as identified following completion of the assessment, are summarised in the table below.

**Table 5 - Revised Conceptual Site Model**

Potential Source	Via	Potential Pathways	Linkage Potentially Active?	Receptors
<b>On site – current and historical:</b> Made Ground and bunds of unknown material (now removed)	Soil	Direct contact/ingestion	x	Future site users
		Inhalation of volatiles	x	
		Airborne migration of soil or dust	x	Off-site users
		Leaching of mobile contaminants	x	Taplow Gravel Formation Principal Aquifer
	Groundwater	Direct contact/ingestion	x x	Future site users Off-site users
		Inhalation of volatiles	x x	Future site users Off-site users
		Vertical and lateral migration in permeable strata	x x	Taplow Gravel Formation Principal Aquifer Unnamed drainage ditch
<b>Off site – current and historical:</b> Railway and garden centre	Groundwater	Direct contact/ingestion	x	Future site users
		Inhalation of volatiles	x	Future site users
<b>On and off-site –</b> Made Ground / bunds / natural strata or bio-degradation of contamination	Ground Gas	Inhalation of ground gas	x x	Future site users Off-site users
		Explosive risks	x x	Future site users Off-site users

The risk assessment is based upon the available information relating to the site and recommended mitigation measures being implemented. Should ground conditions inconsistent with those outlined in this report be encountered RPS should be contacted to enable further assessment. The findings of the CSM should be confirmed upon finalisation of the proposed redevelopment plans.



## 8 GEOTECHNICAL ANALYSIS

### 8.1 Introduction

The proposed works comprise the construction of a three storey teaching block, a two storey sports centre, an all-weather sports pitch and hard and soft surfaced play / sports areas. A proposed development plan is indicated on Figure 2.

No preliminary structural loads have been received. Therefore, the preliminary recommendations below will need to be reviewed in light of subsequent detailed design.

### 8.2 Preliminary Geotechnical Risk Register

The table below summarises the potential geotechnical hazards associated with the development. The table provides an assessment of whether the site is likely to be affected by the hazard and the possible consequences and engineering considerations.

**Table 6 – Geotechnical Risk Register**

Hazard Description	Is hazard likely to be present / affect the site? (H / M / L / NA?)	Comments / possible engineering requirements where hazard present
Sudden lateral / vertical changes in ground conditions	L	Ground conditions beneath the site are consistent with a limited thickness of Made Ground / poor quality topsoil, overlying the Taplow Gravel Formation. The London Clay Formation was present at depth. The main variations in ground conditions (if present) are likely to be associated with the depth and composition of the Made Ground / topsoil. This stratum is considered unsuitable to support foundations and it is recommended that footings are taken deeper to bear upon the more competent Taplow Gravel Formation.
Highly compressible / low bearing capacity soils, (including peat and soft clay)	L	Although the Made Ground / topsoil is likely to be highly compressible, it is of limited thickness. The formation level of foundations, floor slabs and hardstanding for the proposed development should be taken deeper to bear within the medium dense granular soil of the Taplow Gravel Formation.
Ground dissolution features / natural cavities	L	Ground conditions beneath the site are not consistent with these features.
Shrinking and swelling clays	L	Near surface soils were granular in nature and therefore not susceptible to shrinking or swelling due to changes in moisture content.
Slope stability/retaining wall issues	L	Whilst no significant slopes or retaining walls are present on site, any temporary or permanent slopes created as part of the development should be subject to appropriate geotechnical design based on site-specific site investigation information. A railway cutting is present beyond the northern boundary of the site.

Hazard Description	Is hazard likely to be present / affect the site? (H / M / L / NA?)	Comments / possible engineering requirements where hazard present
High groundwater table (including waterlogged ground)	L	Groundwater was encountered within the Taplow Gravel Formation beneath the site at depths from approximately 2.40m bgl (16.61m AOD) during monitoring visits. No basements are proposed as part of the development. Significant groundwater control measures are therefore unlikely to be required during excavations above this level on site as part of the proposed development.
Filled and Made Ground (including embankments)	L	A limited thickness of Made Ground / poor quality topsoil was encountered within exploratory holes beneath the site, ranging from 0.30m to 0.45m.  Bunds of unknown material were identified as part of the previous assessment by Cambell Reith. However, these were not observed by RPS during subsequent environmental site investigation works in July 2017.
Obstructions (including foundations, services, basements, tunnels and adjacent sub-structures)	L	Previous development of the site has been limited. Should relic foundations or services be encountered during the proposed development, it is likely that these may be removed using standard construction plant. Bulkier obstructions may be present in the former landfill, requiring heavier plant to remove. However, it is understood that little development is proposed in this area.
Underground mining	L	Ground conditions beneath the site are not consistent with this feature.
Concrete classification	L	Testing has indicated a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures.
Seismic Activity	L	The Eurocode 8 seismic hazard zoning maps for the UK (Musson and Sargeant, 2007) indicate that horizontal Peak Ground Acceleration (PGA) values with 10% probability of being exceeded in 50 years (475 year return period) are between 0.00g and 0.02g, which is considered very low.

### 8.3 Foundation Solutions

#### 8.3.1 Traditional Foundations

Based upon SPT results, the Taplow Gravel Formation is likely to provide a suitable bearing stratum for traditional foundations for light to moderately loaded structures, where it is at least medium dense granular material at formation level and it is present at relatively shallow depth below the ground surface.

In accordance with the guidance set out in Eurocode 7, a 1.00m wide pad concrete foundation placed at a depth of 1.00m bgl (or at least 300mm into the Taplow Gravel Formation) should be capable of supporting building loads of up to 200kN/m<sup>2</sup> where the stratum is at least medium dense granular material at formation level.



In accordance with the guidance set out in Eurocode 7 to satisfy Ultimate Limit State (ULS) and Serviceability Limit State (SLS) design, settlement underlying a 1.00m wide pad foundation, constructed in the manner discussed above, is estimated to be within acceptable limits (<25mm).

The formation should be inspected by the site engineer before placing foundations. Whilst the investigation indicated that the Taplow Gravel Formation was at shallow depth, if Made Ground, low strength cohesive or loose granular material is encountered at the target bearing depth, foundations should be taken deeper to an appropriate formation level or unsuitable material should be excavated and replaced with compacted granular fill. Should it be found that the depth to the formation layer is in excess of approximately 3.00m bgl (not anticipated beneath the site), traditional or trench fill foundations are unlikely to be technically or economically feasible and alternative foundation solutions should be sought.

The ingress of perched groundwater into foundation excavations may cause loosening of granular deposits and significantly reduce bearing capacity. If this occurs, appropriate groundwater control measures should be adopted.

### **8.3.2 Ground Improvement/Piling**

Should the structural design of structures on site indicate that significantly higher ground bearing loads are required, ground improvement techniques, or piling may be considered.

The potential for the adoption of ground improvement techniques or piles to support the proposed development should be assessed by a specialist contractor, if it is considered potentially advantageous to the proposed development

## **8.4 Floor Slabs**

The Taplow Gravel Formation is anticipated to be present at floor slab formation level beneath the proposed school building and sports centre at an assumed depth of approximately 0.60m bgl, which should be suitable to support a ground bearing floor slab, subject to confirmatory proof rolling and localised soft spot removal and replacement.

## **8.5 Pavements**

DCP testing was undertaken at eight locations on site, as indicated in Figure 2. CBR results were calculated for each test location using the method set out by the Transport Research Laboratory (TRL):



$$\text{Log}_{10}(\text{CBR}) = 2.48 + 1.057\text{Log}_{10}(\text{mm/blow})$$

A summary of the calculated results for each 100mm interval is presented in the table below.

**Table 7 – Summary of DCP Testing Results**

Depth (mm)	DCP Test Number							
	DCP1	DCP2	DCP3	DCP4	DCP5	DCP6	DCP7	DCP8
	Calculated CBR Value (%)							
0-100	-	-	-	-	-	-	-	-
100-200	10.1	29.3	4.8	18.2	18.2	20.9	18.2	10.1
200-300	20.9	18.2	20.9	37.8	34.9	34.9	58.0	26.5
300-400	10.1	12.7	40.7	55.1	37.8	46.4	69.8	26.5
400-500	7.4	12.7	52.2	145.1	34.9	49.3	145.1	26.5
500-600	12.7	4.8	93.6	-	129.9	129.9	-	23.7
600-700	12.7	15.4	120.7	-	145.1	111.6	-	34.9
700-800	10.1	52.2	78.6	-	-	60.9	-	78.6
800-900	4.8	72.7	120.7	-	-	46.4	-	81.6
900-1000	4.8	102.6	78.6	-	-	52.2	-	58.0

The results of in situ CBR testing, using DCP methods, indicate that ground conditions at the likely founding depth for pavements on site (assumed to be at approximately 0.50m to 0.60m bgl) range from approximately 5% to 130%. A design CBR value of 5% is therefore recommended.

## 8.6 Chemical Attack on Buried Concrete

Samples from the Made Ground / poor quality topsoil and Taplow Gravel Formation were tested for pH and sulphate content. The results are presented below:

**Table 8 – Results of pH and sulphate testing**

Stratum	No. Samples	Range of pH	Characteristic pH	Range of Sulphate (mg/kg)	Characteristic Sulphate (mg/kg)	Design Sulphate Class	ACEC Class
Made Ground / Poor Quality Topsoil	14	5.95 to 8.01	6.15	<1.5 to 42.3	19.8	DS1	AC1
Taplow Gravel Formation	4	7.06 to 8.30	7.06	<1.5 to 11	11	DS1	AC1
London Clay Formation	2	8.30 and 8.40	8.30	100 and 120	120	DS1	AC1

The data was used to assess appropriate concrete classification for buried concrete in accordance with BRE Special Digest 1, based on the following assumptions:

- Brownfield ground conditions;
- Mobile groundwater conditions;



- For a dataset of one to four samples, the characteristic value for water soluble sulphate has been calculated from the highest of the results, while the characteristic value for pH is taken as the lowest of pH results. The characteristic values for the Taplow Gravel Formation are therefore taken as 11mg/l for water soluble sulphate and 7.05 for pH value. The characteristic values for the London Clay Formation are taken as 120mg/l for water soluble sulphate and 8.30 for pH value; and
- For a data set of ten or more samples, the characteristic value for water soluble sulphate has been calculated from the average of the highest 20% of results, while the characteristic value for pH is taken as the average of the lowest 20% of pH results. The characteristic values for the Made Ground / poor quality topsoil are therefore taken as 19.80mg/l for soluble sulphate and 6.15 for pH value.

Based on the above, it is considered that a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures.

## 8.7 Temporary Works and Excavations

Previous development of the site has been limited. Whilst not anticipated, should relic foundations or services be encountered during the proposed development, it is likely that these may be removed using standard construction plant.

Groundwater was encountered within the Taplow Gravel Formation beneath the site at depths from approximately 2.40m bgl (16.61m AOD) during monitoring visits. Significant groundwater control measures are therefore unlikely to be required during excavations above this level on site as part of the proposed development.

If groundwater is encountered during excavation, degradation of the formation may occur. The formation should therefore be adequately protected from seepages and protected from adverse weather conditions. If the formation layer becomes wet resulting in loosening of the surface materials, then excavation may have to be taken deeper in order to find a suitable bearing layer. Instability of excavations in granular material should be expected, especially during periods of adverse weather. Suitable shoring measures or battering back of slopes may be required for any excavations greater than 1.20m bgl. All temporary excavations should be undertaken in accordance with CIRIA Report 97 . Trenching Practice.

Groundwater levels are likely to vary seasonally. Additional groundwater monitoring is recommended prior to construction.



## 8.8 Drainage Infiltration Testing

Rising head tests were undertaken within monitoring wells installed within boreholes BH1 to BH3, screened across the Taplow Gravel Formation.

The rising head tests were proposed to comply fully with the methodology detailed within BS5930:2015. The methodology recommends that the test is repeated three times, with the most conservative result selected.

The results of testing performed within monitoring wells BH1 to BH3 are presented in the table below:

**Table 9 – Results of Rising Head Tests**

Test Location	Stratum	Response Zone m bgl (m AOD)	Hydraulic Conductivity (m/s)		
			Test Result 1	Test Result 2	Test Result 3
BH1	Taplow Gravel Formation	1.00 to 4.00 (15.06 to 18.06)	$5.04 \times 10^{-05}$	$5.92 \times 10^{-05}$	$5.70 \times 10^{-05}$
BH2	Taplow Gravel Formation	1.00 to 5.00 (14.01 to 18.01)	$1.89 \times 10^{-04}$	$1.17 \times 10^{-04}$	$3.45 \times 10^{-04}$
BH3	Taplow Gravel Formation	1.00 to 5.00 (13.85 to 17.85)	$3.29 \times 10^{-06}$	$8.01 \times 10^{-06}$	$6.01 \times 10^{-06}$

Infiltration test calculation sheets are presented as Appendix H.

The feasibility of adopting infiltration drainage for the proposed development, along with the size and type of any soakaway should be assessed by a specialist drainage engineer.

## 8.9 Slope Stability

The proposed school building is situated adjacent to the cutting slope, located within the adjacent Network Rail land. When the structural design is available and the foundation arrangement known, the influence of those foundations to the stability of the slope should be assessed. Network Rail may require confirmation that the proposed work does not impair the stability of the cutting.

## 9 MATERIAL RE-USE AND WASTE CHARACTERISATION

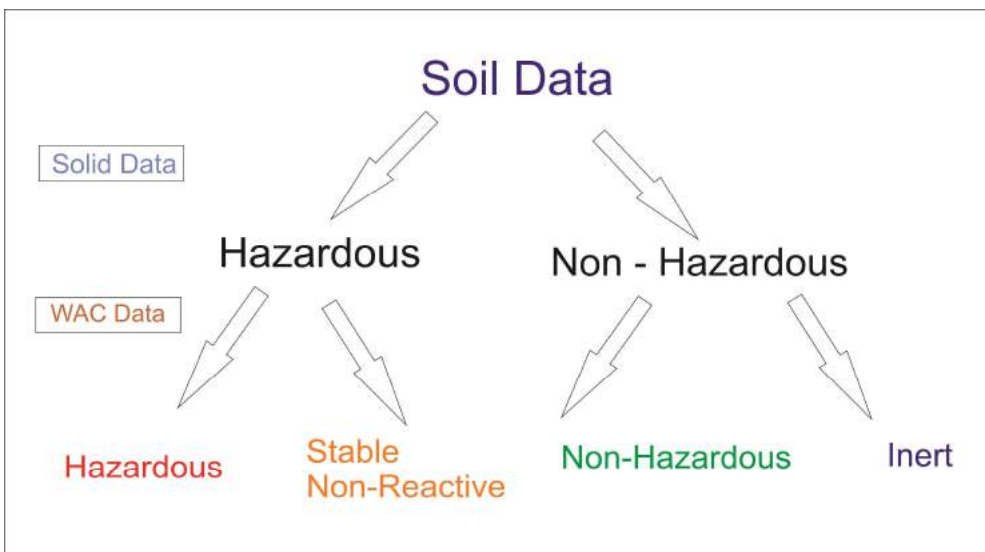
### 9.1 Assessment Criteria

A school building and sports centre are proposed in the eastern part of the site. As part of the redevelopment, soil arisings will be generated from the foundation excavations. Since there is limited potential for on-site re-use of this material, it is likely that soil arisings will require removal from site. Should no suitable off-site re-use options be available, disposal to landfill may need to be considered. If contaminated material is to be disposed of, use of soil treatment facilities should also be considered.

If disposal to landfill is required, the excavated material would be considered as waste and should be classified in line with the Hazardous Waste Directive - HWD, Council Directive 91/689/EC. This legislation divides waste into two categories, hazardous and non-hazardous. These two categories can then be subdivided into a number of classes relating to the type of landfill/cell to which the material can be sent; these are illustrated below.

In order to provide an indication of the likely waste characterisation of soils excavated from the site, should disposal be required, a waste characterisation exercise has been carried out. This is summarised in Sections 9.2 to 9.5 below. Any material sent to landfill should be accompanied by the appropriate duty of care documentation and the chemical data should be forwarded to the accepting landfill for approval prior to removal of the soil from site.

#### Waste Characterisation Categories





## 9.2 Soil Sampling and Testing

### ***Solid Suite of Analysis***

Chemical analysis was undertaken on 15 samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation. All soil samples were analysed for the following solid suite of analysis:

*pH, arsenic, asbestos, boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, sulphide, sulphate, cyanide, phenols, PAH, BTEX, MTBE and TPH CWG.*

### ***WAC Testing***

Two samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation were also submitted for the solid WAC suite of analysis.

The solid WAC suite of analysis included testing for the following determinands:

*Total organic carbon (TOC), loss on ignition (LOI), BTEX, sum of PCBs, mineral oil and total PAH, acid neutralisation capacity and pH.*

WAC single stage leachate analysis was also carried out on the above samples. The analysis included testing for the following determinands:

*Arsenic, barium, cadmium, chromium, copper, mercury, molybdenum, nickel, lead, antimony, selenium, zinc, chloride, fluoride, sulphate, total dissolved solids (TDS), phenol index and dissolved organic carbon.*

All soil analysis and WAC results are provided in Appendix G.

## 9.3 Solid Soil Data

Results of the solid suite were analysed using HazWasteOnline Software which allows users to classify waste as defined in the EWC (European Waste Catalogue 2002) based on the regulatory framework for the Classification Labelling and Packaging of Substances and mixtures Regulation, (EC) No 172/2008 and the latest Environment Agency guidance (Technical Guidance WM3).

Contaminant concentrations within the soil samples analysed did not exceed thresholds for hazardous waste.



Chrysotile asbestos fibres were recorded in a sample of Made Ground / poor quality topsoil collected from hand pit HP8, located in the southwest corner of the site, at a depth of approximately 0.25m bgl (19.38m AOD). According to *WM3 Guidance on the Classification and Assessment of Waste* if the waste contains fibres that are free and dispersed then the waste would be characterised as Hazardous if, as a whole, it contains 0.1% or more asbestos. The mass of asbestos in the sample did not exceed the 0.1% threshold. As such this sample should be considered suitable for disposal as non-hazardous waste.

## 9.4 WAC Data

### 9.4.1 Solid Data

Two samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation were subject to the WAC solid suite of analysis all of which were characterised as non-hazardous waste.

### 9.4.2 Leachate Data

Two samples of Made Ground / poor quality topsoil and two samples of the Taplow Gravel Formation were subject to the WAC leachate suite of analysis.

One exceedance was recorded of the inert (leachate) WAC threshold for antimony in a sample collected from HP1 at 0.20m bgl (19.22m AOD).

## 9.5 Summary of Results

The results of the waste characterisation exercise are provided in Appendix I and summarised in the table below.

**Table 10 – Summary of Waste Characterisation Exercise**

Position	Depth (m bgl)	Strata	Solid Suite of Analysis	Exceedance of Corresponding Inert, SNRHW and Hazardous waste WAC Limit Value?	WAC Analysis Results
BH1	0.30	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
BH1	0.40	Taplow Gravel Formation	<b>Non-Hazardous</b>	N/A	<b>Inert</b>
BH2	0.20	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
BH2	0.50	Made Ground / poor	<b>Non-Hazardous</b>	N/A	N/A

Position	Depth (m bgl)	Strata	Solid Suite of Analysis	Exceedance of Corresponding Inert, SNRHW and Hazardous waste WAC Limit Value?	WAC Analysis Results
		quality topsoil			
BH3	0.20	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP1	0.20	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP2	0.20	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	<b>Non-Hazardous</b>
HP3	0.30	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP4	0.25	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP5	0.45	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP6	0.30	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP7	0.25	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP8	0.25	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	No	N/A
HP9	0.35	Taplow Gravel Formation	<b>Non-Hazardous</b>	N/A	<b>Inert</b>
HP10	0.20	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	No	N/A
HP11	0.25	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	N/A	N/A
HP12	0.30	Made Ground / poor quality topsoil	<b>Non-Hazardous</b>	No	<b>Inert</b>

N/A . Additional WAC analysis not carried out on sample

- All 15 samples of Made Ground / poor quality topsoil analysed for the solid suite of analysis were characterized as non-hazardous waste. WAC testing was undertaken on two of these samples one of which was suitable for disposal to a non-hazardous waste landfill and one of which would be suitable for disposal to an inert waste landfill; and
- Both samples of the Taplow Gravel Formation analysed for the solid suite of analysis were characterised as non-hazardous waste. WAC testing was undertaken on these samples indicated that they would be suitable for disposal to an inert waste landfill.

More detailed waste characterisation should be carried out where significant volumes of material are to be disposed of off-site. Any material sent to landfill should be accompanied by the appropriate duty of care documentation and the chemical data should be forwarded to the accepting landfill for approval prior to removal of the soil from site.



## **9.6 Conclusions**

Where to be disposed of to landfill, the samples analysed from the Taplow Gravel Formation would be considered suitable for disposal as inert waste. The samples analysed from the Made Ground / poor quality topsoil would be considered suitable for disposal as either inert or non-hazardous waste.

Any soils encountered during excavation works which display visual and/or olfactory evidence of significant contamination and are to be disposed of off-site should also be segregated for further analysis prior to disposal. These measures should keep any disposal costs to a minimum.



## 10 CONCLUSIONS AND RECOMMENDATIONS

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Asbestos fibres were recorded within a sample of Made Ground / poor quality topsoil collected from hand pit HP8, located in the southwest corner of the site. Material representative of this sample of shallow Made Ground / poor quality topsoil analysed from the location of hand pit HP8 should be excavated and segregated for disposal off site. No other contaminants of concern were recorded within samples collected from beneath the site at concentrations in excess of adopted AC.

Based on the available information and the recommended mitigation measures being implemented, the potential risk to human health receptors from concentrations of contaminants of concern detected within soil and groundwater sampled from beneath the site is considered to be **LOW**.

Contaminants of concern were not recorded within groundwater samples analysed from beneath the site at concentrations in excess of adopted AC. Based on the available information, the potential risk to controlled water receptors from concentrations of contaminants of concern detected within groundwater sampled from beneath the site is considered to be **LOW**.

Based on ground gas monitoring undertaken on site as part of the current investigation CIRIA CS1 is considered applicable to the site, whereby ground gas protection measures are not required for new buildings. The risk posed by ground gas to human health receptors and infrastructure is therefore considered to be **LOW**.

Based upon SPT results, the Taplow Gravel Formation is likely to provide a suitable bearing stratum for traditional foundations for light to moderately loaded structures, where it is at least medium dense granular material at formation level and it is present at relatively shallow depth below the ground surface.

The Taplow Gravel Formation is anticipated to be present at floor slab formation level beneath the proposed school building and sports centre at an assumed depth of approximately 0.60m bgl, which should be suitable to support a ground bearing floor slab, subject to confirmatory proof rolling and localised soft spot removal and replacement.

The results of in situ CBR testing, using DCP methods, indicate that ground conditions at the likely founding depth for pavements on site (assumed to be at approximately 0.50m to 0.60m bgl) range from approximately 5% to 130%. A design CBR value of 5% is therefore recommended.

Testing has indicated a Design Sulphate Class of DS-1 and an ACEC Classification of AC-1 would be appropriate for all buried concrete structures.





The proposed school building is situated adjacent to the cutting slope, located within the adjacent Network Rail land. When the structural design is available and the foundation arrangement known, the influence of those foundations to the stability of the slope should be assessed. Network Rail may require confirmation that the proposed work does not impair the stability of the cutting.

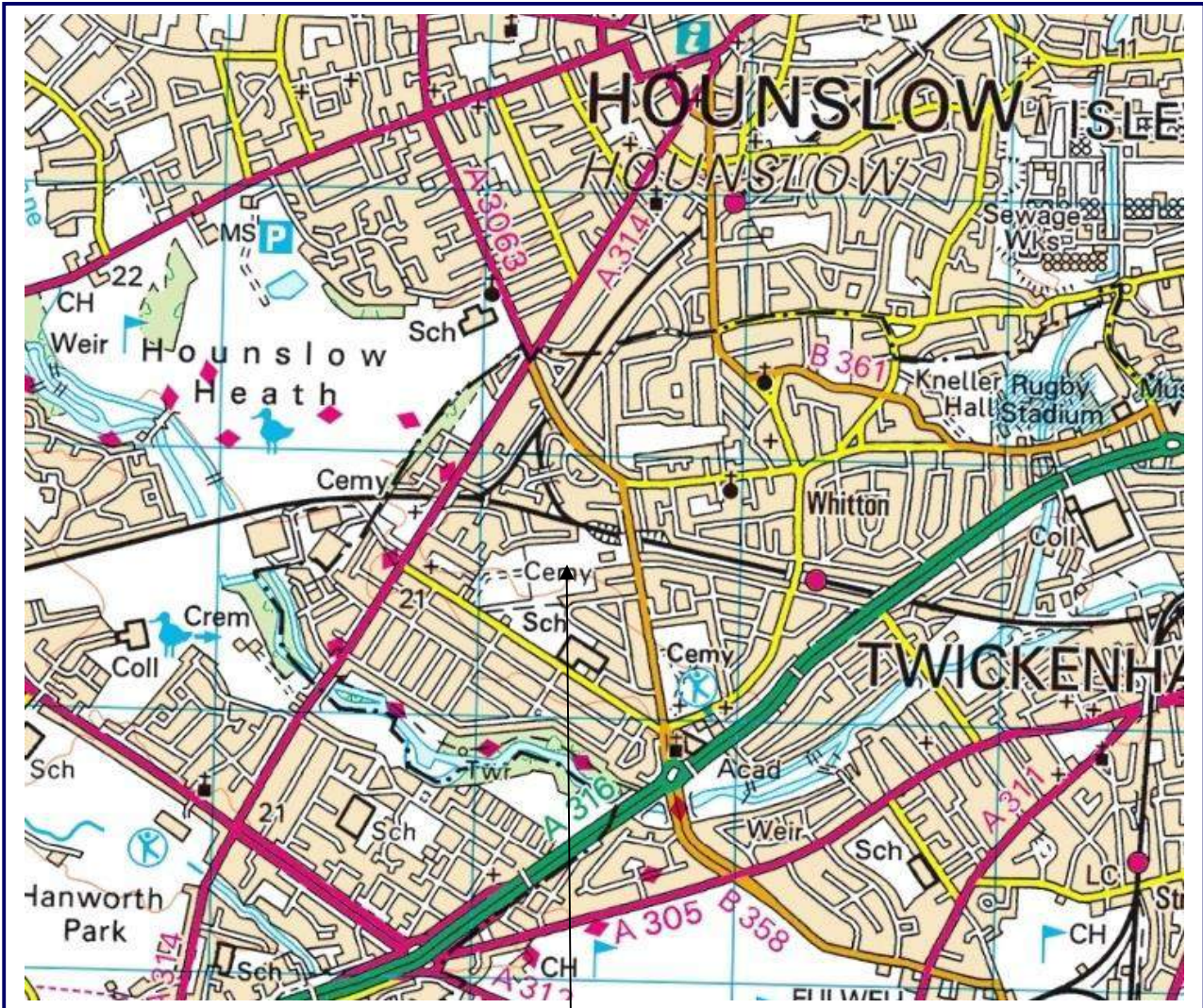
Where to be disposed of to landfill, the two samples from the Taplow Gravel Formation that were submitted for waste acceptance criteria (WAC) analysis would be considered suitable for disposal as inert waste. The two samples from the Made Ground / poor quality topsoil submitted for WAC testing would be considered suitable for disposal as inert and non-hazardous waste, respectively.

