EARTH ENVIRONMENTAL
& GEOTECHNICAL

Phase II GeoEnvironmental Investigation

Claremont Road

Manchester

January 2022

On behalf of

RS Drylining MCR

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PHASE II GEOENVIRONMENTAL INVESTIGATION

CLAREMEONT ROAD

MANCHESTER

Report Ref: A2212/19/B.0/V2

JANUARY 2022

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GEOENVIRONMENTAL INVESTIGATION

CLAREMONT ROAD, MANCHESTER

Report Reference: A2211/19

Version B.0

Date: 15th January 2022

Prepared for: RS Drylining MCR

Prepared by: Earth Environmental & Geotechnical Ltd
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Definition of Version Code:
D. Applied during initial drafting of the report before it has been reviewed.
C. Applied after the report has been reviewed but before it has been approved by the Project Manager.
B. Applied after the Project Manager has approved the report ready for issue to the client.
A. Applied to reports after external/internal review.

The version number starts at "0" and is raised by "1" at each re-type.

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1.0 INTRODUCTION

1.1 Background

A Geo-Environmental Site Investigation has been commissioned by RS Drylining MCR to examine ground conditions and retrieve soil samples for chemical and geotechnical testing, for the proposed housing development on Claremont Road, Manchester.

This report is required to support a planning application to Manchester City Council (Ref: 120891/FO/2018).

1.2 Previous Investigations

1.2.1 Earth Environmental & Geotechnical Ltd Phase I Desk Study A2212/17, dated September 2017)

The desk study highlighted that, historically, the site was occupied by residential houses and gardens from the mid-1800