Any soils encountered during excavation works which display visual and/or olfactory evidence of significant contamination and are to be disposed of off-site should also be segregated for further analysis prior to disposal. These measures should keep any disposal costs to a minimum.



**FIGURES**

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Site Location

**Figure 1:** Site Location Plan




**Map Date:** 2014

**Scale:** Not to scale

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- Legend**
-  Cable Percussion Borehole
  -  Hand Pit Locations
  -  Dynamic Cone Penetration Locations

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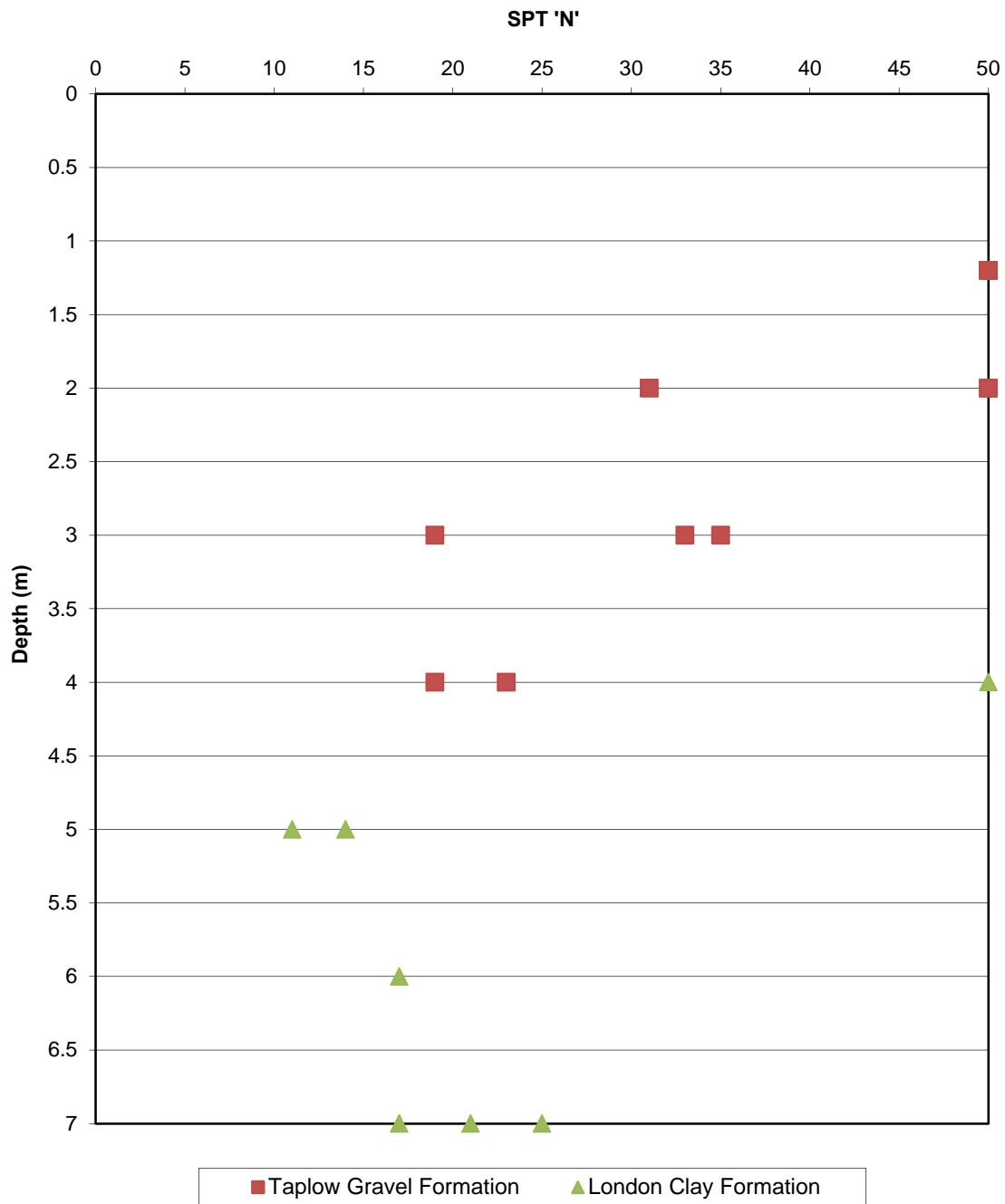
**REVISION A**  
 mackenzie wheeler  
 Turing House Free School  
 SITE OPTION 1  
 SUPER-BLOCK  
 scale 1:1250 at A3  
 1284/SK4/PG07-12-16

Client: TURNER & TOWNSEND  
 Project: TURING HOUSE FREE SCHOOL  
 Title: EXPLORATORY HOLE LOCATION AND PROPOSED DEVELOPMENT PLAN  
 Job Ref: HLEI49195      Scale: NTS      Date: JUL 2017

Figure Number: 2      Rev: 01

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# Turing House Free School



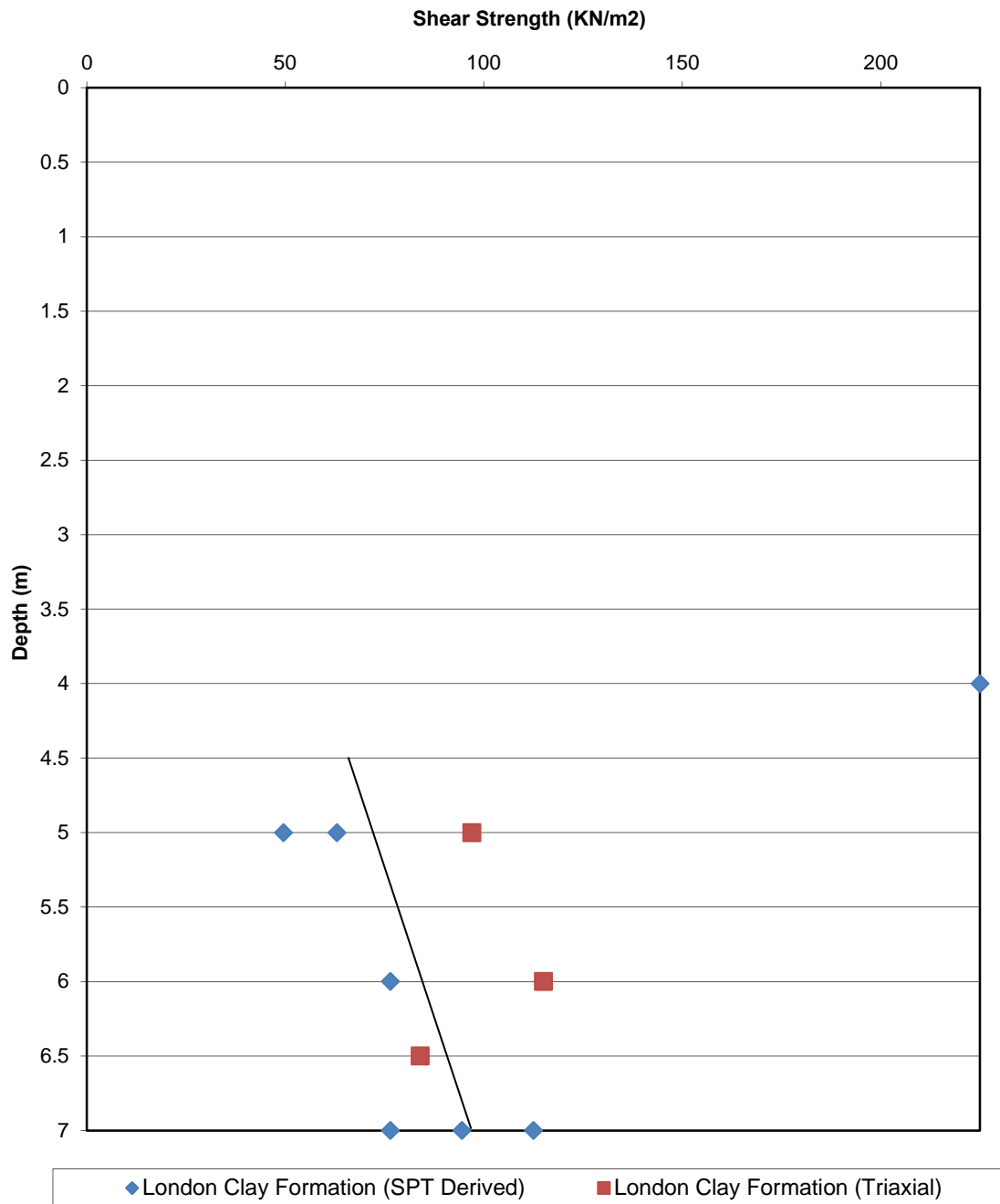
**Project:** Turing House Free School  
**Project no:** HLEI 49195  
**Date:** Aug-17

**Figure 3: SPT 'N' vs. Depth**



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# Turing House Free School



**Project:** Turing House Free School  
**Project no:** HLEI 49195  
**Date:** Aug-17



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**Figure 4: Shear strength vs. Depth**



**APPENDIX A**

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General Notes

## RPS HEALTH, SAFETY & ENVIRONMENT

### *Phase 1 - Environmental Risk Assessment / Desk Study Environmental Review*

#### General Notes

1. A "desk study" means that no site visits have been carried out as any part thereof, unless otherwise specified.
2. This report provides available factual data for the site obtained only from the sources described in the text and related to the site on the basis of the location information provided by the Client.
3. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.
4. The accuracy of maps cannot be guaranteed and it should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
5. No sampling or analysis has been undertaken in relation to this desk study.
6. Any borehole data from British Geological Survey sources is included on the basis that: "The British Geological Survey accept no responsibility for omissions or misinterpretation of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation".
7. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS for inaccuracies in the data supplied by any other party.
8. This report is prepared and written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or in part after its original submission.
9. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the Client deemed to be granted on payment in full to the RPS Company by the Client of the outstanding amounts.
10. The report is provided for sole use by the Client and is confidential to them, their professional advisors, no responsibility whatsoever for the contents of the report will be accepted to any person other than the Client. [Unless otherwise agreed]
11. These terms apply in addition to the RPS HSED "Standard Terms & Conditions" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms & Conditions the said Standard Terms & Conditions shall prevail.) In the absence of such a written contract the Standard Terms & Conditions will apply.



## RPS HEALTH, SAFETY & ENVIRONMENT

### *Phase 2 – Site Investigations*

#### General Notes

1. The assessments made in this report are based on the ground conditions as revealed by intrusive investigations, together with the results of any field or laboratory testing or chemical analysis undertaken and other relevant data which may have been obtained including previous site investigations. In any event, ground contamination often exists as small discrete areas of contamination ("hot spots") and there can be no certainty that any or all such areas have been located and/or sampled.
2. There may be special conditions appertaining to the site which have not been taken into account in the report. The assessment may be subject to amendment in the light of additional information becoming available.
3. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS Companies for inaccuracies within the data supplied by other parties.
4. Whilst the report may express an opinion on possible ground conditions between or beyond trial pit or borehole locations, or on the possible presence of features based on either visual, verbal or published evidence this is for guidance only and no liability can be accepted for the accuracy thereof.
5. Comments on groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. Groundwater conditions may vary due to seasonal or other effects.
6. This report is prepared and written in the context of the agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or part after its original submission.
7. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the client deemed to be granted on payment in full to the RPS Company by the client of the outstanding amounts.
8. The report is provided for sole use by the Client and is confidential to them and their professional advisors. No responsibility whatsoever for the contents of the report will be accepted to any person other than the Client.
9. These terms apply in addition to the RPS Group "Standard Terms of Business" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms of Business the said Standard Terms of Business shall prevail). In the absence of such a written contract the Standard Terms of Business will apply.

## APPENDIX B

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### Part 2A (The Contaminated Land Regime)

## Contaminated Land Definition

Under Section 57 of the Environmental Act 1995, Part 2A was inserted into the Environmental Protection Act 1990 to include provisions for the management of contaminated land.

Subsequent regulations were first implemented in England in April 2000, Scotland in July 2000 and Wales in July 2001<sup>1</sup>, providing a definition of 'contaminated land' and setting out the nature of liabilities that can be incurred by owners of contaminated land and groundwater.

According to the Act, contaminated land is defined as 'any land which appears to the local authority in whose area the land is situated to be in such a condition, by reason of substances in, on or under the land that:

- a) *significant harm* is being caused or there is a *significant possibility* of such harm being caused; or
- b) *significant pollution* of controlled waters<sup>2</sup> is being caused or there is a significant possibility of such pollution being caused<sup>3</sup>

The guidance on determining whether a particular possibility is significant is based on the principles of risk assessment and in particular on considerations of the magnitude or consequences of the different types of significant harm caused. The term 'possibility of significant harm being caused' should be taken, as referring to a measure of the probability, or frequency, of the occurrence of circumstances that could lead to significant harm being caused.

The following situations are defined where harm is to be regarded as significant:

- i. Chronic or acute toxic effect, serious injury or death to humans
- ii. Irreversible or other adverse harm to the ecological system
- iii. Substantial damage to, or failure of, buildings
- iv. Disease, other physical damage or death of livestock or crops
- v. The pollution of controlled waters<sup>4</sup>.

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<sup>1</sup> In England by The Contaminated Land (England) Regulations 2000, updated by The Contaminated Land (England) (Amendment) Regulations 2012; in Scotland by The Contaminated Land (Scotland) Regulations 2000, updated by the Contaminated Land (Scotland) Regulations 2005; and in Wales by The Contaminated Land (Wales) Regulations 2001, updated by the Contaminated Land (Wales) Regulations 2006.

<sup>2</sup> In Scotland the term 'controlled water' has been updated to 'water environment' under the Contaminated Land (Scotland) Regulations 2005 in line with the Water Environment and Water Services (Scotland) Act 2003.

<sup>3</sup> The definition was amended in 2012 by implementation of the Water Act 2003.

<sup>4</sup> Groundwater in this context does not include waters within underground strata but above the saturated zone.

With regard to radioactivity, contaminated land is defined as any land which appears to be in such a condition, by reason of substances in, on or under the land that harm is being caused, or there is a *significant possibility of such harm being caused*<sup>5</sup>

### **The Risk Assessment Methodology**

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risks to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected with the hazard via one or several exposure pathways (e.g. the pathway of direct contact). Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there can be no risk. Thus, the mere presence of a hazard at a site does not mean that there will necessarily be attendant risks.

### **The Risk Assessment**

By considering where a viable pathway exists which connects a source with a receptor, this assessment will identify where pollutant linkages may exist. A pollutant linkage is the term used by the DEFRA in their standard procedure on risk assessment. If there is no pollutant linkage, then there is no risk. Therefore, only where a viable pollutant linkage is established does this assessment go on to consider the level of risk. Risk should be based on a consideration of both:

- The likelihood of an event (probability) - takes into account both the presence of the hazard and receptor and the integrity of the pathway.
- The severity of the potential consequence - takes into account both the potential severity of the hazard and the sensitivity of the receptor.

For further information please see the Contaminated Land section on the DEFRA website ([www.defra.gov.uk](http://www.defra.gov.uk)).

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<sup>5</sup> The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 and Contaminated Land (Wales) Regulations 2006.



# APPENDIX C

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Exploratory Hole Logs



# BOREHOLE LOG

Borehole No.

**BH1**

Sheet 1 of 2

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513373	Drilling Method:	Pipe Diameter: 50mm
Location:	Twickenham	Northing:	173651	Cable Percussion Rig	Casing Diameter (mm) 150
Client:	Turner & Townsend	Ground Level (mAOD):	19.06	Logged By:	MH
					Casing Depth (m) 3.80
					Scale: 1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		19.06		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to medium, angular to subrounded flint and brick. (TOPSOIL)	
		0.30	ES			(0.35)				
		0.30	PID1	0.0ppm	0.35		18.71		Grey orange clayey sandy fine to coarse subrounded to rounded flint GRAVEL. Sand is fine to medium. (TAPLOW GRAVEL FORMATION)	
		0.40	ES	0.0ppm		(0.25)				
		0.40	PID2							
		0.50 - 1.00	B		0.60		18.46		Medium dense to dense brown orange sandy fine to coarse subrounded to rounded flint GRAVEL. (TAPLOW GRAVEL FORMATION)	
		1.00	PID3	0.0ppm						1
		1.20 - 1.70	B							
		1.20	SPT(C)	50 (25 for 110mm/50 for 95mm)						
		2.00 - 2.50	B			(2.80)				2
	2.00	SPT(C)	50 (7,18/50 for 140mm)							
	3.00 - 3.50	B							3	
	3.00	PID4	0.0ppm							
	3.00	SPT(C)	N=19 (3,4/6,5,4,4)							
	3.40					15.66		Brown CLAY. (LONDON CLAY FORMATION)		
					(0.40)					
						15.26		High strength grey CLAY. (LONDON CLAY FORMATION)		
	4.00 - 4.45	SPTLS							4	
	4.00	SPT(S)	50 (25 for 80mm/50 for 110mm)					Claystone.		
	4.50	D								
	5.00 - 5.45	U							5	
	5.00	PID5	Blows=52 0.0ppm							


Remarks: Water added from 0.50m to 3.40m bgl to aid drilling.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)



Project Name: Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No: HLEI49195	Easting: 513373	Drilling Method:	Pipe Diameter: 50mm	7.00m
Location: Twickenham	Northing: 173651	Cable Percussion Rig	Casing Diameter (mm) 150	Casing Depth (m) 3.80
Client: Turner & Townsend	Ground Level (mAOD): 19.06	Logged By: MH	Scale: 1:25	

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickess (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		5.50	D							
		6.00 - 6.50 6.00	SPTLS SPT(S)	N=17 (2,2/3,4,5,5)		(3.20)				6
		6.50 - 6.95	U	Blows=62						
		7.00 7.00 - 7.45 7.00	D SPTLS SPT(C)	N=25 (3,5/6,5,7,7)					End of Borehole at 7.00m	7
										8
										9
										10

Remarks: Water added from 0.50m to 3.40m bgl to aid drilling.	Groundwater			Chiselling			
	Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)	



# BOREHOLE LOG

Borehole No.

**BH2**

Sheet 1 of 2

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth:	
Project No:	HLEI49195	Easting:	513461	Drilling Method:		Pipe Diameter: 50mm
Location:	Twickenham	Northing:	173671	Cable Percussion Rig	Casing Diameter (mm) 150	Casing Depth (m) 4.90
Client:	Turner & Townsend	Ground Level (mAOD):	19.01	Logged By:	MH	Scale: 1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale	
		Depth (m)	Type	Results							
		0.20 0.20	ES PID1	0.0ppm	0.00	(0.40)	19.00		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to medium, angular to subrounded flint and brick. (TOPSOIL)		
		0.50 0.50 0.50	B ES PID2	0.0ppm	0.40 0.60	(0.20)	18.60 18.40		Grey orange clayey sandy fine to coarse subrounded to rounded flint GRAVEL. Sand is fine to medium. (TAPLOW GRAVEL FORMATION)		
		1.00	PID3	0.0ppm					Medium dense to dense brown orange sandy fine to coarse subrounded to rounded flint GRAVEL. Sand is fine to coarse. (TAPLOW GRAVEL FORMATION)	1	
		1.20 - 1.70 1.20	B SPT(C)	10 (25,40/10 for 5mm)							
		2.00 - 2.50 2.00	B SPT(C)	N=50 (4,7/50 for 226mm)		(4.10)				2	
		3.00 - 3.50 3.00 3.00	B PID4 SPT(C)	0.0ppm N=35 (4,6/8,8,9,10)						3	
		4.00 - 4.50 4.00	B SPT(C)	N=23 (4,5/5,6,5,7)						4	
		4.70	D		4.70			14.30		Brown CLAY. (LONDON CLAY FORMATION)	
		5.00 - 5.45 5.00	SPTLS PID5	0.0ppm	5.00	(0.30)		14.00			5

Remarks: Water added from 0.50m to 4.50m bgl to aid drilling.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)




Continued on next sheet



Project Name: Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth:
Project No: HLEI49195	Easting: 513461	Drilling Method:	Pipe Diameter: 50mm	7.00m
Location: Twickenham	Northing: 173671	Cable Percussion Rig	Casing Diameter (mm) 150	Casing Depth (m) 4.90
Client: Turner & Townsend	Ground Level (mAOD): 19.01		Logged By: MH	

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		5.00	SPT(S)	N=14 (2,2/2,4,4,4)					Medium to high strength grey CLAY. (LONDON CLAY FORMATION)	
		6.00 - 6.45	U	Blows=62		(2.00)				6
		6.50	D							
		7.00 - 7.45 7.00	SPTLS SPT(S)	N=17 (1,2/3,4,5,5)					End of Borehole at 7.00m	7
										8
										9
										10

Remarks: Water added from 0.50m to 4.50m bgl to aid drilling.	Groundwater			Chiselling			
	Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)	



# BOREHOLE LOG

Borehole No.

**BH3**

Sheet 1 of 2

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth:	
Project No:	HLEI49195	Easting:	513511	Drilling Method:		Pipe Diameter: 50mm
Location:	Twickenham	Northing:	173675	Cable Percussion Rig	Casing Diameter (mm) 150	Casing Depth (m) 4.90
Client:	Turner & Townsend	Ground Level (mAOD):	18.85	Logged By:	MH	Scale: 1:25

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.00 - 0.50	B		0.00		18.85		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to medium, angular to subrounded flint and brick. (TOPSOIL)	
		0.20 0.20	ES PID1	0.0ppm	0.30	(0.30)	18.55			
					0.50	(0.20)	18.35			
		1.00	PID2	0.0ppm						
		1.20 - 1.70 1.20	B SPT(C)	50 (25 for 90mm/50 for 85mm)						
		2.00 - 2.50 2.00	B SPT(C)	N=31 (3,5/7,8,7,9)		(4.10)				
		3.00 - 3.50 3.00 3.00	B PID3 SPT(C)	0.0ppm N=33 (5,6/7,8,8,10)						
		4.00 - 4.50 4.00	B SPT(C)	N=19 (2,2/5,5,4,5)						
					4.60		14.25		Brown CLAY. (LONDON CLAY FORMATION)	
					4.90		13.95		Medium to high strength grey CLAY.	
	5.00 - 5.45 5.00	SPTLS PID4	0.0ppm					Continued on next sheet		


Remarks: Water added from 0.50m to 4.50m bgl to aid drilling.

Groundwater			Chiselling		
Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)



Project Name: Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth:
Project No: HLEI49195	Easting: 513511	Drilling Method:	Pipe Diameter: 50mm	7.00m
Location: Twickenham	Northing: 173675	Cable Percussion Rig	Casing Diameter (mm) 150	Casing Depth (m) 4.90
Client: Turner & Townsend	Ground Level (mAOD): 18.85		Logged By: MH	

Well	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		5.00	SPT(S)	N=11 (1,2/3,2,3,3)					(LONDON CLAY FORMATION)	
		6.00 - 6.45	U	Blows=52		(2.10)				6
		6.50	D							
		6.70	D							
		7.00 - 7.45 7.00	SPTLS SPT(S)	N=21 (3,4/4,5,6,6)						7
								8		
								9		
								10		

Remarks: Water added from 0.50m to 4.50m bgl to aid drilling.	Groundwater			Chiselling			
	Depth Strike (m)	Depth Casing (m)	Level After 20 Mins	Duration (hh:mm)	Top Depth (m)	Base Depth (m)	

Project Name: Turing House Free School	Co-ordinates:	Date(s): 28/06/2017	Final Depth:
Project No: HLEI49195	Easting: 513199	Equipment:	0.35m
Location: Twickenham	Northing: 173628	Hand Dug	Scale:
Client: Turner & Townsend	Ground Level (mAOD): 19.42	Logged By: MH	1:10
		Pit Length: 0.40 m	
		Pit Width: 0.40 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		19.42		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint. Rootlets. (TOPSOIL)	
		0.20	ES							
		0.20	PID1	0.0ppm		(0.30)				
		0.30	ES		0.30		19.12		Orange grey sandy gravel CLAY. Gravel is medium to coarse angular to subrounded flint. Sand is fine to medium. (TAPLOW GRAVEL FORMATION)	
									End of Pit at 0.35m	



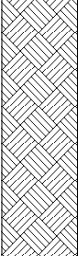

# HAND DUG PIT LOG

Pit No.

**HP02**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513243	Equipment:	0.40m
Location:	Twickenham	Northing:	173635	Hand Dug	Scale:
Client:	Turner & Townsend	Ground Level (mAOD):	19.27	Logged By: MH	1:10
			Pit Length: 0.40 m		
			Pit Width: 0.40 m		

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.20	ES	0.0ppm	0.00	(0.35)	19.26	 Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)	1	
		0.20	PID1		0.35	(0.05)	18.92			 Orange grey sandy fine to coarse angular to subrounded flint GRAVEL. Sand is fine to medium. (TAPLOW GRAVEL FORMATION) End of Pit at 0.40m
									2	

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable





# HAND DUG PIT LOG

Pit No.

**HP03**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513304	Equipment:	0.45m
Location:	Twickenham	Northing:	173639	Hand Dug	Scale:
Client:	Turner & Townsend	Ground Level (mAOD):	19.27	Logged By: MH	1:10
			Pit Length: 0.40 m		
			Pit Width: 0.40 m		

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		19.27		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)	
		0.30 0.30	ES PID1	0.0ppm		(0.40)				
					0.40	(0.05)	18.87		Grey brown gravel CLAY. Gravel is medium to coarse angular to subrounded flint. (TAPLOW GRAVEL FORMATION) End of Pit at 0.45m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable





# HAND DUG PIT LOG

Pit No.

**HP04**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 28/06/2017		Final Depth: 0.50m
Project No:	HLEI49195	Easting:	513173	Equipment:	
Location:	Twickenham	Northing:	173530	Hand Dug	Pit Length: 0.40 m Pit Width: 0.40 m
Client:	Turner & Townsend	Ground Level (mAOD):	20.01	Logged By: MH	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		20.01		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)	
		0.25 0.25	ES PID1	0.0ppm		(0.45)				
					0.45	(0.05)	19.56		Orange grey gravel CLAY. Gravel is medium to coarse angular to subrounded flint. (TAPLOW GRAVEL FORMATION) End of Pit at 0.50m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable




Project Name: Turing House Free School	Co-ordinates:	Date(s): 29/06/2017	Final Depth:
Project No: HLEI49195	Easting: 513238	Equipment:	0.50m
Location: Twickenham	Northing: 173537	Hand Dug	Scale:
Client: Turner & Townsend	Ground Level (mAOD): 19.68	Logged By: MH	1:10
		Pit Length: 0.40 m	
		Pit Width: 0.40 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.00			0.00		19.68		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint, brick and tile. Rootlets. (TOPSOIL)	
		0.45	ES	0.0ppm	0.45	(0.45)				
		0.45	PID1			(0.05)	19.23		Orange grey sandy gravel CLAY. Gravel is medium to coarse angular to subrounded flint. Sand is fine to medium. (TAPLOW GRAVEL FORMATION) End of Pit at 0.50m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable







# HAND DUG PIT LOG

Pit No.

**HP06**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513297	Equipment:	
Location:	Twickenham	Northing:	173545	Hand Dug	Pit Length: 0.40 m
Client:	Turner & Townsend	Ground Level (mAOD):	19.60	Logged By: MH	Pit Width: 0.40 m
					Scale:
					1:10

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		19.60		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint, brick and tile. Rootlets. (TOPSOIL)	
		0.30 0.30	ES PID1	0.0ppm		(0.40)				
					0.40	(0.05)	19.20		Orange grey gravel CLAY. Gravel is medium to coarse angular to subrounded flint. (TAPLOW GRAVEL FORMATION) End of Pit at 0.45m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable





# HAND DUG PIT LOG

Pit No.

**HP07**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513351	Equipment:	
Location:	Twickenham	Northing:	173559	Hand Dug	Scale:
Client:	Turner & Townsend	Ground Level (mAOD):	19.59	Logged By: MH	
				Pit Length: 0.40 m	
				Pit Width: 0.40 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		19.59		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)	
		0.25 0.25	ES PID1	0.0ppm		(0.40)				
					0.40	(0.05)	19.19		Orange grey sandy gravel CLAY. Gravel is medium to coarse angular to subrounded flint. Sand is fine to medium. (TAPLOW GRAVEL FORMATION) End of Pit at 0.45m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable





# HAND DUG PIT LOG

Pit No.

**HP08**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513220	Equipment:	0.40m
Location:	Twickenham	Northing:	173479	Hand Dug	Scale:
Client:	Turner & Townsend	Ground Level (mAOD):	19.63	Logged By: MH	1:10
				Pit Length: 0.30 m	
				Pit Width: 0.30 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.00			0.00		19.63	Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)		
		0.25 0.25	ES PID1	0.0ppm	(0.35)					
					0.35	(0.05)	19.28	Orange grey sandy gravel CLAY. Gravel is medium to coarse angular to subrounded flint and brick. Sand is fine to medium. (TAPLOW GRAVEL FORMATION) End of Pit at 0.40m		
									1	
									2	

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable





# HAND DUG PIT LOG

Pit No.

**HP09**

Sheet 1 of 1


Project Name:	Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513272	Equipment:	0.40m
Location:	Twickenham	Northing:	173475	Hand Dug	Scale:
Client:	Turner & Townsend	Ground Level (mAOD):	19.64	Logged By: MH	1:10
			Pit Length: 0.40 m		
			Pit Width: 0.40 m		

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.00				19.64		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)		
		0.15	ES			(0.35)				
		0.20	PID1	0.0ppm						
		0.35	ES		0.35	(0.05)	19.29	Orange grey gravel CLAY. Gravel is medium to coarse angular to subrounded flint. (TAPLOW GRAVEL FORMATION) End of Pit at 0.40m		
									1	
									2	

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable




Project Name: Turing House Free School	Co-ordinates:	Date(s): 29/06/2017	Final Depth:
Project No: HLEI49195	Easting: 513333	Equipment:	0.35m
Location: Twickenham	Northing: 173486	Hand Dug	Scale:
Client: Turner & Townsend	Ground Level (mAOD): 19.66	Logged By: MH	1:10
		Pit Length: 0.40 m	
		Pit Width: 0.40 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
					0.00		19.66		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint, brick and ceramic. Rootlets. <b>(TOPSOIL)</b> <u>Black fabric membrane.</u>	
		0.20 0.20	ES PID1	0.0ppm		(0.30)				
					0.30	(0.05)	19.36		Orange grey gravel CLAY. Gravel is medium to coarse angular to subrounded flint. <b>(TAPLOW GRAVEL FORMATION)</b> End of Pit at 0.35m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable





# HAND DUG PIT LOG

Pit No.

**HP11**

Sheet 1 of 1

Project Name:	Turing House Free School	Co-ordinates:	Date(s): 29/06/2017		Final Depth:
Project No:	HLEI49195	Easting:	513393	Equipment:	0.25m
Location:	Twickenham	Northing:	173550	Hand Dug	Scale:
Client:	Turner & Townsend	Ground Level (mAOD):	19.89	Logged By: MH	1:10
				Pit Length: 0.40 m	
				Pit Width: 0.40 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.00			0.00		19.89		Dark grey slightly clayey sandy fine to coarse angular to subangular gravel of flint, brick, concrete and tile. (MADE GROUND)	
		0.25	ES			(0.25)				
		0.25	PID1	0.0ppm						
									End of Pit at 0.25m	
										1
										2

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable




Project Name: Turing House Free School	Co-ordinates:	Date(s): 29/06/2017	Final Depth:
Project No: HLEI49195	Easting: 513403	Equipment:	0.40m
Location: Twickenham	Northing: 173491	Hand Dug	Scale:
Client: Turner & Townsend	Ground Level (mAOD): 19.65	Logged By: MH	1:10
		Pit Length: 0.30 m	
		Pit Width: 0.30 m	

Backfill	Water Strike(s)	Samples & In Situ Testing			Depth (mbGL)	Thickness (m)	Level (mAOD)	Legend	Stratum Description	Scale
		Depth (m)	Type	Results						
		0.00				19.65		Grass over light brown gravelly clayey fine to medium sand. Gravel is fine to coarse angular to rounded flint and brick. Rootlets. (TOPSOIL)		
		0.20	ES		(0.35)					
		0.30	ES							
		0.40	PID1	0.0ppm	(0.05)	19.30		Orange grey sandy gravel CLAY. Gravel is medium to coarse angular to subrounded flint. Sand is fine to medium. (TAPLOW GRAVEL FORMATION) End of Pit at 0.40m		
									1	
									2	

Remarks:

Groundwater: No groundwater encountered.

Stability: Stable



## APPENDIX D

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### Geotechnical Laboratory Certificates





# LABORATORY REPORT



4043

**Contract Number: PSL17/3193**

Report Date: 19 July 2017  
Client's Reference: HLEI 49195  
Client Name: RPS Health, Safety and Environment  
14 Cornhill  
London  
EC3V 3ND

**For the attention of: Matthew Hemus**

Contract Title: Turing House Free School  
Date Received: 4/7/2017  
Date Commenced: 4/7/2017  
Date Completed: 19/7/2017

**Notes: Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson  
(Director)

A Watkins  
(Director)

R Berriman  
(Quality Manager)

L Knight  
(Senior Technician)

  
S Eyre  
(Senior Technician)

A Fry  
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,  
Doncaster DN4 0AR  
tel: +44 (0)844 815 6641  
fax: +44 (0)844 815 6642  
e-mail: [rgunson@prosoils.co.uk](mailto:rgunson@prosoils.co.uk)  
[awatkins@prosoils.co.uk](mailto:awatkins@prosoils.co.uk)

Page 1 of

# SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH1		B	0.50	1.00	Brown clayey SAND & GRAVEL.
BH1		B	3.00	3.50	Brown very sandy GRAVEL.
BH1		D	5.50		Brown slightly sandy CLAY.
BH1		D	7.00		Brown slightly sandy CLAY.
BH1		U	5.00	5.45	Stiff brown slightly sandy CLAY.
BH1		U	6.50	6.95	Stiff brown slightly sandy CLAY.
BH2		B	4.00	4.50	Brown sandy slightly silty GRAVEL.
BH2		D	4.70		Brown slightly sandy CLAY.
BH2		U	6.00	6.45	Brown slightly sandy CLAY.
BH3		B	2.00	2.50	Brown slightly sandy slightly silty GRAVEL.
BH3		D	5.00	5.45	Brown slightly sandy CLAY.
BH3		D	6.50		Brown slightly sandy CLAY.
BH3		U	6.00	6.45	Stiff brown sandy CLAY.



Turing House Free School

**Contract No:**

**PSL17/3193**

**Client Ref:**

**HLEI 49195**

# SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % <small>Clause 3.2</small>	Linear Shrinkage % <small>Clause 6.5</small>	Particle Density Mg/m <sup>3</sup> <small>Clause 8.2</small>	Liquid Limit % <small>Clause 4.3/4</small>	Plastic Limit % <small>Clause 5.3</small>	Plasticity Index % <small>Clause 5.4</small>	Passing .425mm %	Remarks
BH1		D	5.50		27			63	26	37	100	High plasticity CH.
BH1		D	7.00		29			67	27	40	100	High plasticity CH.
BH2		D	4.70		30			59	24	35	100	High plasticity CH.
BH2		U	6.00	6.45	30			62	24	38	100	High plasticity CH.
BH3		D	5.00	5.45	25			66	27	39	100	High plasticity CH.
BH3		D	6.50		29			69	28	41	100	High plasticity CH.

SYMBOLS : NP : Non Plastic

\* : Liquid Limit and Plastic Limit Wet Sieved.

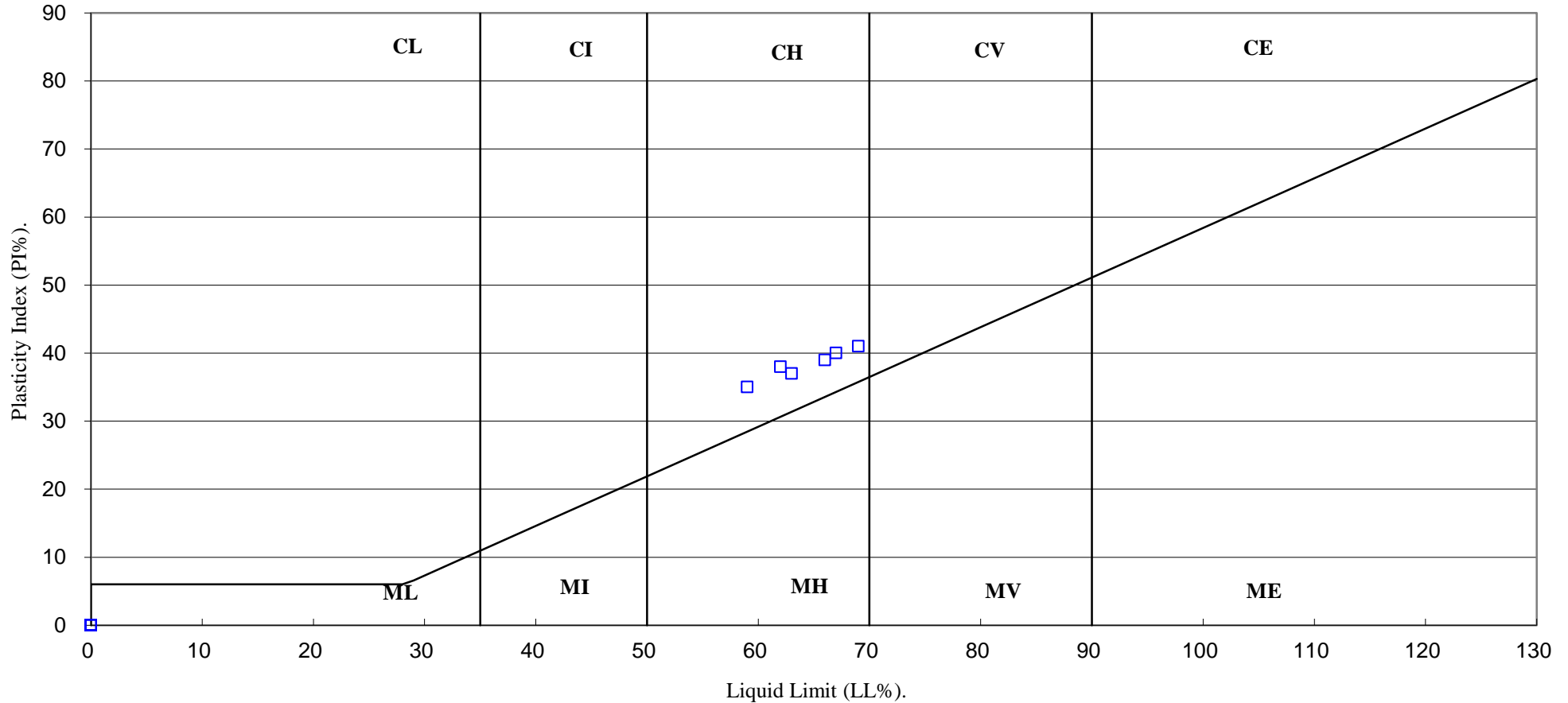


**Turing House Free School**

<b>Contract No:</b>
PSL17/3193
<b>Client Ref:</b>
HLEI 49195

# PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



**PSL**  
Professional Soils Laboratory

Turing House Free School

Contract No:

PSL17/3193

Client Ref:

HLEI 49195

# PARTICLE SIZE DISTRIBUTION TEST

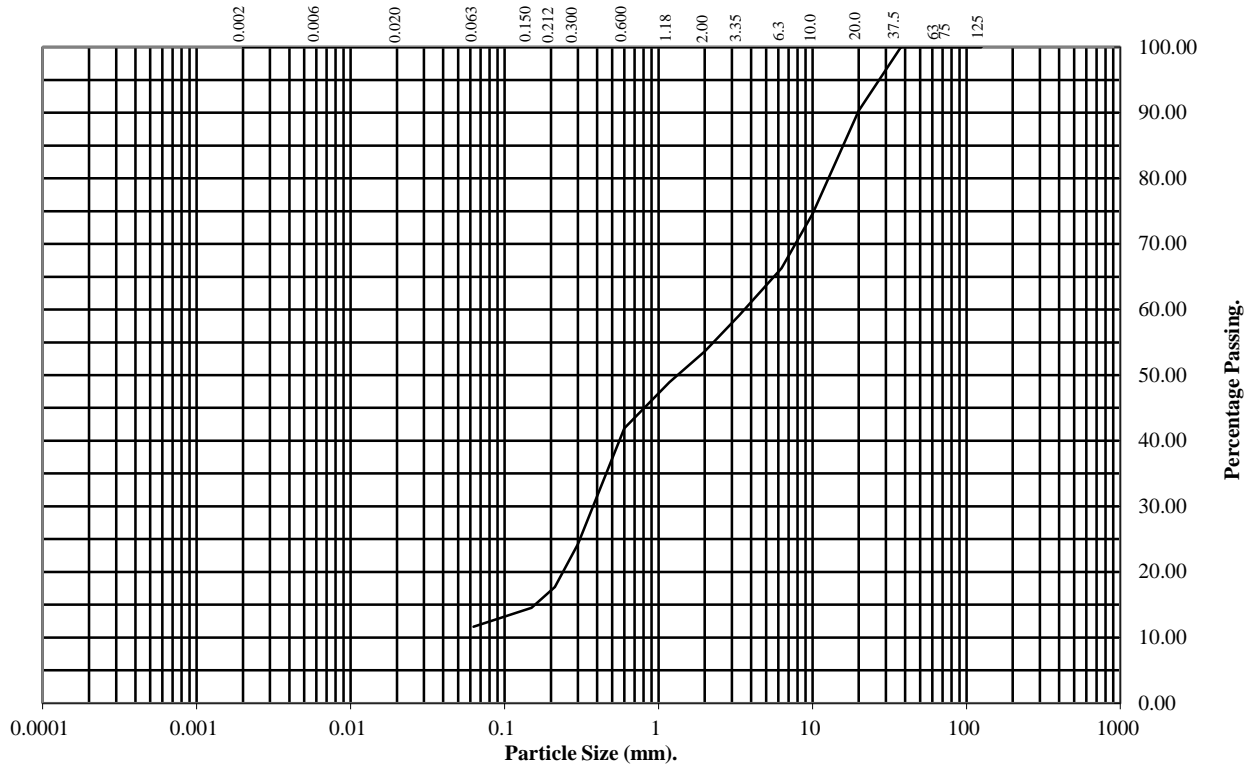
**BS1377 : Part 2 : 1990**

Wet Sieve, Clause 9.2

**Hole Number:**                      **BH1**                      **Top Depth (m):**                      **0.50**

**Sample Number:**                                           **Base Depth(m):**                      **1.00**

**Sample Type:**                      **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	90
10	75
6.3	66
3.35	59
2	54
1.18	49
0.6	42
0.3	24
0.212	18
0.15	15
0.063	12

Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	42
Silt/Clay	12

**Remarks:**  
See Summary of Soil Descriptions



**Turing House Free School**

<b>Contract No:</b>
<b>PSL17/3193</b>
<b>Client Ref:</b>
<b>HLEI 49195</b>

# PARTICLE SIZE DISTRIBUTION TEST

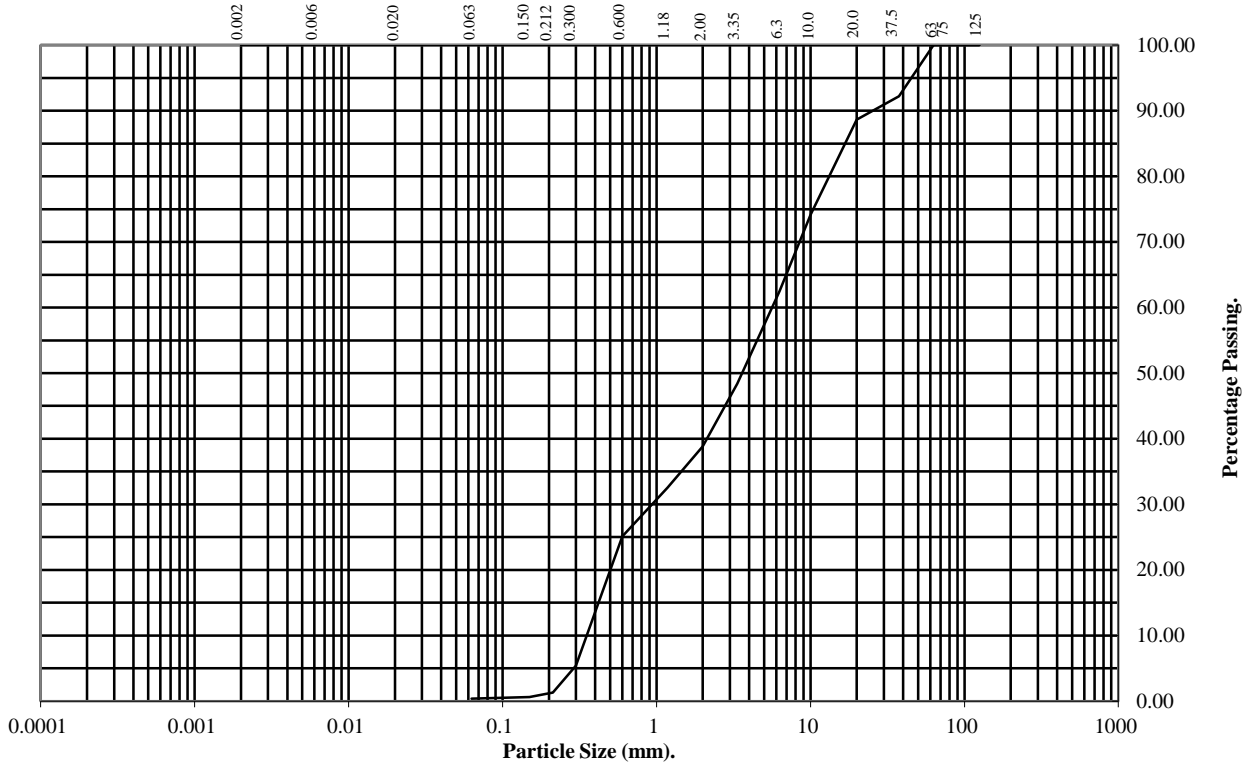
**BS1377 : Part 2 : 1990**

Wet Sieve, Clause 9.2

**Hole Number:**                                **BH1**                                **Top Depth (m):**                                **3.00**

**Sample Number:**                                                               **Base Depth(m):**                                **3.50**

**Sample Type:**                                **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	92
20	89
10	74
6.3	62
3.35	48
2	39
1.18	33
0.6	25
0.3	5
0.212	1
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	0
Gravel	61
Sand	39
Silt/Clay	0

**Remarks:**  
See Summary of Soil Descriptions



**Turing House Free School**

<b>Contract No:</b>
<b>PSL17/3193</b>
<b>Client Ref:</b>
<b>HLEI 49195</b>

# PARTICLE SIZE DISTRIBUTION TEST

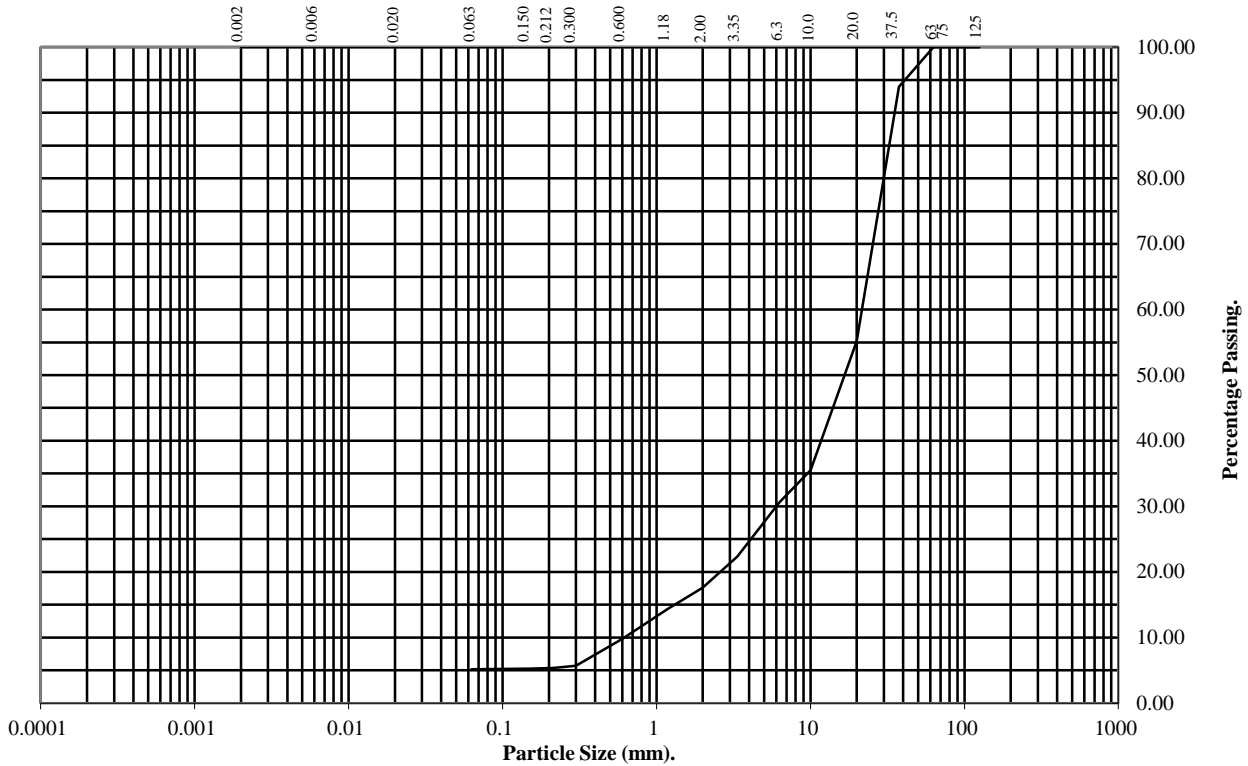
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** Top Depth (m): **4.00**

Sample Number: Base Depth(m): **4.50**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	94
20	55
10	36
6.3	31
3.35	22
2	18
1.18	14
0.6	10
0.3	6
0.212	5
0.15	5
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	82
Sand	13
Silt/Clay	5

**Remarks:**  
See Summary of Soil Descriptions



**Turing House Free School**

<b>Contract No:</b>
<b>PSL17/3193</b>
<b>Client Ref:</b>
<b>HLEI 49195</b>

# PARTICLE SIZE DISTRIBUTION TEST

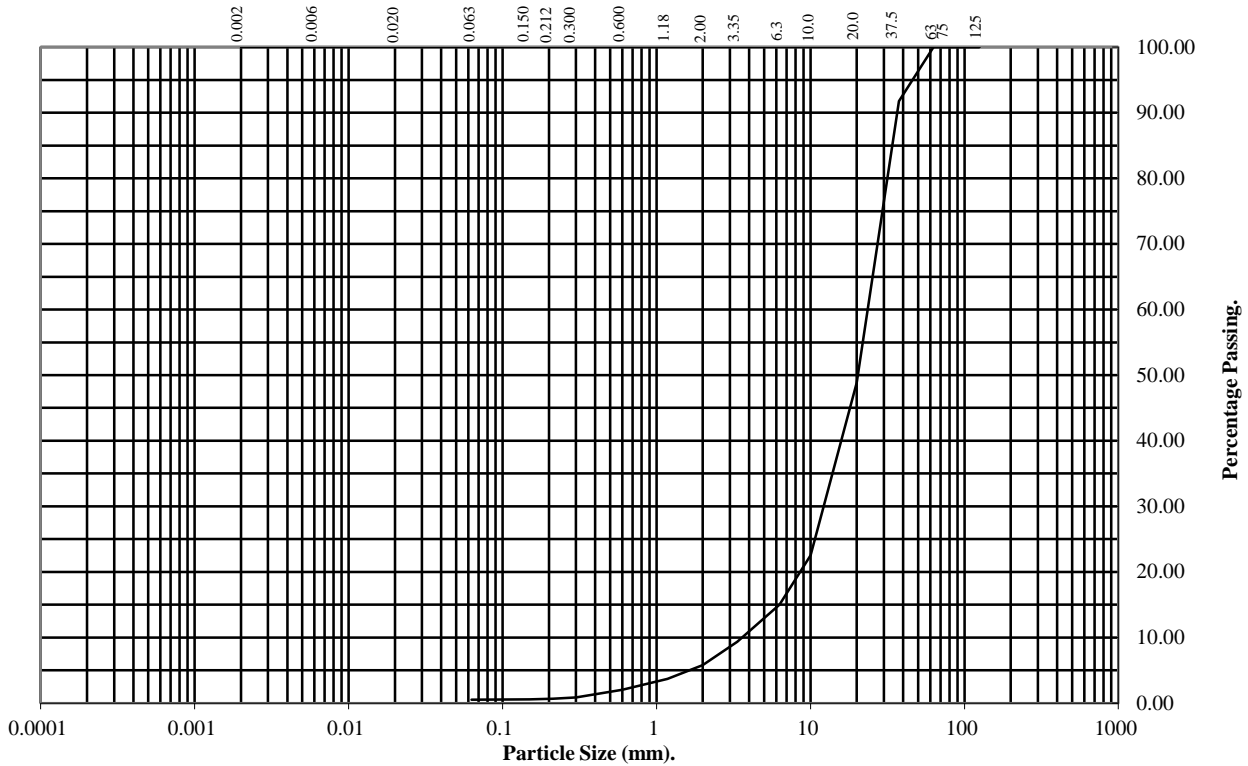
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH3** Top Depth (m): **2.00**

Sample Number: Base Depth(m): **2.50**

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	92
20	49
10	23
6.3	15
3.35	9
2	6
1.18	4
0.6	2
0.3	1
0.212	1
0.15	1
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	94
Sand	5
Silt/Clay	1

**Remarks:**  
See Summary of Soil Descriptions



Turing House Free School

<b>Contract No:</b>
<b>PSL17/3193</b>
<b>Client Ref:</b>
<b>HLEI 49195</b>



# UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

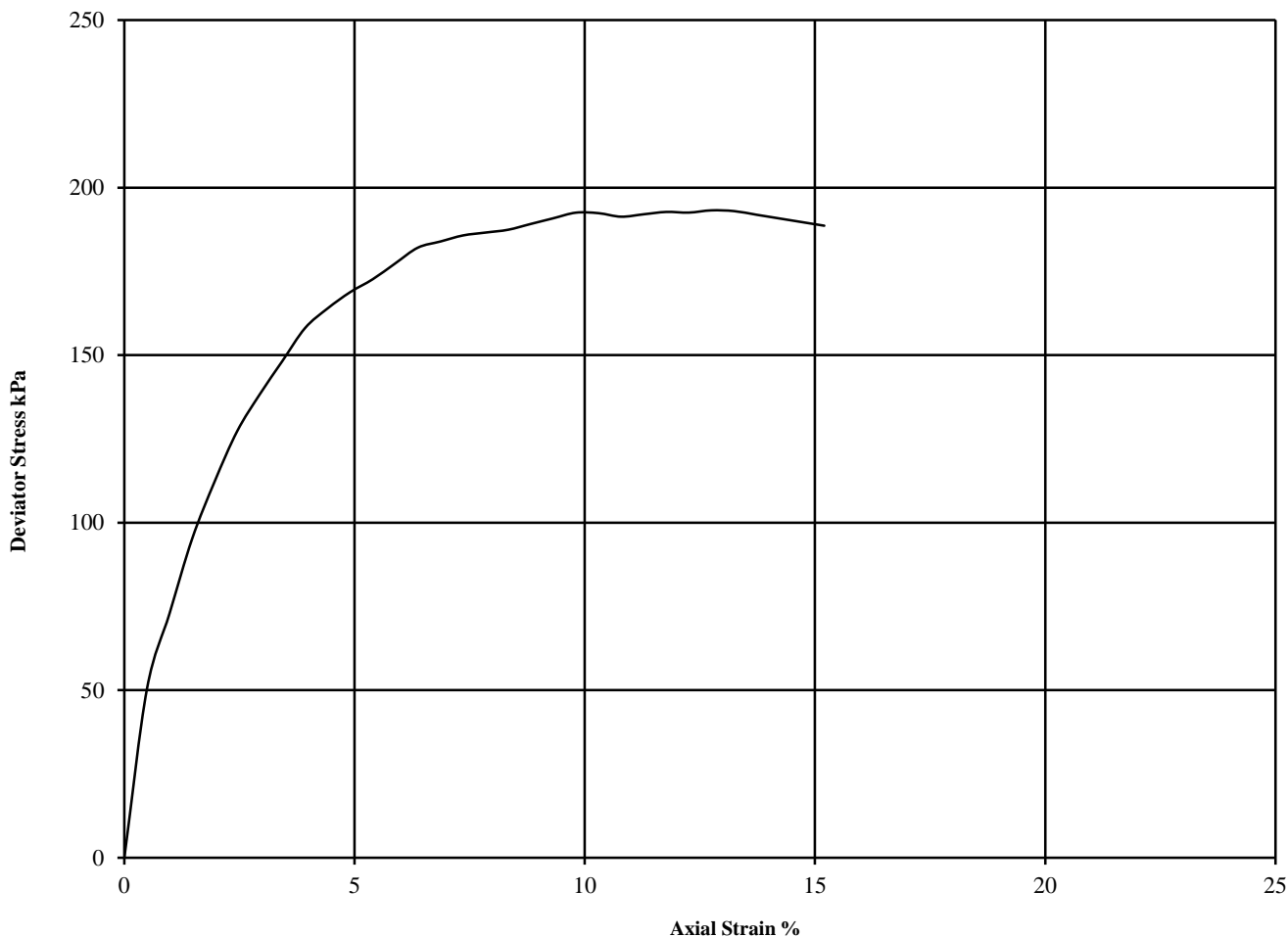
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **BH1** Top Depth (m): **5.00**

Sample Number: Base Depth (m): **5.45**

Sample Type **U**



Diameter (mm):		102.0	Height (mm):			208.0	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m <sup>3</sup> )	Dry Density (Mg/m <sup>3</sup> )	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35 See summary of soil descriptions	
			$\theta_3$	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$					
1	27	1.99	1.57	100	193	97	12.8	Intermediate		



**Turing House Free School**

<b>Contract No:</b>
<b>PSL17/3193</b>
<b>Client Ref:</b>
<b>HLEI 49195</b>

# UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

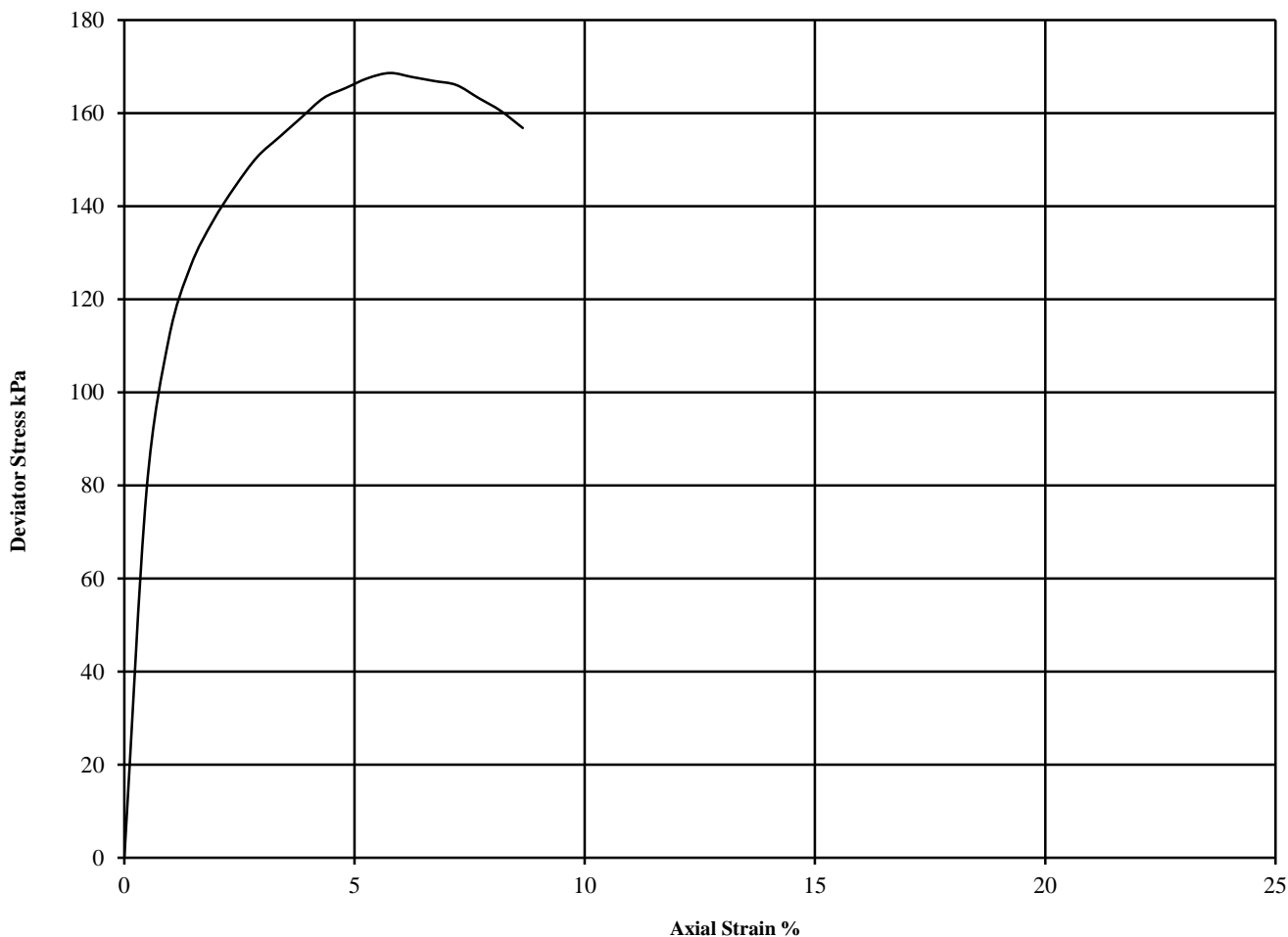
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **BH1** Top Depth (m): **6.50**

Sample Number: Base Depth (m): **6.95**

Sample Type **U**



Diameter (mm):		100.0	Height (mm):			208.0	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m <sup>3</sup> )	Dry Density (Mg/m <sup>3</sup> )	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.37 See summary of soil descriptions	
			$\theta_3$	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$					
1	29	2.02	1.57	130	169	84	5.8	Brittle		



Turing House Free School

**Contract No:**

**PSL17/3193**

**Client Ref:**

**HLEI 49195**

# UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

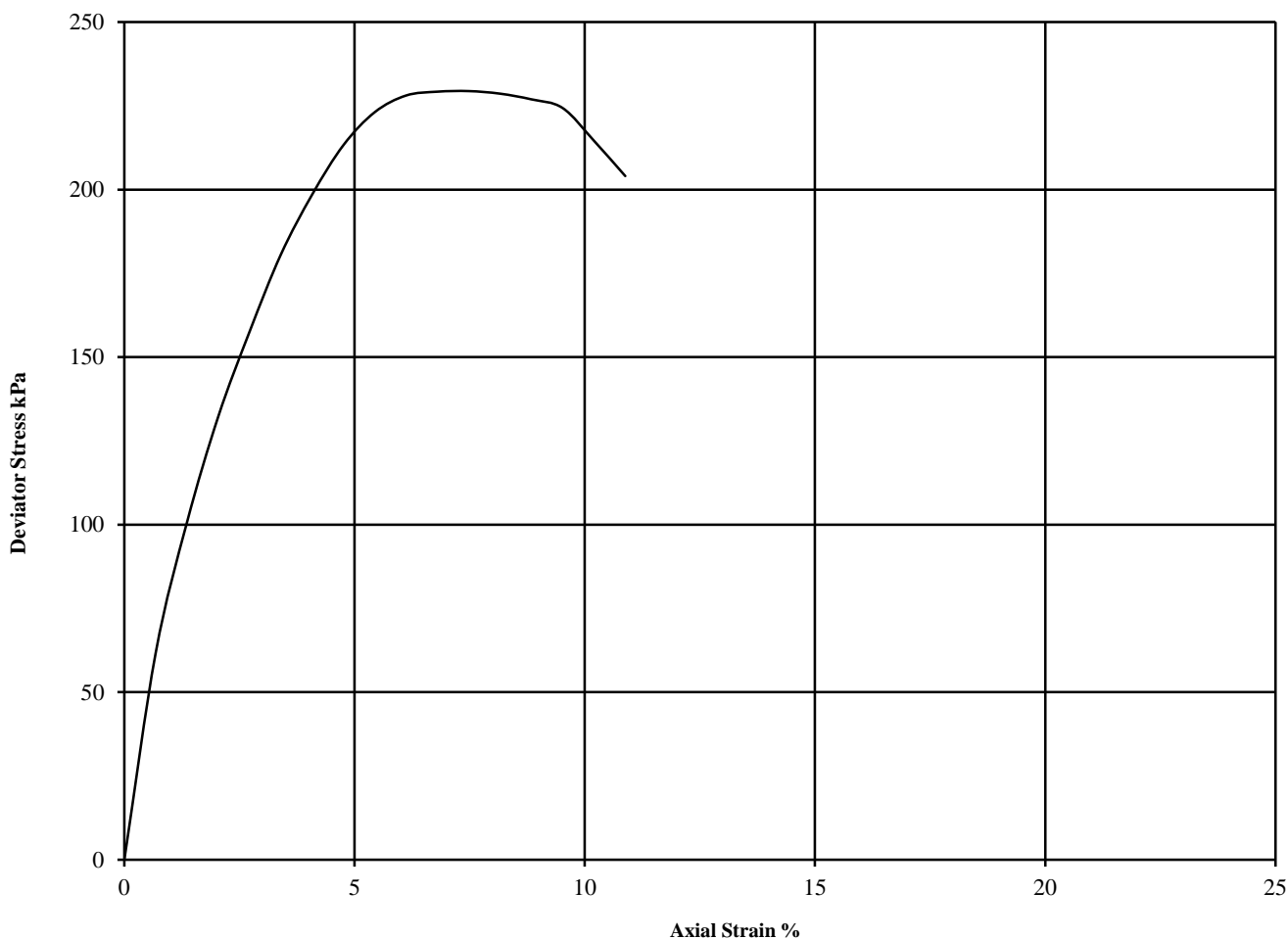
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **BH3** Top Depth (m): **6.00**

Sample Number: Base Depth (m): **6.45**

Sample Type **U**



Diameter (mm):		102.0	Height (mm):			150.0	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m <sup>3</sup> )	Dry Density (Mg/m <sup>3</sup> )	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.36 See summary of soil descriptions	
			$\theta_3$	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$					
1	28	2.13	1.67	120	229	115	7.5	Brittle		



**Turing House Free School**

**Contract No:**

**PSL17/3193**

**Client Ref:**

**HLEI 49195**

# ONE DIMENSIONAL CONSOLIDATION TEST

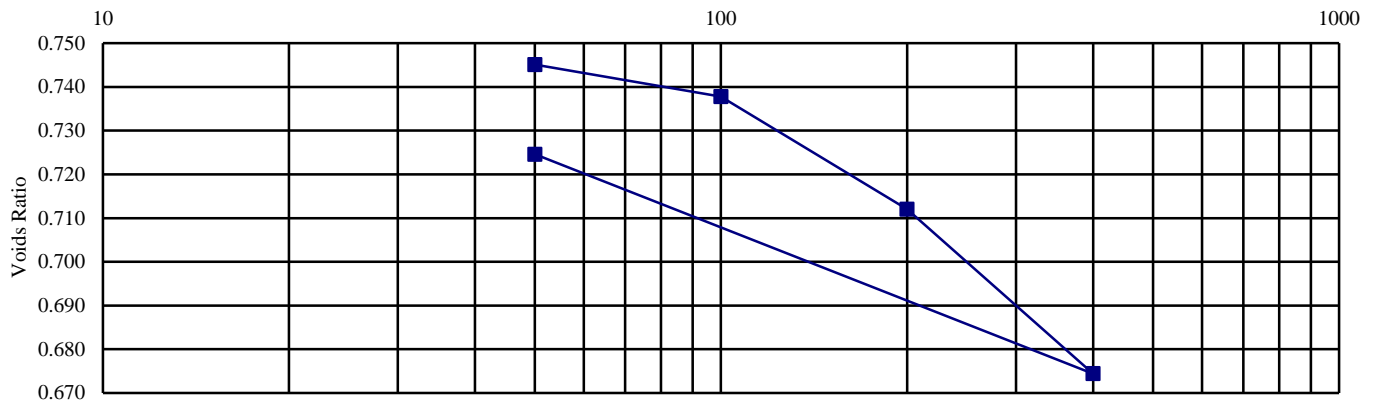
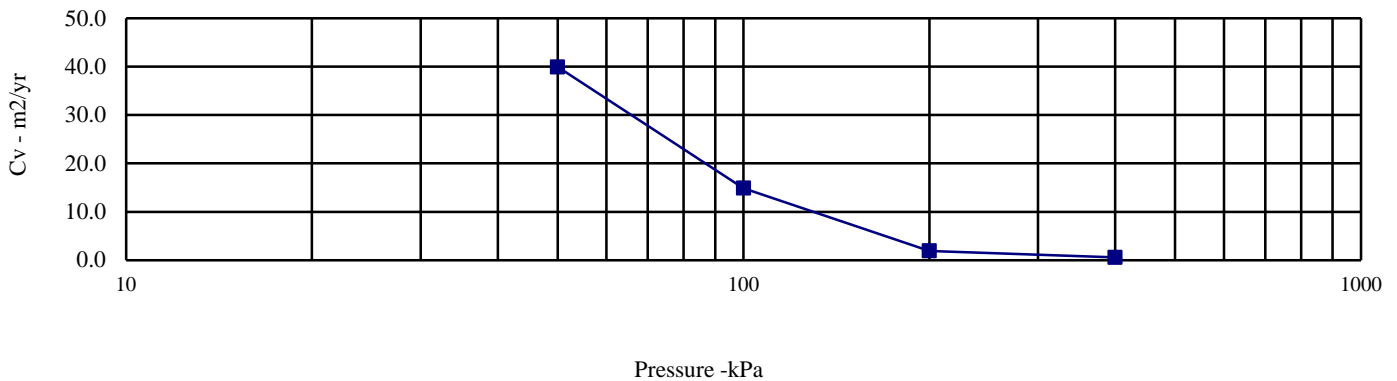
BS 1377: Part 5: 1990: Clause 3

Hole Number: **BH2** Top Depth (m): **6.00**

Sample Number: Base Depth (m) : **6.45**

Sample Type: **U**

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	30	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	1.96	0	50	0.129	39.930	Method used to	
Dry Density (Mg/m3):	1.51	50	100	0.084	14.850	determine CV:	T90
Voids Ratio:	0.756	100	200	0.148	1.909	Nominal temperature	
Degree of saturation:	104.0	200	400	0.110	0.543	during test ' C:	20
Height (mm):	20.02	400	50	0.086	-	Remarks:	
Diameter (mm)	75.07						
Particle Density (Mg/m3):	2.65						
Assumed							



Turning House Free School

<b>Contract No:</b>
<b>PSL17/3193</b>
<b>Client Ref:</b>
<b>HLEI 49195</b>



# DETS

## Certificate of Analysis

*Certificate Number* 17-04753

13-Jul-17

*Client* Professional Soils Laboratory Ltd  
5/7 Hexthorpe Road  
Hexthorpe  
DN4 0AR

*Our Reference* 17-04753

*Client Reference* PSL17/3193

*Order No* (not supplied)

*Contract Title* Turing House Free School

*Description* 4 Soil samples.

*Date Received* 08-Jul-17

*Date Started* 08-Jul-17

*Date Completed* 13-Jul-17

*Test Procedures* Identified by prefix DETSn (details on request).

*Notes* Opinions and interpretations are outside the laboratory's scope of ISO 10725 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.

*Approved By*



Adam Fenwick  
Contracts Manager



# Summary of Chemical Analysis

## Soil Samples

Our Ref 17-04753

Client Ref PSL17/3193

Contract Title Turing House Free School

<b>Lab No</b>	1201448	1201449	1201450	1201451
<b>Sample ID</b>	BH1	BH1	BH2	BH3
<b>Depth</b>	2.00-2.45	4.50	6.50	1.20-1.70
<b>Other ID</b>				
<b>Sample Type</b>	B	D	D	B
<b>Sampling Date</b>	n/s	n/s	n/s	n/s
<b>Sampling Time</b>	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
<b>Inorganics</b>							
pH	DETSC 2008#			8.1	8.3	8.4	8.3
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	10	100	120	11

## Information in Support of the Analytical Results

Our Ref 17-04753

Client Ref PSL17/3193

Contract Turing House Free School

### Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1201448	BH1 2.00-2.45 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1201449	BH1 4.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1201450	BH2 6.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1201451	BH3 1.20-1.70 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

### Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

### Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

## APPENDIX E

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### Field Monitoring Data



## Ground Gas Monitoring Results

Ground Gas Concentrations 11<sup>th</sup> July 2017

Monitoring well ID	Flow Rate (l/hr)		Methane (% vol)		Carbon Dioxide (% vol)		Oxygen (% vol)	iVOCs (ppm)
	Peak	Steady	Peak	Steady	Peak	Steady		
BH1	<0.1	<0.1	<0.1	<0.1	4.1	4.0	16.2	<0.1
BH2	<0.1	<0.1	<0.1	<0.1	2.6	2.6	18.3	<0.1
BH3	<0.1	<0.1	<0.1	<0.1	1.2	1.2	19.7	<0.1

Atmospheric Pressure: 1010mb

Ground Gas Concentrations 19<sup>th</sup> July 2017

Monitoring well ID	Flow Rate (l/hr)		Methane (% vol)		Carbon Dioxide (% vol)		Oxygen (% vol)	iVOCs (ppm)
	Peak	Steady	Peak	Steady	Peak	Steady		
BH1	<0.1	<0.1	<0.1	<0.1	4.6	4.6	19.5	1.9
BH2	<0.1	<0.1	<0.1	<0.1	2.4	2.4	18.6	2.6
BH3	<0.1	<0.1	<0.1	<0.1	1.9	1.9	15.7	1.0

Atmospheric Pressure: 1003mb to 1002mb

Ground Gas Concentrations 27<sup>th</sup> July 2017

Monitoring well ID	Flow Rate (l/hr)		Methane (% vol)		Carbon Dioxide (% vol)		Oxygen (% vol)	iVOCs (ppm)
	Peak	Steady	Peak	Steady	Peak	Steady		
BH1	0.2	<0.1	<0.1	<0.1	4.1	4.1	16.3	<0.1
BH2	<0.1	<0.1	<0.1	<0.1	1.7	1.7	19.6	<0.1
BH3	0.3	<0.1	<0.1	<0.1	1.9	1.9	19.5	<0.1

Atmospheric Pressure: 1004mb to 1003mb

## Groundwater Monitoring Results

Monitoring Well ID	Well Screen Depth m bgl (m AOD)	Strata	Depth to Groundwater m bgl (m AOD)		
			11 <sup>th</sup> July 2017	19 <sup>th</sup> July 2017	27 <sup>th</sup> July 2017
BH1	1.00 to 4.00 (15.06 to 18.06)	Taplow Gravel Formation	2.50 (16.56)	2.56 (16.50)	2.51 (16.55)
BH2	1.00 to 5.00 (14.01 to 18.01)	Taplow Gravel Formation	2.40 (16.61)	2.62 (16.49)	2.58 (16.53)
BH3	1.00 to 5.00 (13.85 to 17.85)	Taplow Gravel Formation	2.54 (16.31)	2.48 (16.37)	2.44 (16.41)

## APPENDIX F

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### Comparison of Analytical Data to Assessment Criteria



**Exova Jones Environmental**

**Report:** Liquid  
**JE Job No:** 17/12453  
**Client:** RPS  
**Client ref:** HLEI 49195  
**Location:**  
**Contact:** Lucy Flatters

Sample ID	BH1	BH2	BH3
<b>Depth</b>			
<b>COC No / misc</b>			
<b>Containers</b>	V N Z P G	V N Z P G	V N Z P G
<b>Sample Type</b>	Liquid	Liquid	Liquid
<b>Sampled Date</b>	20/07/2017	20/07/2017	20/07/2017
<b>Sample Received Date</b>	21/07/2017	21/07/2017	21/07/2017
<b>J E Sample No</b>	1-7	8-14	15-21
<b>Batch Number</b>	1	1	1

CAS Number	Test	Method	Units	LOD	UK DWS or EQS				
7440-38-2	Dissolved Arsenic	TM30/PM14	ug/l	<2.5	10	2.7	<2.5	5.1	
7440-43-9	Dissolved Cadmium	TM30/PM14	ug/l	<0.5	5	<0.5	<0.5	<0.5	
7440-47-3	Total Dissolved Chromium	TM30/PM14	ug/l	<1.5	50	<1.5	<1.5	<1.5	
7440-50-8	Dissolved Copper	TM30/PM14	ug/l	<7	2000	<7	<7	<7	
7439-92-1	Dissolved Lead	TM30/PM14	ug/l	<5	25	<5	<5	<5	
7439-97-6	Dissolved Mercury	TM30/PM14	ug/l	<1	1	<1	<1	<1	
7440-02-0	Dissolved Nickel	TM30/PM14	ug/l	<2	50	8	27	10	
7782-49-2	Dissolved Selenium	TM30/PM14	ug/l	<3	10	<3	<3	<3	
7440-66-6	Dissolved Zinc	TM30/PM14	ug/l	<3	75	<3	3	<3	
<b>PAH MS</b>									
91-20-3	Naphthalene	TM4/PM30	ug/l	<0.1	0.1	<0.1	<0.1	<0.1	
208-96-8	Acenaphthylene	TM4/PM30	ug/l	<0.013	0.1	<0.013	<0.013	<0.013	
83-32-9	Acenaphthene	TM4/PM30	ug/l	<0.013	0.1	<0.013	<0.013	<0.013	
86-73-7	Fluorene	TM4/PM30	ug/l	<0.014	0.1	<0.014	<0.014	<0.014	
85-01-8	Phenanthrene	TM4/PM30	ug/l	<0.011	0.1	<0.011	<0.011	<0.011	
120-12-7	Anthracene	TM4/PM30	ug/l	<0.013	0.1	<0.013	<0.013	<0.013	
206-44-0	Fluoranthene	TM4/PM30	ug/l	<0.012	0.1	<0.012	<0.012	<0.012	
129-00-0	Pyrene	TM4/PM30	ug/l	<0.013	0.1	<0.013	<0.013	<0.013	
56-55-3	Benzo(a)anthracene	TM4/PM30	ug/l	<0.015	0.1	<0.015	<0.015	<0.015	
218-01-9	Chrysene	TM4/PM30	ug/l	<0.011	0.1	<0.011	<0.011	<0.011	
BEN-BK-FLUORAN	Benzo(bk)fluoranthene	TM4/PM30	ug/l	<0.018	0.1	<0.018	<0.018	<0.018	
50-32-8	Benzo(a)pyrene	TM4/PM30	ug/l	<0.016	0.1	<0.016	<0.016	<0.016	
193-39-5	Indeno(123cd)pyrene	TM4/PM30	ug/l	<0.011	0.1	<0.011	<0.011	<0.011	
53-70-3	Dibenzo(ah)anthracene	TM4/PM30	ug/l	<0.01	0.1	<0.01	<0.01	<0.01	
191-24-2	Benzo(ghi)perylene	TM4/PM30	ug/l	<0.011	0.1	<0.011	<0.011	<0.011	
PAH_16_TOTAL	PAH 16 Total	TM4/PM30	ug/l	<0.195	0.1	<0.195	<0.195	<0.195	
205-99-2	Benzo(b)fluoranthene	TM4/PM30	ug/l	<0.01	0.1	<0.01	<0.01	<0.01	
207-08-9	Benzo(k)fluoranthene	TM4/PM30	ug/l	<0.01	0.1	<0.01	<0.01	<0.01	
PAH_SUR_REC	PAH Surrogate % Recovery	TM4/PM30	%	<0		70	76	71	
<b>TPH CWG</b>									
<b>Aliphatics</b>									
GTC05C06AL	>C5-C6	TM36/PM12	ug/l	<10	10	<10	<10	<10	
GTC06C08AL	>C6-C8	TM36/PM12	ug/l	<10	10	<10	<10	<10	
GTC08C10AL	>C8-C10	TM36/PM12	ug/l	<10	10	<10	<10	<10	
GTC10C12AL	>C10-C12	TM5/PM30	ug/l	<5	10	<5	<5	<5	
GTC12C16AL	>C12-C16	TM5/PM30	ug/l	<10	10	<10	<10	<10	
GTC16C21AL	>C16-C21	TM5/PM30	ug/l	<10	10	<10	<10	<10	
GTC21C35AL	>C21-C35	TM5/PM30	ug/l	<10	10	<10	<10	<10	
GTC05C35AL	Total aliphatics C5-35	TMS/TM36/PM30/PM12	ug/l	<10	10	<10	<10	<10	
<b>Aromatics</b>									
GTEC05EC07AR	>C5-EC7	TM36/PM12	ug/l	<10	10	<10	<10	<10	
GTEC07EC08AR	>EC7-EC8	TM36/PM12	ug/l	<10	10	<10	<10	<10	
GTEC08EC10AR	>EC8-EC10	TM36/PM12	ug/l	<10	10	<10	<10	<10	
GTEC10EC12AR	>EC10-EC12	TM5/PM30	ug/l	<5	10	<5	<5	<5	
GTEC12EC16AR	>EC12-EC16	TM5/PM30	ug/l	<10	10	<10	<10	<10	
GTEC16EC21AR	>EC16-EC21	TM5/PM30	ug/l	<10	10	<10	<10	<10	
GTEC21EC35AR	>EC21-EC35	TM5/PM30	ug/l	<10	10	<10	<10	<10	
GTEC05EC35AR	Total aromatics C5-35	TMS/TM36/PM30/PM12	ug/l	<10	10	<10	<10	<10	
GTC05C35ALAR	Total aliphatics and aromatics(C5-35)	TMS/TM36/PM30/PM12	ug/l	<10	10	<10	<10	<10	
1634-04-4	MTBE	TM31/PM12	ug/l	<5		<5	<5	<5	
71-43-2	Benzene	TM31/PM12	ug/l	<5	1	<5	<5	<5	
108-88-3	Toluene	TM31/PM12	ug/l	<5	50	<5	<5	<5	
100-41-4	Ethylbenzene	TM31/PM12	ug/l	<5		<5	<5	<5	
P_M_XYLENE	m/p-Xylene	TM31/PM12	ug/l	<5	30	<5	<5	<5	
95-47-6	o-Xylene	TM31/PM12	ug/l	<5	30	<5	<5	<5	
108-95-2	Phenol	TM26/PM0	mg/l	<0.01	0.5	<0.01	<0.01	<0.01	
P1272	Sulphate as SO4	TM38/PM0	mg/l	<0.5	250	68	81.4	102.6	
57-12-5	Total Cyanide	TM89/PM0	mg/l	<0.01	50	<0.01	0.02	<0.01	
18540-29-9	Hexavalent Chromium	TM38/PM0	mg/l	<0.006	50	<0.006	<0.006	<0.006	
SULPHIDE	Sulphide	TM106/PM0	mg/l	<0.01		<0.01	<0.01	<0.01	
PH	pH	TM73/PM0	pH units	<0.01	6.5 to 10	6.71	6.53	7.12	
TOC	Total Organic Carbon	TM60/PM0	mg/l	<2		8	8	10	

## APPENDIX G

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### Laboratory Analytical Certificates



# Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point  
Zone 3  
Deeside Industrial Park  
Deeside  
CH5 2UA

RPS  
35 New Bridge Street,  
London,  
EC4V 6BW

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



**Attention :** Rob Philip  
**Date :** 11th July, 2017  
**Your reference :** HLEI 49195  
**Our reference :** Test Report 17/11245 Batch 1  
**Location :** Turing House Free School  
**Date samples received :** 30th June, 2017  
**Status :** Final report  
**Issue :** 1

Twenty samples were received for analysis on 30th June, 2017 of which seventeen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

## Compiled By:

**Bruce Leslie**  
Project Co-ordinator

**Client Name:** RPS  
**Reference:** HLEI 49195  
**Location:** Turing House Free School  
**Contact:** Rob Philip  
**JE Job No.:** 17/11245

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3-5	6-7	8-9	10-11	14-16	17-18	19-20	21-22	23-24	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH1	BH1	BH2	BH2	BH3	HP1	HP2	HP3	HP4	HP5			
Depth	0.30	0.40	0.20	0.50	0.20	0.20	0.20	0.30	0.25	0.45			
COC No / misc													
Containers	V J	V J T	V J	V J	V J	V J T	V J	V J	V J	V J			
Sample Date	29/06/2017	29/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	29/06/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	LOD/LOR	Units	Method No.
Arsenic #	13.4	23.5	10.2	13.5	11.9	11.5	12.3	11.7	11.5	15.4	<0.5	mg/kg	TM30/PM15
Cadmium #	3.0	0.5	3.0	0.3	2.5	1.6	0.4	1.3	1.1	3.3	<0.1	mg/kg	TM30/PM15
Chromium #	77.4	92.6	83.4	69.7	82.5	61.5	71.0	69.5	61.3	63.2	<0.5	mg/kg	TM30/PM15
Copper #	48	14	53	14	40	40	26	44	78	150	<1	mg/kg	TM30/PM15
Lead #	219	62	186	38	178	178	144	580	832	1257	<5	mg/kg	TM30/PM15
Mercury #	1.2	0.2	1.1	0.2	0.9	1.4	0.6	0.6	0.7	0.9	<0.1	mg/kg	TM30/PM15
Nickel #	18.8	20.9	16.6	14.5	16.4	16.9	12.6	16.1	15.2	22.0	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	<1	<1	<1	1	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Zinc #	155	56	176	44	134	128	82	119	188	399	<5	mg/kg	TM30/PM15
Arsenic	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM62
Cadmium	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM62
Chromium	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM62
Copper	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM62
Lead	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM62
Mercury	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM62
Nickel	-	-	-	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM62
Selenium	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM62
Zinc	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.06	<0.03	0.07	<0.03	0.07	0.05	0.04	0.04	0.04	0.08	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.28	0.03	0.17	<0.03	0.22	0.19	0.17	0.25	0.15	0.46	<0.03	mg/kg	TM4/PM8
Anthracene #	0.08	<0.04	0.06	<0.04	0.07	0.06	0.07	0.06	0.04	0.14	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.61	0.07	0.44	0.03	0.53	0.41	0.41	0.46	0.33	1.01	<0.03	mg/kg	TM4/PM8
Pyrene #	0.52	0.05	0.37	<0.03	0.44	0.34	0.36	0.39	0.28	0.83	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.41	<0.06	0.29	<0.06	0.35	0.25	0.28	0.31	0.21	0.63	<0.06	mg/kg	TM4/PM8
Chrysene #	0.45	0.05	0.30	0.03	0.35	0.29	0.30	0.32	0.22	0.59	<0.02	mg/kg	TM4/PM8
Benzo(k)fluoranthene #	0.88	<0.07	0.65	<0.07	0.73	0.56	0.56	0.68	0.46	1.15	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.47	<0.04	0.34	<0.04	0.39	0.26	0.25	0.39	0.24	0.59	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.47	0.04	0.37	<0.04	0.42	0.30	0.27	0.40	0.24	0.56	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.09	<0.04	0.07	<0.04	0.07	0.05	0.05	0.09	0.04	0.11	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.32	<0.04	0.28	<0.04	0.28	0.20	0.20	0.27	0.17	0.40	<0.04	mg/kg	TM4/PM8
Coronene	-	<0.04	-	-	-	0.10	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	4.6	<0.6	3.4	<0.6	3.9	3.0	3.0	3.7	2.4	6.6	<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	<0.64	-	-	-	3.06	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.63	<0.05	0.47	<0.05	0.53	0.40	0.40	0.49	0.33	0.83	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.25	<0.02	0.18	<0.02	0.20	0.16	0.16	0.19	0.13	0.32	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	113	90	110	114	112	113	105	114	124	118	<0	%	TM4/PM8
Mineral Oil (C10-C40)	-	<30	-	-	-	<30	-	-	-	-	<30	mg/kg	TM5/PM16

Client Name: RPS  
 Reference: HLEI 49195  
 Location: Turing House Free School  
 Contact: Rob Philip  
 JE Job No.: 17/11245

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3-5	6-7	8-9	10-11	14-16	17-18	19-20	21-22	23-24	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH1	BH1	BH2	BH2	BH3	HP1	HP2	HP3	HP4	HP5			
Depth	0.30	0.40	0.20	0.50	0.20	0.20	0.20	0.30	0.25	0.45			
COC No / misc													
Containers	V J	V J T	V J	V J	V J	V J T	V J	V J	V J	V J			
Sample Date	29/06/2017	29/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	29/06/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	LOD/LOR	Units	Method No.
TPH CWG													
<b>Aliphatics</b>													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	17	<7	18	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	mg/kg	TM5/PM16
<b>Aromatics</b>													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM16
>EC21-EC35 #	45	<7	48	<7	24	12	16	<7	<7	27	<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	45	<19	48	<19	24	<19	<19	<19	<19	27	<19	mg/kg	TM5/PM16
Total aliphatics and aromatics(C5-35)	45	<38	48	<38	<38	<38	<38	<38	<38	<38	<38	mg/kg	TM5/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	-	-	-	<35	-	-	-	-	<35	ug/kg	TM17/PM8
Total Phenols HPLC	0.20	<0.15	<0.15	<0.15	0.23	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	11.8	8.8	10.7	8.7	10.3	5.0	3.7	5.4	6.3	2.9	<0.1	%	PM4/PM0
Natural Moisture Content	-	-	-	-	-	-	-	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0054	<0.0015	0.0087	<0.0015	0.0057	0.0016	<0.0015	0.0029	<0.0015	0.0024	<0.0015	g/l	TM38/PM20



**Client Name:** RPS  
**Reference:** HLEI 49195  
**Location:** Turing House Free School  
**Contact:** Rob Philip  
**JE Job No.:** 17/11245

**Report : Solid**  
**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3-5	6-7	8-9	10-11	14-16	17-18	19-20	21-22	23-24	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH1	BH1	BH2	BH2	BH3	HP1	HP2	HP3	HP4	HP5			
Depth	0.30	0.40	0.20	0.50	0.20	0.20	0.20	0.30	0.25	0.45			
COC No / misc													
Containers	V J	V J T	V J	V J	V J	V J T	V J	V J	V J	V J			
Sample Date	29/06/2017	29/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	28/06/2017	29/06/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	30/06/2017	LOD/LOR	Units	Method No.
Sulphate as SO4 (2:1 Ext)	-	-	-	-	-	-	-	-	-	-	<0.0015	g/l	TM38/PM60
Total Cyanide #	1.1	<0.5	0.7	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	mg/kg	TM89/PM45
Total Organic Carbon #	-	0.91	-	-	-	2.11	-	-	-	-	<0.02	%	TM21/PM24
Organic Matter	5.4	1.6	6.6	1.3	4.5	3.6	2.4	3.8	2.9	4.9	<0.2	%	TM21/PM24
Sulphide	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM106/PM119
ANC at pH4	-	0.03	-	-	-	0.03	-	-	-	-	<0.03	mol/kg	TM77/PM0
ANC at pH7	-	NDP	-	-	-	NDP	-	-	-	-	<0.03	mol/kg	TM77/PM0
Loss on Ignition #	-	3.5	-	-	-	6.2	-	-	-	-	<1.0	%	TM22/PM0
pH #	6.70	7.06	6.52	7.15	6.73	6.36	6.17	6.73	7.06	6.60	<0.01	pH units	TM73/PM11







Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	16.9
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	85.5
Particle Size <4mm =	>95%		
<b>JEFL Job No</b>	<b>17/11245</b>		<b>Landfill Waste Acceptance Criteria Limits</b>
<b>Sample No</b>	<b>5</b>		
<b>Client Sample No</b>	<b>BH1</b>		
<b>Depth/Other</b>	<b>0.40</b>		
<b>Sample Date</b>	<b>29/06/2017</b>		
<b>Batch No</b>	<b>1</b>		
<b>Solid Waste Analysis</b>			
Total Organic Carbon (%)	0.91		3
Loss on Ignition (%)	3.5		-
Sum of BTEX (mg/kg)	<0.025		6
Sum of 7 PCBs (mg/kg)	<0.035		1
Mineral Oil (mg/kg)	<30		500
PAH Sum of 17(mg/kg)	<0.64		100
pH (pH Units)	7.06		-
ANC to pH 7 (mol/kg)	NDP		-
ANC to pH 4 (mol/kg)	0.03		-
			to be evaluated
			to be evaluated
<b>Eluate Analysis</b>	<b>10:1 conc<sup>n</sup> leached</b>		<b>Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg</b>
	<b>C<sub>10</sub></b>	<b>A<sub>10</sub></b>	
	<b>mg/l</b>	<b>mg/kg</b>	<b>mg/kg</b>
Arsenic	<0.0025	<0.025	0.5
Barium	<0.003	<0.03	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	0.010	0.10	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	0.003	0.03	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	0.007	0.07	4
Chloride	0.7	7	800
Fluoride	<0.3	<3	10
Sulphate as SO4	<0.05	<0.5	1000
Total Dissolved Solids	124	1240	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	8	80	500
			800
			1000

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	7.8
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	92.8
Particle Size <4mm =	>95%		
<b>JEFL Job No</b>	<b>17/11245</b>		<b>Landfill Waste Acceptance Criteria Limits</b>
<b>Sample No</b>	<b>16</b>		
<b>Client Sample No</b>	<b>HP1</b>		
<b>Depth/Other</b>	<b>0.20</b>		
<b>Sample Date</b>	<b>28/06/2017</b>		
<b>Batch No</b>	<b>1</b>		
<b>Solid Waste Analysis</b>			
Total Organic Carbon (%)	2.11		Inert Waste Landfill: 3, Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill: 5, Hazardous Waste Landfill: 6
Loss on Ignition (%)	6.2		-, -, 10
Sum of BTEX (mg/kg)	<0.025		6, -, -
Sum of 7 PCBs (mg/kg)	<0.035		1, -, -
Mineral Oil (mg/kg)	<30		500, -, -
PAH Sum of 17(mg/kg)	3.06		100, -, -
pH (pH Units)	6.36		-, >6, -
ANC to pH 7 (mol/kg)	NDP		-, to be evaluated, to be evaluated
ANC to pH 4 (mol/kg)	0.03		-, to be evaluated, to be evaluated
<b>Eluate Analysis</b>	<b>10:1 conc<sup>n</sup> leached</b>		<b>Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg</b>
	<b>C<sub>10</sub></b>	<b>A<sub>10</sub></b>	
	<b>mg/l</b>	<b>mg/kg</b>	<b>mg/kg</b>
Arsenic	<0.0025	<0.025	0.5, 2, 25
Barium	0.003	0.03	20, 100, 300
Cadmium	<0.0005	<0.005	0.04, 1, 5
Chromium	<0.0015	<0.015	0.5, 10, 70
Copper	0.020	0.20	2, 50, 100
Mercury	<0.001	<0.01	0.01, 0.2, 2
Molybdenum	<0.002	<0.02	0.5, 10, 30
Nickel	0.003	0.03	0.4, 10, 40
Lead	<0.005	<0.05	0.5, 10, 50
Antimony	0.007	0.07	0.06, 0.7, 5
Selenium	<0.003	<0.03	0.1, 0.5, 7
Zinc	0.022	0.22	4, 50, 200
Chloride	0.5	5	800, 15000, 25000
Fluoride	<0.3	<3	10, 150, 500
Sulphate as SO4	<0.05	<0.5	1000, 20000, 50000
Total Dissolved Solids	35	350	4000, 60000, 100000
Phenol	<0.01	<0.1	1, -, -
Dissolved Organic Carbon	10	100	500, 800, 1000

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	6.5
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	93.9
Particle Size <4mm =	>95%		
<b>JEFL Job No</b>	<b>17/11245</b>		<b>Landfill Waste Acceptance Criteria Limits</b>
<b>Sample No</b>	<b>35</b>		
<b>Client Sample No</b>	<b>HP9</b>		
<b>Depth/Other</b>	<b>0.35</b>		
<b>Sample Date</b>	<b>29/06/2017</b>		
<b>Batch No</b>	<b>1</b>		
<b>Solid Waste Analysis</b>			
Total Organic Carbon (%)	1.54		Inert Waste Landfill: 3
Loss on Ignition (%)	5.9		Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill: 5
Sum of BTEX (mg/kg)	<0.025		Hazardous Waste Landfill: 6
Sum of 7 PCBs (mg/kg)	<0.035		
Mineral Oil (mg/kg)	<30		
PAH Sum of 17(mg/kg)	2.34		
pH (pH Units)	6.37		
ANC to pH 7 (mol/kg)	NDP		
ANC to pH 4 (mol/kg)	0.03		
<b>Eluate Analysis</b>	<b>10:1 conc<sup>n</sup> leached</b>		<b>Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg</b>
	<b>C<sub>10</sub></b>	<b>A<sub>10</sub></b>	
	<b>mg/l</b>	<b>mg/kg</b>	<b>mg/kg</b>
Arsenic	<0.0025	<0.025	0.5, 2, 25
Barium	0.009	0.09	20, 100, 300
Cadmium	0.0008	0.008	0.04, 1, 5
Chromium	0.0030	0.030	0.5, 10, 70
Copper	0.046	0.46	2, 50, 100
Mercury	<0.001	<0.01	0.01, 0.2, 2
Molybdenum	<0.002	<0.02	0.5, 10, 30
Nickel	0.012	0.12	0.4, 10, 40
Lead	<0.005	<0.05	0.5, 10, 50
Antimony	0.003	0.03	0.06, 0.7, 5
Selenium	<0.003	<0.03	0.1, 0.5, 7
Zinc	0.032	0.32	4, 50, 200
Chloride	0.6	6	800, 15000, 25000
Fluoride	<0.3	<3	10, 150, 500
Sulphate as SO4	<0.05	<0.5	1000, 20000, 50000
Total Dissolved Solids	62	620	4000, 60000, 100000
Phenol	<0.01	<0.1	1, -, -
Dissolved Organic Carbon	15	150	500, 800, 1000

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	7.3
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	93.2
Particle Size <4mm =	>95%		
<b>JEFL Job No</b>	<b>17/11245</b>		<b>Landfill Waste Acceptance Criteria Limits</b>
<b>Sample No</b>	<b>44</b>		
<b>Client Sample No</b>	<b>HP12</b>		
<b>Depth/Other</b>	<b>0.30</b>		
<b>Sample Date</b>	<b>29/06/2017</b>		
<b>Batch No</b>	<b>1</b>		
<b>Solid Waste Analysis</b>			
Total Organic Carbon (%)	1.81		3
Loss on Ignition (%)	6.7		-
Sum of BTEX (mg/kg)	<0.025		6
Sum of 7 PCBs (mg/kg)	<0.035		1
Mineral Oil (mg/kg)	<30		500
PAH Sum of 17(mg/kg)	3.79		100
pH (pH Units)	6.47		-
ANC to pH 7 (mol/kg)	NDP		-
ANC to pH 4 (mol/kg)	<0.03		-
			to be evaluated
			to be evaluated
<b>Eluate Analysis</b>	<b>10:1 conc<sup>n</sup> leached</b>		<b>Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg</b>
	<b>C<sub>10</sub></b>	<b>A<sub>10</sub></b>	
	<b>mg/l</b>	<b>mg/kg</b>	<b>mg/kg</b>
Arsenic	<0.0025	<0.025	0.5
Barium	0.012	0.12	20
Cadmium	0.0008	0.008	0.04
Chromium	0.0042	0.042	0.5
Copper	0.038	0.38	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	0.010	0.10	0.4
Lead	0.006	0.06	0.5
Antimony	0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	0.032	0.32	4
Chloride	0.8	8	800
Fluoride	<0.3	<3	10
Sulphate as SO <sub>4</sub>	<0.05	<0.5	1000
Total Dissolved Solids	<35	<350	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	18	180	500
			800
			1000



**Client Name:** RPS  
**Reference:** HLEI 49195  
**Location:** Turing House Free School  
**Contact:** Rob Philip

**Note:**

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:



Ryan Butterworth  
 Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/11245	1	BH1	0.30	2	05/07/2017	<b>General Description (Bulk Analysis)</b>	soil/stone
					05/07/2017	<b>Asbestos Fibres</b>	NAD
					05/07/2017	<b>Asbestos Fibres (2)</b>	NAD
					05/07/2017	<b>Asbestos ACM</b>	NAD
					05/07/2017	<b>Asbestos ACM (2)</b>	NAD
					05/07/2017	<b>Asbestos Type</b>	NAD
					05/07/2017	<b>Asbestos Type (2)</b>	NAD
					05/07/2017	<b>Asbestos Level Screen</b>	NAD
17/11245	1	BH2	0.20	7	05/07/2017	<b>General Description (Bulk Analysis)</b>	soil-stones
					05/07/2017	<b>Asbestos Fibres</b>	NAD
					05/07/2017	<b>Asbestos Fibres (2)</b>	NAD
					05/07/2017	<b>Asbestos ACM</b>	NAD
					05/07/2017	<b>Asbestos ACM (2)</b>	NAD
					05/07/2017	<b>Asbestos Type</b>	NAD
					05/07/2017	<b>Asbestos Type (2)</b>	NAD
					05/07/2017	<b>Asbestos Level Screen</b>	NAD
17/11245	1	BH2	0.50	9	05/07/2017	<b>General Description (Bulk Analysis)</b>	Soil-Silt/Clay/Brick/Stone
					05/07/2017	<b>Asbestos Fibres</b>	NAD
					05/07/2017	<b>Asbestos Fibres (2)</b>	NAD
					05/07/2017	<b>Asbestos ACM</b>	NAD
					05/07/2017	<b>Asbestos ACM (2)</b>	NAD
					05/07/2017	<b>Asbestos Type</b>	NAD
					05/07/2017	<b>Asbestos Type (2)</b>	NAD
					05/07/2017	<b>Asbestos Level Screen</b>	NAD
17/11245	1	BH3	0.20	11	05/07/2017	<b>General Description (Bulk Analysis)</b>	soil/stone
					05/07/2017	<b>Asbestos Fibres</b>	NAD
					05/07/2017	<b>Asbestos Fibres (2)</b>	NAD
					05/07/2017	<b>Asbestos ACM</b>	NAD
					05/07/2017	<b>Asbestos ACM (2)</b>	NAD
					05/07/2017	<b>Asbestos Type</b>	NAD
					05/07/2017	<b>Asbestos Type (2)</b>	NAD
					05/07/2017	<b>Asbestos Level Screen</b>	NAD
17/11245	1	HP1	0.20	15	05/07/2017	<b>General Description (Bulk Analysis)</b>	Soil/Stones
					05/07/2017	<b>Asbestos Fibres</b>	NAD
					05/07/2017	<b>Asbestos Fibres (2)</b>	NAD

Client Name: RPS  
 Reference: HLEI 49195  
 Location: Turing House Free School  
 Contact: Rob Philip

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/11245	1	HP1	0.20	15	05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
					05/07/2017	Asbestos Level Screen	NAD
17/11245	1	HP2	0.20	18	05/07/2017	General Description (Bulk Analysis)	soil-stones
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP3	0.30	20	05/07/2017	General Description (Bulk Analysis)	soil-stones
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP4	0.25	22	05/07/2017	General Description (Bulk Analysis)	Soil/Stones
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP5	0.45	24	05/07/2017	General Description (Bulk Analysis)	Soil-Silt/Clay/Brick/Stone
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP6	0.30	26	05/07/2017	General Description (Bulk Analysis)	Soil-Silt/Clay/Brick/Stone
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP7	0.25	28	05/07/2017	General Description (Bulk Analysis)	Soil-Silt/Clay/Brick/Stone
					05/07/2017	Asbestos Fibres	NAD

Client Name: RPS  
 Reference: HLEI 49195  
 Location: Turing House Free School  
 Contact: Rob Philip

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/11245	1	HP7	0.25	28	05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
					05/07/2017	Asbestos Level Screen	NAD
17/11245	1	HP8	0.25	30	05/07/2017	General Description (Bulk Analysis)	soil-stones
					05/07/2017	Asbestos Fibres	Fibre Bundles
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos Type	Chrysotile
					05/07/2017	Asbestos Level Screen	<0.1%
17/11245	1	HP9	0.35	34	05/07/2017	General Description (Bulk Analysis)	Soil/Stones
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP10	0.20	37	05/07/2017	General Description (Bulk Analysis)	Soil/Stones
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP11	0.25	39	05/07/2017	General Description (Bulk Analysis)	soil/stone
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					
17/11245	1	HP12	0.30	43	05/07/2017	General Description (Bulk Analysis)	soil/stone
					05/07/2017	Asbestos Fibres	NAD
					05/07/2017	Asbestos Fibres (2)	NAD
					05/07/2017	Asbestos ACM	NAD
					05/07/2017	Asbestos ACM (2)	NAD
					05/07/2017	Asbestos Type	NAD
					05/07/2017	Asbestos Type (2)	NAD
05/07/2017	Asbestos Level Screen	NAD					





## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/11245

### SOILS

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.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

### WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

### DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

### DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

### BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

### NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

**ABBREVIATIONS and ACRONYMS USED**

#	ISO17025 (UKAS) accredited - UK.
SA	ISO17025 (SANAS) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 17/11245

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions.	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions.	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes



JE Job No: 17/11245

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM22	Modified USEPA 160.4. Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (450°C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methylterbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methylterbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

JE Job No: 17/11245

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No

JE Job No: 17/11245

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM77	Modified DDCEN/TS method 15364:2006. Determination of Acid Neutralization Capacity by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	No
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM119	As received solid samples are extracted with 1M NaOH by orbital shaker for Sulphide and Thiocyanate analysis.			AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	



# Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point  
Zone 3  
Deeside Industrial Park  
Deeside  
CH5 2UA

RPS  
35 New Bridge Street,  
London,  
EC4V 6BW

Tel: +44 (0) 1244 833780  
Fax: +44 (0) 1244 833781

**Attention :** Lucy Flatters  
**Date :** 1st August, 2017  
**Your reference :** HLEI 49195  
**Our reference :** Test Report 17/12453 Batch 1  
**Location :**  
**Date samples received :** 21st July, 2017  
**Status :** Final report  
**Issue :** 1

Three samples were received for analysis on 21st July, 2017 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**Compiled By:**

A handwritten signature in black ink, appearing to read 'Phil'.

**Phil Sommerton BSc**  
**Project Manager**







## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/12453

### SOILS

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.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

### WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

### DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

### DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

### BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

### NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced



**ABBREVIATIONS and ACRONYMS USED**

#	ISO17025 (UKAS) accredited - UK.
SA	ISO17025 (SANAS) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x2 Dilution

JE Job No: 17/12453

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of	PM30/PM12	CWG GC-FID				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM31	Modified USEPA 8015B. Determination of Methylterbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				

**JE Job No:** 17/12453

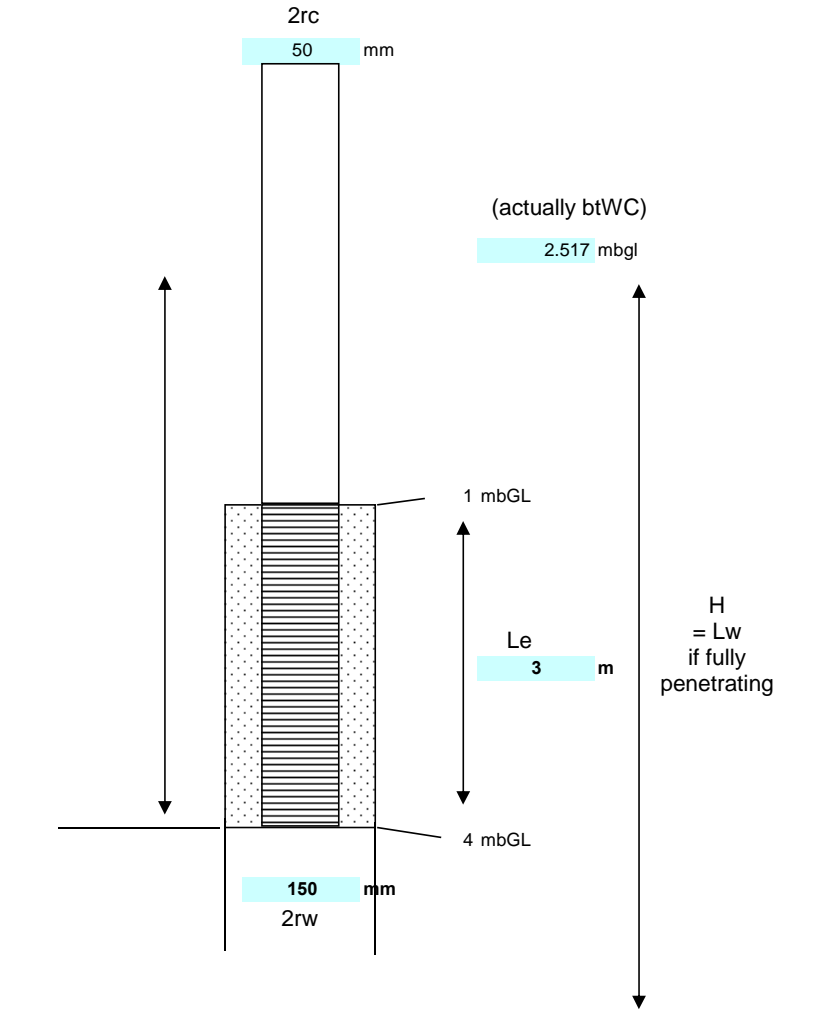
Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

## APPENDIX H

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### Results of Rising Head Tests

**Borehole BH1 - Test 1**



	mm	m
rc	25	0.025
rw	75	0.075
Le		3
Lw		1.483
H		1.483

Assumed Borehole Drill Diameter

Assume Fully Penetrating

Le/rw	40.00
<i>hence:</i>	
A	2.6
B	0.7
C	2.2

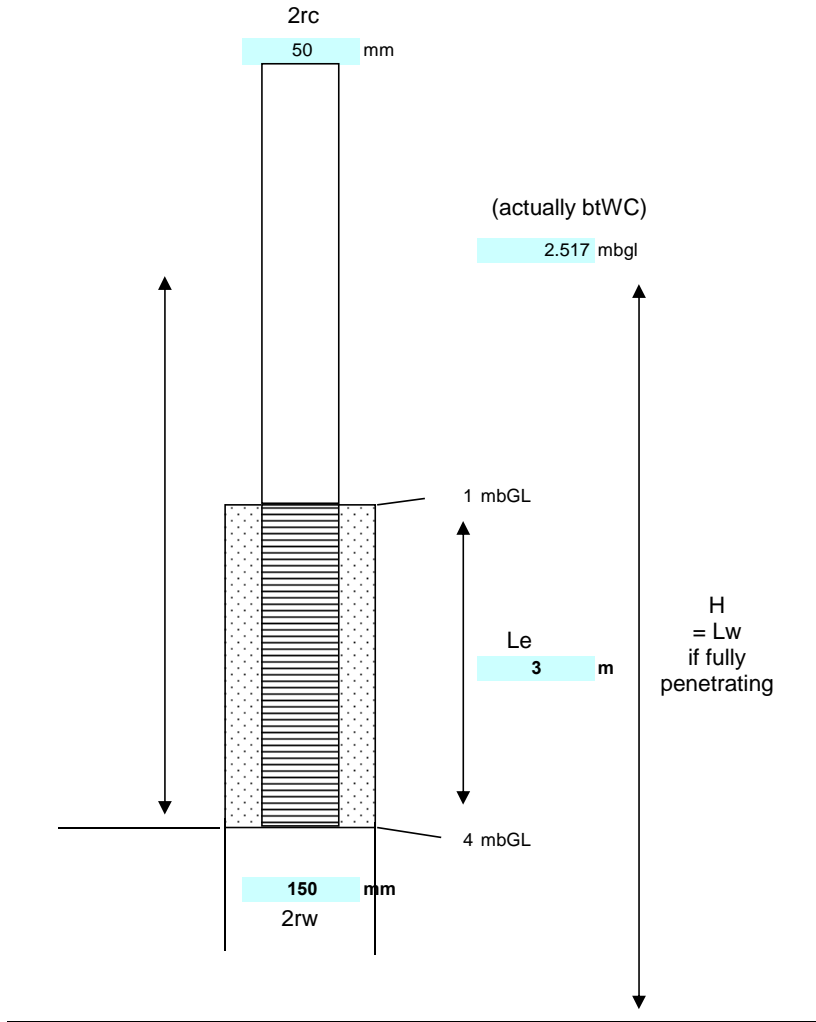
These number change depending on the value of Le/rw

$1.1/(\ln(Lw/rw))$	0.368591423
$C/(le/rw)$	0.055
<i>Therefore</i>	
$\ln(Re/rw)$	2.360765459

H  
= Lw  
if fully  
penetrating

Results			
T0	0	0	
S0	0.21	0.32	
t	9.5	5.75	
St	0.03	0.07	
K	5.04E-05	6.50E-05	m/s
	4.352	5.616	m/d

**Borehole BH1 - Test 2**



	mm	m
rc	25	0.025
rw	75	0.075
Le		3
Lw		1.483
H		1.483

Assumed Borehole Drill Diameter

Assume Fully Penetrating

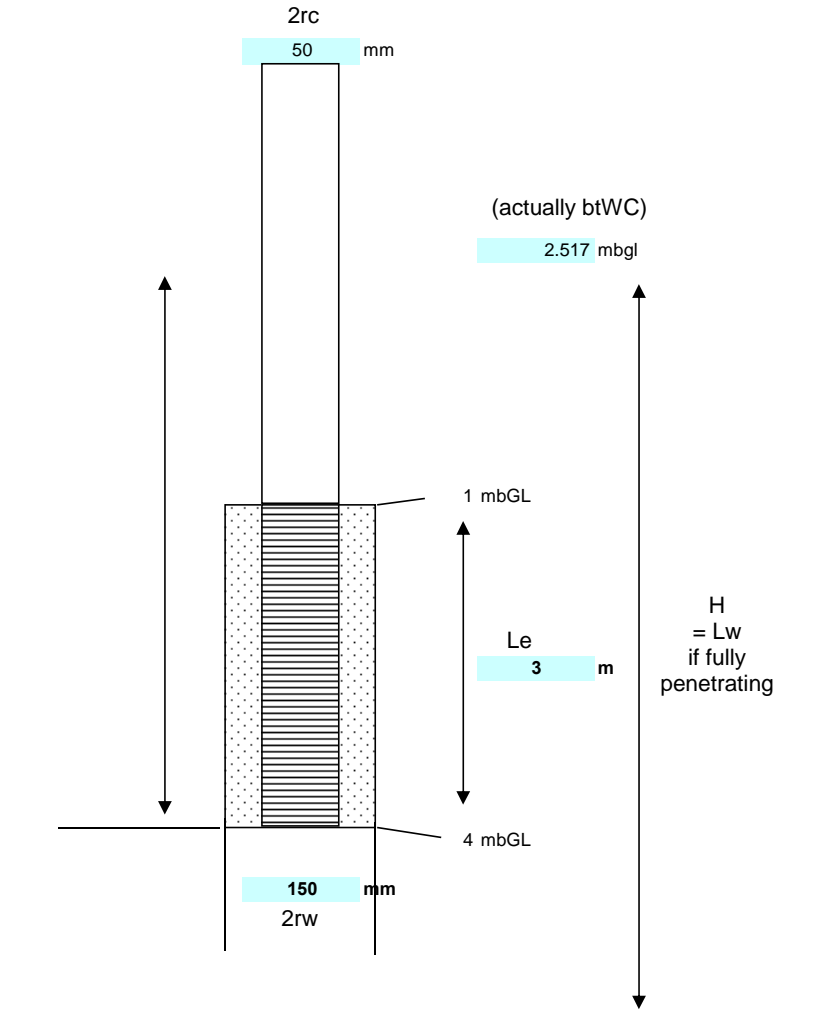
Le/rw	40.00
hence:	
A	2.6
B	0.7
C	2.2

These number change depending on the value of Le/rw

$1.1/(\ln(Lw/rw))$	0.368591423
$C/(le/rw)$	0.055
Therefore	
$\ln(Re/rw)$	2.360765459

Results			
T0	0	0	
S0	0.25	0.31	
t	9.25	6.75	
St	0.027	0.05	
<b>K</b>	<b>5.92E-05</b>	<b>6.65E-05</b>	<b>m/s</b>
	5.112	5.743	m/d

**Borehole BH1 - Test 3**



	mm	m
$rc$	25	0.025
$rw$	75	0.075
$Le$		3
$Lw$		1.483
$H$		1.483

Assumed Borehole Drill Diameter

Assume Fully Penetrating

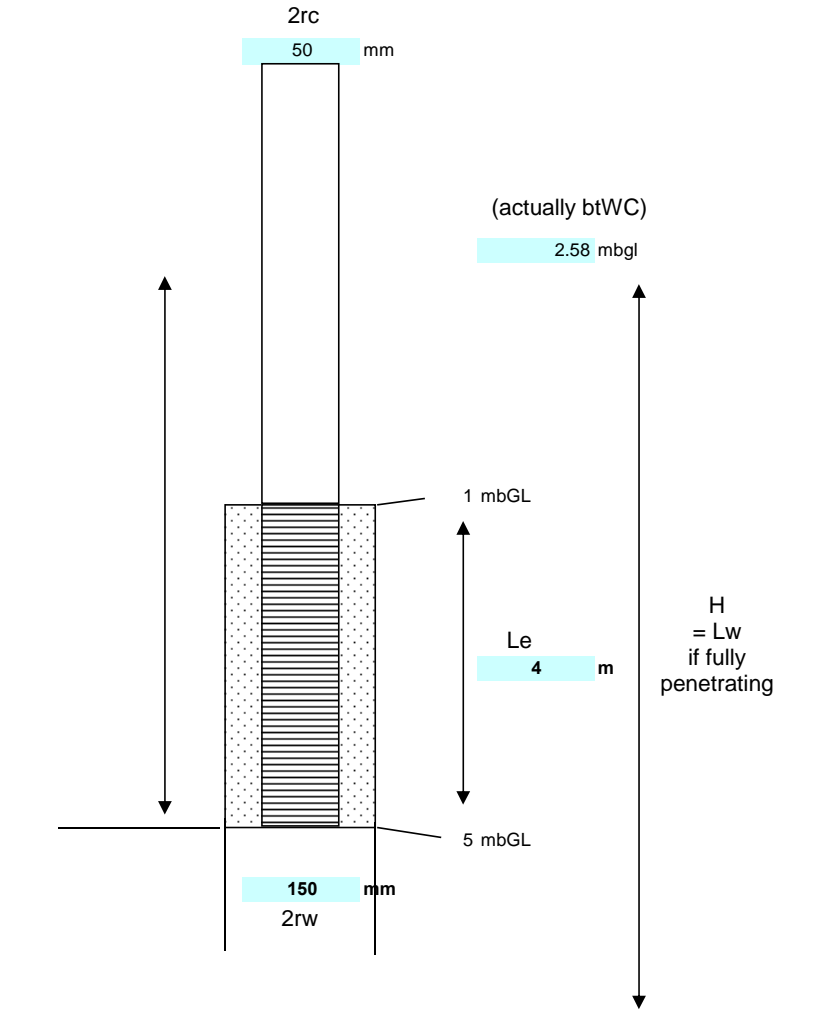
$Le/rw$	40.00
hence:	
A	2.6
B	0.7
C	2.2

These number change depending on the value of  $Le/rw$

$1.1/(\ln(Lw/rw))$	0.368591423
$C/(le/rw)$	0.055
Therefore	
$\ln(Re/rw)$	2.360765459

Results			
$T0$	0	0	
$S0$	0.23	0.3	
$t$	9.75	6.75	
$St$	0.024	0.05	
$K$	5.70E-05	6.53E-05	m/s
	4.925	5.640	m/d

**Borehole BH2 - Test 1**



	mm	m
$rc$	25	0.025
$rw$	75	0.075
$Le$		4
$Lw$		2.42
$H$		2.42

Assumed Borehole Drill Diameter

Assume Fully Penetrating

$Le/rw$	53.33
hence:	
A	3
B	0.5
C	2.7

These number change depending on the value of  $Le/rw$

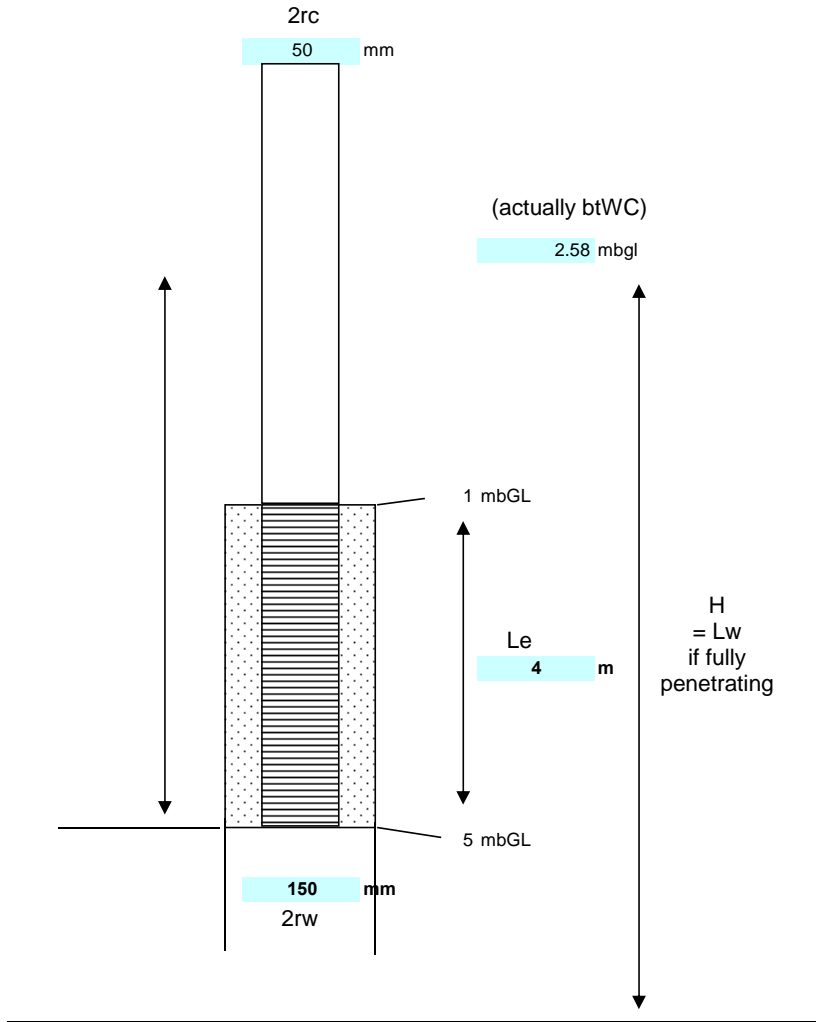
$1.1/(\ln(Lw/rw))$	0.316634718
$C/(le/rw)$	0.050625
Therefore	
$\ln(Re/rw)$	2.722868723

$H = Lw$   
if fully  
penetrating

Results		
$T0$	0	
$S0$	0.14	
$t$	4	
$St$	0.004	
<b>K</b>	<b>1.89E-04</b>	<b>m/s</b>
	16.336	m/d



**Borehole BH2 - Test 2**



	mm	m
$rc$	25	0.025
$rw$	75	0.075
$Le$		4
$Lw$		2.42
$H$		2.42

Assumed Borehole Drill Diameter

Assume Fully Penetrating

$Le/rw$	53.33
hence:	
A	3
B	0.5
C	2.7

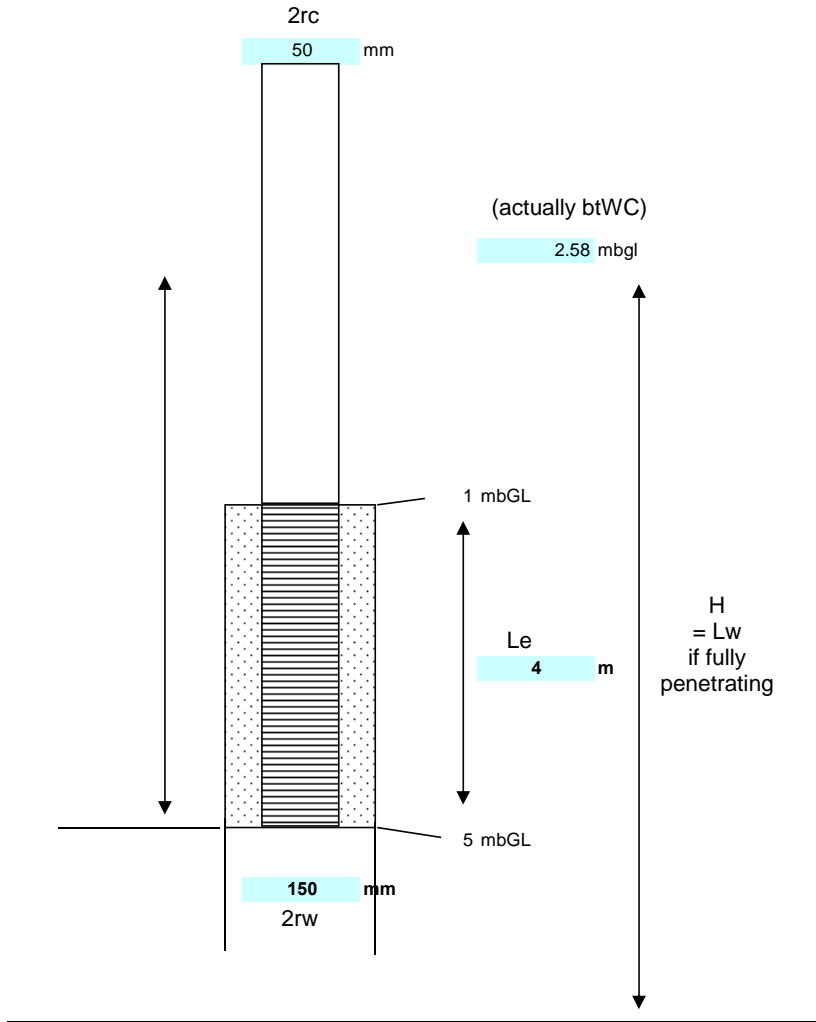
These number change depending on the value of  $Le/rw$

$1.1/(\ln(Lw/rw))$	0.316634718
$C/(le/rw)$	0.050625
Therefore	
$\ln(Re/rw)$	2.722868723

$H = Lw$   
if fully  
penetrating

Results		
$T0$	0	
$S0$	0.1	
$t$	4	
$St$	0.011	
<b>K</b>	<b>1.17E-04</b>	<b>m/s</b>
	10.142	m/d

**Borehole BH2 - Test 2**



	mm	m
$rc$	25	0.025
$rw$	75	0.075
$Le$		4
$Lw$		2.42
$H$		2.42

Assumed Borehole Drill Diameter

Assume Fully Penetrating

$Le/rw$	53.33
hence:	
A	3
B	0.5
C	2.7

These number change depending on the value of  $Le/rw$

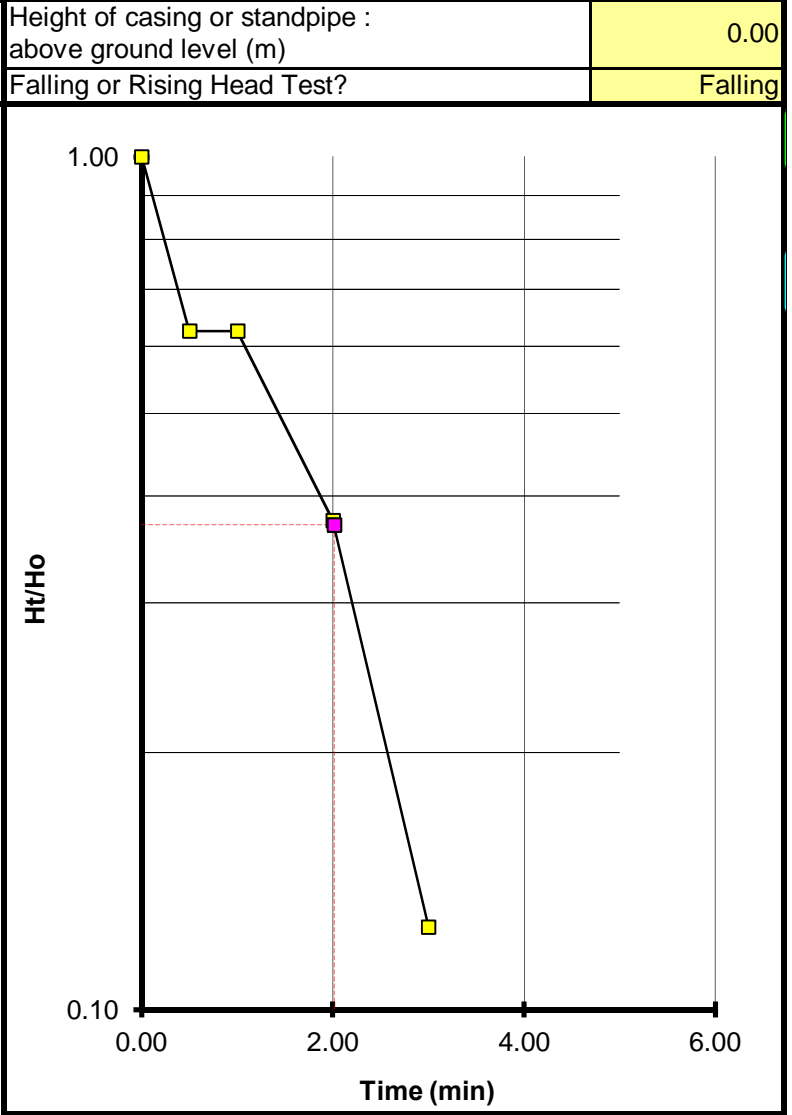
$1.1/(\ln(Lw/rw))$	0.316634718
$C/(le/rw)$	0.050625
Therefore	
$\ln(Re/rw)$	2.722868723

Results		
$T0$	0	
$S0$	0.02	
$t$	5.5	
$St$	0.0082	
<b>K</b>	<b>3.45E-05</b>	<b>m/s</b>
	2.979	m/d


# Variable Head Permeability Test

Project No.:	HLEI49195	<b>TEST RESPONSE ZONE DETAILS:</b>	
Project Name:	Turing House	Top (mbgl):	1.00
Client:	Education Funding Agency	Bottom (mbgl):	5.00
Borehole No.:	BH3 - Test 1	Length (m):	4.00
Compiled By:	MH	Diameter (m):	0.050
Date:	28/07/2017	Initial Standing Water Level (m below top of casing):	2.44
Checked By:	LH	Height of casing or standpipe : above ground level (m)	0.00
Date:	28/07/2017	Falling or Rising Head Test?	Falling

Elapsed Time (mins)	Depth to Water* (m)	Ht/Ho
0	2.449	1.00
0.5	2.446	0.63
1	2.446	0.63
2	2.444	0.38
3	2.442	0.13
4	2.441	
5	2.411	



Cross Sectional Area of Test Zone	A=	0.00196
Shape Factor (Case C)	F=	4.94602
Time to reach Ht/Ho = 0.37 (sec)	T=	121
Permeability (m/s)	K=	3.29E-06



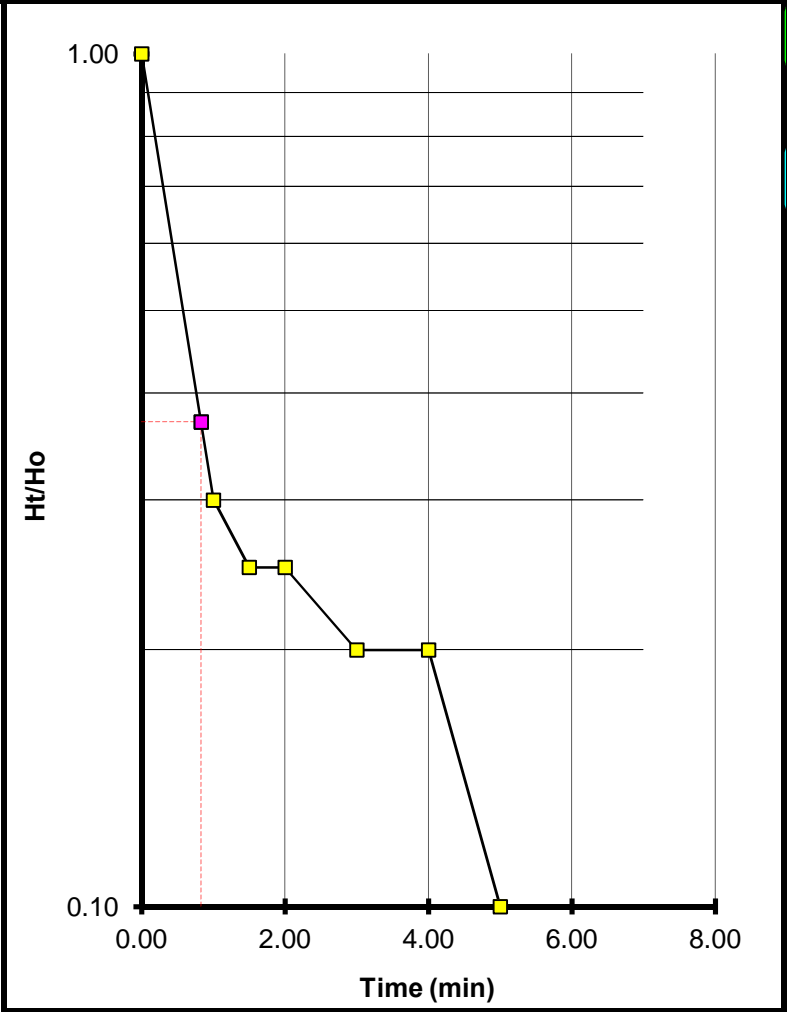
35 New Bridge Street  
London  
EC4V 6BW

**Comments**


# Variable Head Permeability Test

Project No.:	HLEI49195	<b>TEST RESPONSE ZONE DETAILS:</b>	
Project Name:	Turing House	Top (mbgl):	1.00
Client:	Education Funding Agency	Bottom (mbgl):	5.00
Borehole No.:	BH3 - Test 2	Length (m):	4.00
Compiled By:	MH	Diameter (m):	0.050
Date:	28/07/2017	Initial Standing Water Level (m below top of casing):	2.44
Checked By:	LH	Height of casing or standpipe : above ground level (m)	0.00
Date:	28/07/2017	Falling or Rising Head Test?	Falling

Elapsed Time (mins)	Depth to Water* (m)	Ht/Ho
0	2.461	1.00
1	2.447	0.30
1.5	2.446	0.25
2	2.446	0.25
3	2.445	0.20
4	2.445	0.20
5	2.443	0.10
6	2.441	
7	2.441	



Cross Sectional Area of Test Zone	A=	0.00196
Shape Factor (Case C)	F=	4.94602
Time to reach Ht/Ho = 0.37 (sec)	T=	50
Permeability (m/s)	K=	8.01E-06



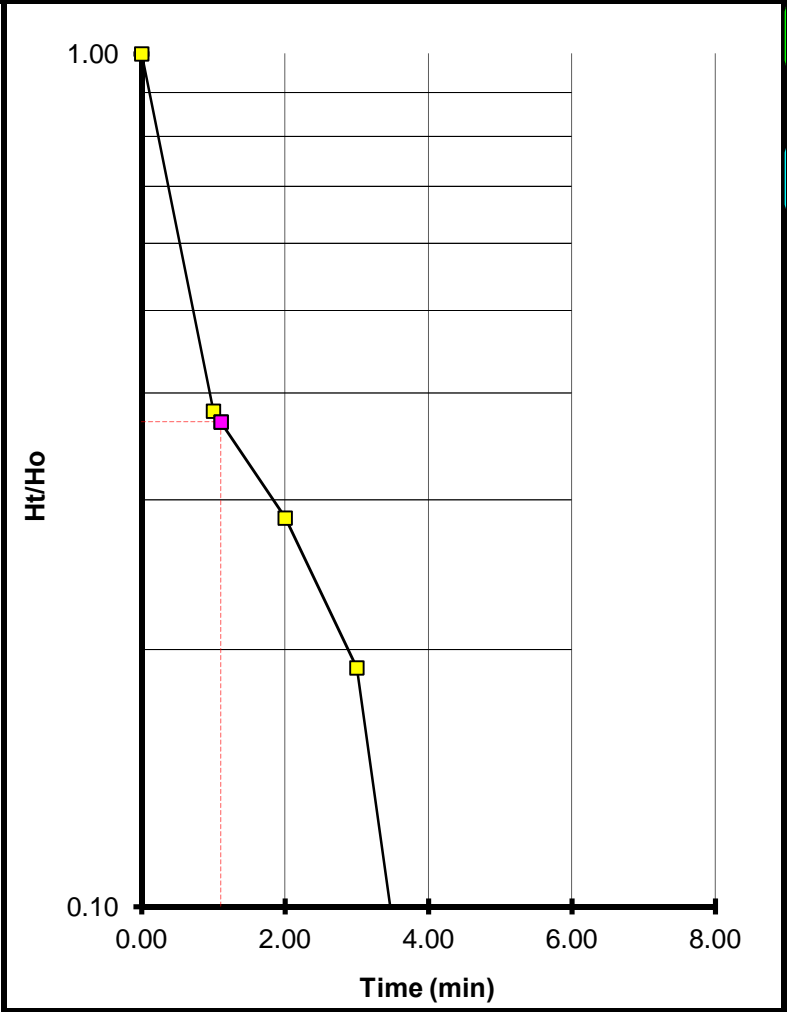
35 New Bridge Street  
London  
EC4V 6BW

**Comments**


# Variable Head Permeability Test

Project No.:	HLEI49195	<b>TEST RESPONSE ZONE DETAILS:</b>	
Project Name:	Turing House	Top (mbgl):	1.00
Client:	Education Funding Agency	Bottom (mbgl):	5.00
Borehole No.:	BH3 - Test 3	Length (m):	4.00
Compiled By	MH	Diameter (m):	0.050
Date	28/07/2017	Initial Standing Water Level (m below top of casing):	2.44
Checked By	LH	Height of casing or standpipe : above ground level (m)	0.00
Date	28/07/2017	Falling or Rising Head Test?	Falling

Elapsed Time (mins)	Depth to Water* (m)	Ht/Ho
0	2.462	1.00
1	2.449	0.38
2	2.447	0.29
3	2.445	0.19
4	2.442	0.05
5	2.441	
6	2.441	



Cross Sectional Area of Test Zone	A=	0.00196
Shape Factor (Case C)	F=	4.94602
Time to reach Ht/Ho = 0.37 (sec)	T=	66
Permeability (m/s)	K=	6.01E-06



35 New Bridge Street  
London  
EC4V 6BW

**Comments**



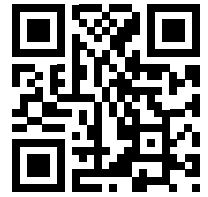
# APPENDIX I

---

Hazwasteonline Results



# Waste Classification Report



FYAFQ-68P73-6UAZN

## Job name

Turing House F

## Description/Comments

## Project

HLEI49195

## Site

Hospital Bridge Road, Twickenham

## Waste Stream Template

RPS Suite 2017

## Classified by

Name:  
**Michael Andrews**  
Date:  
**8/3/2017 8:36:41 AM UTC**  
Telephone:  
**02071803200**

Company:  
**RPS Group**  
**14 Cornhill**  
**London**  
**EC3V 3ND**

## Report

Created by: Michael Andrews  
Created date: 8/3/2017 08:36 UTC

## Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	BH1	0.3	Non Hazardous		3
2	BH1[1]	0.4	Non Hazardous		5
3	BH2	0.2	Non Hazardous		7
4	BH2[1]	0.5	Non Hazardous		10
5	BH3	0.2	Non Hazardous		13
6	HP1	0.2	Non Hazardous		16
7	HP2	0.2	Non Hazardous		19
8	HP3	0.3	Non Hazardous		22
9	HP4	0.25	Non Hazardous		25
10	HP5	0.45	Non Hazardous		28
11	HP6	0.3	Non Hazardous		31
12	HP7	0.25	Non Hazardous		34
13	HP8	0.25	Non Hazardous		37
14	HP9	0.35	Non Hazardous		39
15	HP10	0.2	Non Hazardous		42
16	HP11	0.25	Non Hazardous		45



#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
17	HP12	0.3	Non Hazardous		48

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	51
Appendix B: Rationale for selection of metal species	53
Appendix C: Version	53



Classification of sample: BH1

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

Sample details

Sample Name: <b>BH1</b>	LoW Code: Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth: <b>0.3 m</b>	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content: <b>11.8%</b> (no correction)		

Hazard properties

None identified

Determinands

Moisture content: 11.8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				13.4 mg/kg	1.32	17.692 mg/kg	0.00177 %		
	033-003-00-0	215-481-4	1327-53-3							
2	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
3	nickel { nickel chromate }				18.8 mg/kg	2.976	55.954 mg/kg	0.0056 %		
	028-035-00-7	238-766-5	14721-18-7							
4	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
5	zinc { zinc sulphate }				155 mg/kg	2.469	382.741 mg/kg	0.0383 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
6	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 }				1.1 mg/kg	1.884	2.072 mg/kg	0.000207 %		
	006-007-00-5									
7	TPH (C6 to C40) petroleum group				45 mg/kg		45 mg/kg	0.0045 %		
			TPH							
8	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
9	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
10	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
11	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X 216-653-1 1634-04-4				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
13	pH PH				6.7 pH		6.7 pH	6.7 pH		
14	naphthalene 601-052-00-2 202-049-5 91-20-3				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
15	acenaphthylene 205-917-1 208-96-8				0.06 mg/kg		0.06 mg/kg	0.000006 %		
16	acenaphthene 201-469-6 83-32-9				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	fluorene 201-695-5 86-73-7				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
18	phenanthrene 201-581-5 85-01-8				0.28 mg/kg		0.28 mg/kg	0.000028 %		
19	anthracene 204-371-1 120-12-7				0.08 mg/kg		0.08 mg/kg	0.000008 %		
20	fluoranthene 205-912-4 206-44-0				0.61 mg/kg		0.61 mg/kg	0.000061 %		
21	pyrene 204-927-3 129-00-0				0.52 mg/kg		0.52 mg/kg	0.000052 %		
22	benzo[a]anthracene 601-033-00-9 200-280-6 56-55-3				0.41 mg/kg		0.41 mg/kg	0.000041 %		
23	chrysene 601-048-00-0 205-923-4 218-01-9				0.45 mg/kg		0.45 mg/kg	0.000045 %		
24	benzo[b]fluoranthene 601-034-00-4 205-911-9 205-99-2				0.88 mg/kg		0.88 mg/kg	0.000088 %		
25	benzo[k]fluoranthene 601-036-00-5 205-916-6 207-08-9				0.88 mg/kg		0.88 mg/kg	0.000088 %		
26	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3 200-028-5 50-32-8				0.47 mg/kg		0.47 mg/kg	0.000047 %		
27	indeno[123-cd]pyrene 205-893-2 193-39-5				0.47 mg/kg		0.47 mg/kg	0.000047 %		
28	dibenz[a,h]anthracene 601-041-00-2 200-181-8 53-70-3				0.09 mg/kg		0.09 mg/kg	0.000009 %		
29	benzo[ghi]perylene 205-883-8 191-24-2				0.32 mg/kg		0.32 mg/kg	0.000032 %		
30	phenol 604-001-00-2 203-632-7 108-95-2				0.2 mg/kg		0.2 mg/kg	0.00002 %		
Total:								0.0512 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection

**Supplementary Hazardous Property Information**

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: **Force this Hazardous property to non hazardous because Extremely low flammability risk.**

Classification of sample: BH1[1]

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

Sample details

Sample Name: <b>BH1[1]</b>	LoW Code: Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth: <b>0.4 m</b>	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content: <b>8.8%</b> (no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				23.5 mg/kg	1.32	31.028 mg/kg	0.0031 %		
	033-003-00-0	215-481-4	1327-53-3							
2	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
3	nickel { nickel chromate }				20.9 mg/kg	2.976	62.204 mg/kg	0.00622 %		
	028-035-00-7	238-766-5	14721-18-7							
4	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8									
5	zinc { zinc sulphate }				56 mg/kg	2.469	138.281 mg/kg	0.0138 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
6	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									
7	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
8	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
9	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
10	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
11	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane 603-181-00-X   216-653-1   1634-04-4				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
13	pH PH				7.06 pH		7.06 pH	7.06 pH		
14	naphthalene 601-052-00-2   202-049-5   91-20-3				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
15	acenaphthylene 205-917-1   208-96-8				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
16	acenaphthene 201-469-6   83-32-9				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
17	fluorene 201-695-5   86-73-7				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
18	phenanthrene 201-581-5   85-01-8				0.03 mg/kg		0.03 mg/kg	0.000003 %		
19	anthracene 204-371-1   120-12-7				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
20	fluoranthene 205-912-4   206-44-0				0.07 mg/kg		0.07 mg/kg	0.000007 %		
21	pyrene 204-927-3   129-00-0				0.05 mg/kg		0.05 mg/kg	0.000005 %		
22	benzo[a]anthracene 601-033-00-9   200-280-6   56-55-3				<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
23	chrysene 601-048-00-0   205-923-4   218-01-9				0.05 mg/kg		0.05 mg/kg	0.000005 %		
24	benzo[b]fluoranthene 601-034-00-4   205-911-9   205-99-2				<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
25	benzo[k]fluoranthene 601-036-00-5   205-916-6   207-08-9				<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3   200-028-5   50-32-8				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene 205-893-2   193-39-5				0.04 mg/kg		0.04 mg/kg	0.000004 %		
28	dibenz[a,h]anthracene 601-041-00-2   200-181-8   53-70-3				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene 205-883-8   191-24-2				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
30	phenol 604-001-00-2   203-632-7   108-95-2				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
Total:								0.0275 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection

Classification of sample: BH2

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

Sample details

Sample Name:	BH2	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	10.7% (no correction)	Entry:	

Hazard properties

None identified

Determinands

Moisture content: 10.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				10.2 mg/kg	1.32	13.467 mg/kg	0.00135 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				3 mg/kg	1.142	3.427 mg/kg	0.000343 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				83.4 mg/kg	1.462	121.894 mg/kg	0.0122 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				53 mg/kg	1.126	59.672 mg/kg	0.00597 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	186 mg/kg		186 mg/kg	0.0186 %		
	082-001-00-6									
7	mercury { mercury dichloride }				1.1 mg/kg	1.353	1.489 mg/kg	0.000149 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				16.6 mg/kg	2.976	49.406 mg/kg	0.00494 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				176 mg/kg	2.469	434.596 mg/kg	0.0435 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				0.7 mg/kg	1.884	1.319 mg/kg	0.000132 %		
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				48 mg/kg		48 mg/kg	0.0048 %		
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.52 pH		6.52 pH	6.52 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
		201-581-5	85-01-8							
24	anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
		204-371-1	120-12-7							
25	fluoranthene				0.44 mg/kg		0.44 mg/kg	0.000044 %		
		205-912-4	206-44-0							
26	pyrene				0.37 mg/kg		0.37 mg/kg	0.000037 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.29 mg/kg		0.29 mg/kg	0.000029 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.3 mg/kg		0.3 mg/kg	0.00003 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.65 mg/kg		0.65 mg/kg	0.000065 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.65 mg/kg		0.65 mg/kg	0.000065 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.34 mg/kg		0.34 mg/kg	0.000034 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.37 mg/kg		0.37 mg/kg	0.000037 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0927 %		



Key

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	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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<b>&lt;LOD</b>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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### Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: **Force this Hazardous property to non hazardous because Extremely low flammability risk.**

Classification of sample: BH2[1]

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

Sample details

Sample Name:	BH2[1]	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.5 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	8.7% (no correction)	Entry:	

Hazard properties

None identified

Determinands

Moisture content: 8.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				13.5 mg/kg	1.32	17.824 mg/kg	0.00178 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.3 mg/kg	1.142	0.343 mg/kg	0.0000343 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				69.7 mg/kg	1.462	101.87 mg/kg	0.0102 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				14 mg/kg	1.126	15.762 mg/kg	0.00158 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	38 mg/kg		38 mg/kg	0.0038 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.2 mg/kg	1.353	0.271 mg/kg	0.0000271 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				14.5 mg/kg	2.976	43.156 mg/kg	0.00432 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				44 mg/kg	2.469	108.649 mg/kg	0.0109 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									









#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				7.15 pH		7.15 pH	7.15 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
		201-581-5	85-01-8							
24	anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7							
25	fluoranthene				0.03 mg/kg		0.03 mg/kg	0.000003 %		
		205-912-4	206-44-0							
26	pyrene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
		204-927-3	129-00-0							
27	benzo[a]anthracene				<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.03 mg/kg		0.03 mg/kg	0.000003 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0369 %		



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 Determinand - 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: BH3

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

Sample details

Sample Name:	BH3	LoW Code:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Chapter:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	10.3% (no correction)	Entry:	

Hazard properties

None identified

Determinands

Moisture content: 10.3% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11.9 mg/kg	1.32	15.712 mg/kg	0.00157 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				2.5 mg/kg	1.142	2.856 mg/kg	0.000286 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				82.5 mg/kg	1.462	120.578 mg/kg	0.0121 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				40 mg/kg	1.126	45.036 mg/kg	0.0045 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	178 mg/kg		178 mg/kg	0.0178 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.9 mg/kg	1.353	1.218 mg/kg	0.000122 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				16.4 mg/kg	2.976	48.811 mg/kg	0.00488 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				134 mg/kg	2.469	330.886 mg/kg	0.0331 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				1.1 mg/kg	1.884	2.072 mg/kg	0.000207 %		
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.73 pH		6.73 pH	6.73 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.22 mg/kg		0.22 mg/kg	0.000022 %		
		201-581-5	85-01-8							
24	anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		204-371-1	120-12-7							
25	fluoranthene				0.53 mg/kg		0.53 mg/kg	0.000053 %		
		205-912-4	206-44-0							
26	pyrene				0.44 mg/kg		0.44 mg/kg	0.000044 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.35 mg/kg		0.35 mg/kg	0.000035 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.35 mg/kg		0.35 mg/kg	0.000035 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.73 mg/kg		0.73 mg/kg	0.000073 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.73 mg/kg		0.73 mg/kg	0.000073 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.39 mg/kg		0.39 mg/kg	0.000039 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.42 mg/kg		0.42 mg/kg	0.000042 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
		205-883-8	191-24-2							
35	phenol				0.23 mg/kg		0.23 mg/kg	0.000023 %		
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0791 %		



Key

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- 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 Determinand - 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: HP1

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

Sample details

Sample Name:	HP1	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	5% (no correction)			

Hazard properties

None identified

Determinands

Moisture content: 5% No Moisture Correction applied (MC)





#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				11.5 mg/kg	1.32	15.184 mg/kg	0.00152 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				1.6 mg/kg	1.142	1.828 mg/kg	0.000183 %			
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]								
3	chromium in chromium(III) compounds { chromium(III) oxide }				61.5 mg/kg	1.462	89.886 mg/kg	0.00899 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD	
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				40 mg/kg	1.126	45.036 mg/kg	0.0045 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	178 mg/kg		178 mg/kg	0.0178 %			
	082-001-00-6										
7	mercury { mercury dichloride }				1.4 mg/kg	1.353	1.895 mg/kg	0.000189 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				16.9 mg/kg	2.976	50.299 mg/kg	0.00503 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium selenoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
10	zinc { zinc sulphate }				128 mg/kg	2.469	316.07 mg/kg	0.0316 %			
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
11	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD	
	006-007-00-5										



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.36 pH		6.36 pH	6.36 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.19 mg/kg		0.19 mg/kg	0.000019 %		
		201-581-5	85-01-8							
24	anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
		204-371-1	120-12-7							
25	fluoranthene				0.41 mg/kg		0.41 mg/kg	0.000041 %		
		205-912-4	206-44-0							
26	pyrene				0.34 mg/kg		0.34 mg/kg	0.000034 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.25 mg/kg		0.25 mg/kg	0.000025 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.29 mg/kg		0.29 mg/kg	0.000029 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.56 mg/kg		0.56 mg/kg	0.000056 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.56 mg/kg		0.56 mg/kg	0.000056 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.26 mg/kg		0.26 mg/kg	0.000026 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.3 mg/kg		0.3 mg/kg	0.00003 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.2 mg/kg		0.2 mg/kg	0.00002 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0744 %		



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 Determinand - 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: HP2

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

Sample details

Sample Name:	LoW Code:	
<b>HP2</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.2 m</b>		
Moisture content:		
<b>3.7%</b>		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 3.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				12.3 mg/kg	1.32	16.24 mg/kg	0.00162 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.4 mg/kg	1.142	0.457 mg/kg	0.0000457 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				71 mg/kg	1.462	103.77 mg/kg	0.0104 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	144 mg/kg		144 mg/kg	0.0144 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.6 mg/kg	1.353	0.812 mg/kg	0.0000812 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				12.6 mg/kg	2.976	37.501 mg/kg	0.00375 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				82 mg/kg	2.469	202.482 mg/kg	0.0202 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.17 pH		6.17 pH	6.17 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
		201-581-5	85-01-8							
24	anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		204-371-1	120-12-7							
25	fluoranthene				0.41 mg/kg		0.41 mg/kg	0.000041 %		
		205-912-4	206-44-0							
26	pyrene				0.36 mg/kg		0.36 mg/kg	0.000036 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.3 mg/kg		0.3 mg/kg	0.00003 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.56 mg/kg		0.56 mg/kg	0.000056 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.56 mg/kg		0.56 mg/kg	0.000056 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.25 mg/kg		0.25 mg/kg	0.000025 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.27 mg/kg		0.27 mg/kg	0.000027 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.2 mg/kg		0.2 mg/kg	0.00002 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.058 %		



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 Determinand - 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: HP3

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

Sample details

Sample Name:	HP3	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.3 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	5.4% (no correction)			

Hazard properties

None identified

Determinands

Moisture content: 5.4% No Moisture Correction applied (MC)





#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11.7 mg/kg	1.32	15.448 mg/kg	0.00154 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				1.3 mg/kg	1.142	1.485 mg/kg	0.000149 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				69.5 mg/kg	1.462	101.578 mg/kg	0.0102 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				44 mg/kg	1.126	49.539 mg/kg	0.00495 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	580 mg/kg		580 mg/kg	0.058 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.6 mg/kg	1.353	0.812 mg/kg	0.0000812 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				16.1 mg/kg	2.976	47.918 mg/kg	0.00479 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				119 mg/kg	2.469	293.846 mg/kg	0.0294 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.73 pH		6.73 pH	6.73 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.25 mg/kg		0.25 mg/kg	0.000025 %		
		201-581-5	85-01-8							
24	anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
		204-371-1	120-12-7							
25	fluoranthene				0.46 mg/kg		0.46 mg/kg	0.000046 %		
		205-912-4	206-44-0							
26	pyrene				0.39 mg/kg		0.39 mg/kg	0.000039 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.31 mg/kg		0.31 mg/kg	0.000031 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.68 mg/kg		0.68 mg/kg	0.000068 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.68 mg/kg		0.68 mg/kg	0.000068 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.39 mg/kg		0.39 mg/kg	0.000039 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.4 mg/kg		0.4 mg/kg	0.00004 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.09 mg/kg		0.09 mg/kg	0.000009 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.27 mg/kg		0.27 mg/kg	0.000027 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.114 %		



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 Determinand - 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: HP4

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

Sample details

Sample Name:	LoW Code:	
<b>HP4</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.25 m</b>		
Moisture content:		
<b>6.3%</b>		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 6.3% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11.5 mg/kg	1.32	15.184 mg/kg	0.00152 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				1.1 mg/kg	1.142	1.257 mg/kg	0.000126 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				61.3 mg/kg	1.462	89.593 mg/kg	0.00896 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				78 mg/kg	1.126	87.819 mg/kg	0.00878 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	832 mg/kg		832 mg/kg	0.0832 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.7 mg/kg	1.353	0.947 mg/kg	0.0000947 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				15.2 mg/kg	2.976	45.239 mg/kg	0.00452 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				188 mg/kg	2.469	464.228 mg/kg	0.0464 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5									







#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				7.06 pH		7.06 pH	7.06 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.15 mg/kg		0.15 mg/kg	0.000015 %		
		201-581-5	85-01-8							
24	anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		204-371-1	120-12-7							
25	fluoranthene				0.33 mg/kg		0.33 mg/kg	0.000033 %		
		205-912-4	206-44-0							
26	pyrene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.21 mg/kg		0.21 mg/kg	0.000021 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.22 mg/kg		0.22 mg/kg	0.000022 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.46 mg/kg		0.46 mg/kg	0.000046 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.46 mg/kg		0.46 mg/kg	0.000046 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.24 mg/kg		0.24 mg/kg	0.000024 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.24 mg/kg		0.24 mg/kg	0.000024 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.158 %		





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 Determinand - 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: HP5

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

Sample details

Sample Name:	HP5	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.45 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	2.9% (no correction)			

Hazard properties

None identified

Determinands

Moisture content: 2.9% No Moisture Correction applied (MC)

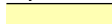



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				15.4 mg/kg	1.32	20.333 mg/kg	0.00203 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				3.3 mg/kg	1.142	3.77 mg/kg	0.000377 %			
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]								
3	chromium in chromium(III) compounds { chromium(III) oxide }				63.2 mg/kg	1.462	92.37 mg/kg	0.00924 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD	
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				150 mg/kg	1.126	168.883 mg/kg	0.0169 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	1257 mg/kg		1257 mg/kg	0.126 %			
	082-001-00-6										
7	mercury { mercury dichloride }				0.9 mg/kg	1.353	1.218 mg/kg	0.000122 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				22 mg/kg	2.976	65.478 mg/kg	0.00655 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD	
	034-002-00-8										
10	zinc { zinc sulphate }				399 mg/kg	2.469	985.249 mg/kg	0.0985 %			
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
11	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 }				1.4 mg/kg	1.884	2.638 mg/kg	0.000264 %			
	006-007-00-5										



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.6 pH		6.6 pH	6.6 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.08 mg/kg		0.08 mg/kg	0.000008 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.46 mg/kg		0.46 mg/kg	0.000046 %		
		201-581-5	85-01-8							
24	anthracene				0.14 mg/kg		0.14 mg/kg	0.000014 %		
		204-371-1	120-12-7							
25	fluoranthene				1.01 mg/kg		1.01 mg/kg	0.000101 %		
		205-912-4	206-44-0							
26	pyrene				0.83 mg/kg		0.83 mg/kg	0.000083 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.63 mg/kg		0.63 mg/kg	0.000063 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.59 mg/kg		0.59 mg/kg	0.000059 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				1.15 mg/kg		1.15 mg/kg	0.000115 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				1.15 mg/kg		1.15 mg/kg	0.000115 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.59 mg/kg		0.59 mg/kg	0.000059 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.56 mg/kg		0.56 mg/kg	0.000056 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.11 mg/kg		0.11 mg/kg	0.000011 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.4 mg/kg		0.4 mg/kg	0.00004 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.265 %		



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 Determinand - 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: HP6

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

Sample details

Sample Name:	LoW Code:	
<b>HP6</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.3 m</b>		
Moisture content:		
<b>4.1%</b>		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 4.1% No Moisture Correction applied (MC)





#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				13.3 mg/kg	1.32	17.56 mg/kg	0.00176 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				4.2 mg/kg	1.142	4.798 mg/kg	0.00048 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				75.4 mg/kg	1.462	110.201 mg/kg	0.011 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				61 mg/kg	1.126	68.679 mg/kg	0.00687 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	212 mg/kg		212 mg/kg	0.0212 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.7 mg/kg	1.353	0.947 mg/kg	0.0000947 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				19.2 mg/kg	2.976	57.144 mg/kg	0.00571 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				164 mg/kg	2.469	404.965 mg/kg	0.0405 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				1.8 mg/kg	1.884	3.391 mg/kg	0.000339 %		
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.7 pH		6.7 pH	6.7 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.21 mg/kg		0.21 mg/kg	0.000021 %		
		201-581-5	85-01-8							
24	anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		204-371-1	120-12-7							
25	fluoranthene				0.51 mg/kg		0.51 mg/kg	0.000051 %		
		205-912-4	206-44-0							
26	pyrene				0.42 mg/kg		0.42 mg/kg	0.000042 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.3 mg/kg		0.3 mg/kg	0.00003 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.66 mg/kg		0.66 mg/kg	0.000066 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.66 mg/kg		0.66 mg/kg	0.000066 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.31 mg/kg		0.31 mg/kg	0.000031 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.35 mg/kg		0.35 mg/kg	0.000035 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.24 mg/kg		0.24 mg/kg	0.000024 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0925 %		



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 Determinand - 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: HP7

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

Sample details

Sample Name:	HP7	LoW Code:	
Sample Depth:	0.25 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	2.8% (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 2.8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				11.1 mg/kg	1.32	14.656 mg/kg	0.00147 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				2.4 mg/kg	1.142	2.742 mg/kg	0.000274 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				76.6 mg/kg	1.462	111.955 mg/kg	0.0112 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				45 mg/kg	1.126	50.665 mg/kg	0.00507 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	187 mg/kg		187 mg/kg	0.0187 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				17.2 mg/kg	2.976	51.192 mg/kg	0.00512 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				131 mg/kg	2.469	323.478 mg/kg	0.0323 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				0.8 mg/kg	1.884	1.507 mg/kg	0.000151 %		
	006-007-00-5									









#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.41 pH		6.41 pH	6.41 pH		
			PH							
19	naphthalene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.22 mg/kg		0.22 mg/kg	0.000022 %		
		201-581-5	85-01-8							
24	anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
		204-371-1	120-12-7							
25	fluoranthene				0.45 mg/kg		0.45 mg/kg	0.000045 %		
		205-912-4	206-44-0							
26	pyrene				0.38 mg/kg		0.38 mg/kg	0.000038 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.26 mg/kg		0.26 mg/kg	0.000026 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.27 mg/kg		0.27 mg/kg	0.000027 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.55 mg/kg		0.55 mg/kg	0.000055 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.55 mg/kg		0.55 mg/kg	0.000055 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.26 mg/kg		0.26 mg/kg	0.000026 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.31 mg/kg		0.31 mg/kg	0.000031 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.21 mg/kg		0.21 mg/kg	0.000021 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0789 %		



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 Determinand - 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: HP8

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

Sample details

Sample Name:	LoW Code:	
<b>HP8</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.25 m</b>		

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
2	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 }				0.7 mg/kg	1.884	1.319 mg/kg	0.000132 %		
	006-007-00-5									
3	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
4	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
5	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
6	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
7	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
8	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
9	pH				5.95 pH		5.95 pH	5.95 pH		
			PH							
10	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
11	acenaphthylene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		205-917-1	208-96-8							
12	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
13	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
14	phenanthrene	201-581-5	85-01-8		0.14 mg/kg		0.14 mg/kg	0.000014 %		
15	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
16	fluoranthene	205-912-4	206-44-0		0.31 mg/kg		0.31 mg/kg	0.000031 %		
17	pyrene	204-927-3	129-00-0		0.24 mg/kg		0.24 mg/kg	0.000024 %		
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.2 mg/kg		0.2 mg/kg	0.00002 %		
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.22 mg/kg		0.22 mg/kg	0.000022 %		
20	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.38 mg/kg		0.38 mg/kg	0.000038 %		
21	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.38 mg/kg		0.38 mg/kg	0.000038 %		
22	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.18 mg/kg		0.18 mg/kg	0.000018 %		
23	indeno[123-cd]pyrene	205-893-2	193-39-5		0.21 mg/kg		0.21 mg/kg	0.000021 %		
24	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
25	benzo[ghi]perylene	205-883-8	191-24-2		0.15 mg/kg		0.15 mg/kg	0.000015 %		
26	phenol	604-001-00-2	203-632-7	108-95-2	<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
Total:								0.00427 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection

Classification of sample: HP9

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

Sample details

Sample Name:	LoW Code:	
<b>HP9</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.35 m</b>		
Moisture content:		
<b>4.2%</b>		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 4.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				10.8 mg/kg	1.32	14.26 mg/kg	0.00143 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				3.5 mg/kg	1.142	3.998 mg/kg	0.0004 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				73.6 mg/kg	1.462	107.571 mg/kg	0.0108 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				46 mg/kg	1.126	51.791 mg/kg	0.00518 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	118 mg/kg		118 mg/kg	0.0118 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.7 mg/kg	1.353	0.947 mg/kg	0.0000947 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				17.1 mg/kg	2.976	50.894 mg/kg	0.00509 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				120 mg/kg	2.469	296.316 mg/kg	0.0296 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				1.4 mg/kg	1.884	2.638 mg/kg	0.000264 %		
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.37 pH		6.37 pH	6.37 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.14 mg/kg		0.14 mg/kg	0.000014 %		
		201-581-5	85-01-8							
24	anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
		204-371-1	120-12-7							
25	fluoranthene				0.33 mg/kg		0.33 mg/kg	0.000033 %		
		205-912-4	206-44-0							
26	pyrene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.19 mg/kg		0.19 mg/kg	0.000019 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.22 mg/kg		0.22 mg/kg	0.000022 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.4 mg/kg		0.4 mg/kg	0.00004 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.4 mg/kg		0.4 mg/kg	0.00004 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.19 mg/kg		0.19 mg/kg	0.000019 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.24 mg/kg		0.24 mg/kg	0.000024 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.04 mg/kg		0.04 mg/kg	0.000004 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0691 %		



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 Determinand - 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: HP10

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

Sample details

Sample Name:	HP10	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	0.2 m	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)	
Moisture content:	4.3% (no correction)			

Hazard properties

None identified

Determinands

Moisture content: 4.3% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				12.6 mg/kg	1.32	16.636 mg/kg	0.00166 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				3.3 mg/kg	1.142	3.77 mg/kg	0.000377 %			
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]								
3	chromium in chromium(III) compounds { chromium(III) oxide }				68.8 mg/kg	1.462	100.555 mg/kg	0.0101 %			
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				44 mg/kg	1.126	49.539 mg/kg	0.00495 %			
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	106 mg/kg		106 mg/kg	0.0106 %			
	082-001-00-6										
7	mercury { mercury dichloride }				0.5 mg/kg	1.353	0.677 mg/kg	0.0000677 %			
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				18.3 mg/kg	2.976	54.466 mg/kg	0.00545 %			
	028-035-00-7	238-766-5	14721-18-7								
9	selenium { selenium compounds with the exception of cadmium selenoselenide and those specified elsewhere in this Annex }				1 mg/kg	2.554	2.554 mg/kg	0.000255 %			
	034-002-00-8										
10	zinc { zinc sulphate }				119 mg/kg	2.469	293.846 mg/kg	0.0294 %			
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]								
11	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 }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										





#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				67 mg/kg		67 mg/kg	0.0067 %		
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.56 pH		6.56 pH	6.56 pH		
			PH							
19	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
		201-581-5	85-01-8							
24	anthracene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
		204-371-1	120-12-7							
25	fluoranthene				0.76 mg/kg		0.76 mg/kg	0.000076 %		
		205-912-4	206-44-0							
26	pyrene				0.65 mg/kg		0.65 mg/kg	0.000065 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.46 mg/kg		0.46 mg/kg	0.000046 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.52 mg/kg		0.52 mg/kg	0.000052 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				1.07 mg/kg		1.07 mg/kg	0.000107 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				1.07 mg/kg		1.07 mg/kg	0.000107 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.45 mg/kg		0.45 mg/kg	0.000045 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.53 mg/kg		0.53 mg/kg	0.000053 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				0.11 mg/kg		0.11 mg/kg	0.000011 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.41 mg/kg		0.41 mg/kg	0.000041 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0703 %		



Key

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	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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<b>&lt;LOD</b>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

### Supplementary Hazardous Property Information

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HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: **Force this Hazardous property to non hazardous because Extremely low flammability risk.**

Classification of sample: HP11

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

Sample details

Sample Name:	LoW Code:	
<b>HP11</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
<b>0.25 m</b>		
Moisture content:		
<b>8.6%</b>		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.6% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				10.1 mg/kg	1.32	13.335 mg/kg	0.00133 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }				74.3 mg/kg	1.462	108.594 mg/kg	0.0109 %		
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				27 mg/kg	1.126	30.399 mg/kg	0.00304 %		
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	129 mg/kg		129 mg/kg	0.0129 %		
	082-001-00-6									
7	mercury { mercury dichloride }				0.4 mg/kg	1.353	0.541 mg/kg	0.0000541 %		
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				14.1 mg/kg	2.976	41.965 mg/kg	0.0042 %		
	028-035-00-7	238-766-5	14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
10	zinc { zinc sulphate }				90 mg/kg	2.469	222.237 mg/kg	0.0222 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]							
11	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 }				1.4 mg/kg	1.884	2.638 mg/kg	0.000264 %		
	006-007-00-5									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				285 mg/kg		285 mg/kg	0.0285 %		
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				8.01 pH		8.01 pH	8.01 pH		
			PH							
19	naphthalene				0.35 mg/kg		0.35 mg/kg	0.000035 %		
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				1.63 mg/kg		1.63 mg/kg	0.000163 %		
		205-917-1	208-96-8							
21	acenaphthene				0.55 mg/kg		0.55 mg/kg	0.000055 %		
		201-469-6	83-32-9							
22	fluorene				0.65 mg/kg		0.65 mg/kg	0.000065 %		
		201-695-5	86-73-7							
23	phenanthrene				6.13 mg/kg		6.13 mg/kg	0.000613 %		
		201-581-5	85-01-8							
24	anthracene				2.08 mg/kg		2.08 mg/kg	0.000208 %		
		204-371-1	120-12-7							
25	fluoranthene				14.12 mg/kg		14.12 mg/kg	0.00141 %		
		205-912-4	206-44-0							
26	pyrene				11.88 mg/kg		11.88 mg/kg	0.00119 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				8.18 mg/kg		8.18 mg/kg	0.000818 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				6.42 mg/kg		6.42 mg/kg	0.000642 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				14.37 mg/kg		14.37 mg/kg	0.00144 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				14.37 mg/kg		14.37 mg/kg	0.00144 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				7.75 mg/kg		7.75 mg/kg	0.000775 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				6.73 mg/kg		6.73 mg/kg	0.000673 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				1.25 mg/kg		1.25 mg/kg	0.000125 %		
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				4.71 mg/kg		4.71 mg/kg	0.000471 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0938 %		



Key

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	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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<b>&lt;LOD</b>	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

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### Supplementary Hazardous Property Information

HP 3(i) on Flam. Liq. 1; H224, Flam. Liq. 2; H225, Flam. Liq. 3; H226: **Force this Hazardous property to non hazardous because Extremely low flammability risk.**

Classification of sample: HP12

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

Sample details

Sample Name:	<b>HP12</b>	LoW Code:	
Sample Depth:	<b>0.3 m</b>	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	<b>5%</b> (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 5% No Moisture Correction applied (MC)





#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				11.8	mg/kg	1.32	15.58	mg/kg	0.00156 %		
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				2.2	mg/kg	1.142	2.513	mg/kg	0.000251 %		
	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]									
3	chromium in chromium(III) compounds { chromium(III) oxide }				66.6	mg/kg	1.462	97.34	mg/kg	0.00973 %		
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD
	024-001-00-0	215-607-8	1333-82-0									
5	copper { dicopper oxide; copper (I) oxide }				37	mg/kg	1.126	41.658	mg/kg	0.00417 %		
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	130	mg/kg		130	mg/kg	0.013 %		
	082-001-00-6											
7	mercury { mercury dichloride }				0.5	mg/kg	1.353	0.677	mg/kg	0.0000677 %		
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				15.7	mg/kg	2.976	46.727	mg/kg	0.00467 %		
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	034-002-00-8											
10	zinc { zinc sulphate }				114	mg/kg	2.469	281.5	mg/kg	0.0281 %		
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
11	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 }				0.7	mg/kg	1.884	1.319	mg/kg	0.000132 %		
	006-007-00-5											



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	TPH (C6 to C40) petroleum group				<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
			TPH							
13	benzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
14	toluene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-021-00-3	203-625-9	108-88-3							
15	ethylbenzene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
16	xylene				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005 mg/kg		<0.005 mg/kg	<0.000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
18	pH				6.47 pH		6.47 pH	6.47 pH		
			PH							
19	naphthalene				1.38 mg/kg		1.38 mg/kg	0.000138 %		
	601-052-00-2	202-049-5	91-20-3							
20	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		205-917-1	208-96-8							
21	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
22	fluorene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7							
23	phenanthrene				0.35 mg/kg		0.35 mg/kg	0.000035 %		
		201-581-5	85-01-8							
24	anthracene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		204-371-1	120-12-7							
25	fluoranthene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
		205-912-4	206-44-0							
26	pyrene				0.27 mg/kg		0.27 mg/kg	0.000027 %		
		204-927-3	129-00-0							
27	benzo[a]anthracene				0.19 mg/kg		0.19 mg/kg	0.000019 %		
	601-033-00-9	200-280-6	56-55-3							
28	chrysene				0.21 mg/kg		0.21 mg/kg	0.000021 %		
	601-048-00-0	205-923-4	218-01-9							
29	benzo[b]fluoranthene				0.36 mg/kg		0.36 mg/kg	0.000036 %		
	601-034-00-4	205-911-9	205-99-2							
30	benzo[k]fluoranthene				0.36 mg/kg		0.36 mg/kg	0.000036 %		
	601-036-00-5	205-916-6	207-08-9							
31	benzo[a]pyrene; benzo[def]chrysene				0.18 mg/kg		0.18 mg/kg	0.000018 %		
	601-032-00-3	200-028-5	50-32-8							
32	indeno[123-cd]pyrene				0.2 mg/kg		0.2 mg/kg	0.00002 %		
		205-893-2	193-39-5							
33	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
34	benzo[ghi]perylene				0.15 mg/kg		0.15 mg/kg	0.000015 %		
		205-883-8	191-24-2							
35	phenol				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0663 %		



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 Determinand - 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 CLP determinands

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

CLP index number: 006-007-00-5

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

Additional Risk Phrases: None.

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s)/Risk Phrase(s):

12/14/2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **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: 5/25/2015

Risk Phrases: R10 , R45 , R46 , R51/53 , R63 , R65

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)**

CLP index number: 601-023-00-4

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Risk Phrases: None.

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s)/Risk Phrase(s):

6/3/2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **pH (CAS Number: PH)**

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 5/25/2015

Risk Phrases: None.

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: 7/17/2015

Risk Phrases: R22 , R26 , R27 , R36 , R37 , R38

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: 7/17/2015

Risk Phrases: R36 , R37 , R38 , N R50/53 , N R51/53

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: 8/6/2015

Risk Phrases: N R50/53

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: 8/6/2015

Risk Phrases: R22 , R36 , R37 , R38 , R40 , R43 , N R50/53

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: 7/17/2015  
Risk Phrases: R36 , R37 , R38 , R43 , N R50/53  
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: 8/21/2015  
Risk Phrases: Xn R22 , N R50/53  
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: 8/21/2015  
Risk Phrases: Xi R36/37/38 , N R50/53  
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: 8/6/2015  
Risk Phrases: R40  
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: 7/23/2015  
Risk Phrases: N R50/53  
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Conversion factor: 1.462  
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: 7/17/2015  
Risk Phrases: R20 , R22 , R36 , R37 , R38 , R42 , R43 , R50/53 , R60 , R61  
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

• **dicopper oxide; copper (I) oxide** (EC Number: 215-270-7, CAS Number: 1317-39-1)

CLP index number: 029-002-00-X  
Data source: Regulation (EU) 2016/1179 of 19 July 2016 (ATP9)  
Additional Risk Phrases: N R50/53 , N R50/53 >= 0.25 %  
Additional Hazard Statement(s): None.  
Reason for additional Hazards Statement(s)/Risk Phrase(s):  
10/10/2016 - N R50/53 risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases  
10/10/2016 - N R50/53 >= 0.25 % risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

• **lead compounds with the exception of those specified elsewhere in this Annex**

CLP index number: 082-001-00-6  
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)  
Additional Risk Phrases: None.  
Additional Hazard Statement(s): Carc. 2 H351  
Reason for additional Hazards Statement(s)/Risk Phrase(s):  
6/3/2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium  
[www.reach-lead.eu/substanceinformation.html](http://www.reach-lead.eu/substanceinformation.html). Review date 29/09/2015

## 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.

### chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments.

### nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight.

### selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

### zinc {zinc sulphate}

Cr(VI) not detected above laboratory limit of detection. Worst case compound Zinc Chromate can be discounted. Zinc sulphate selected as most likely species.

### 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]

### 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. 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.

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

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

### 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. Worst case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

### lead {lead compounds with the exception of those specified elsewhere in this Annex}

Cr(VI) was not detected above the laboratory detection limit. Worst case compound Lead Chromate can be discounted.

### mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

## Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition, May 2015

HazWasteOnline Classification Engine Version: 2017.209.3365.6791 (28 Jul 2017)

HazWasteOnline Database: 2017.209.3365.6791 (28 Jul 2017)



This classification utilises the following guidance and legislation:

- WM3 - Waste Classification** - May 2015
- 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 Wastes 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
- POPs Regulation 2004** - Regulation 850/2004/EC of 29 April 2004
- 1st ATP to POPs Regulation** - Regulation 756/2010/EU of 24 August 2010
- 2nd ATP to POPs Regulation** - Regulation 757/2010/EU of 24 August 2010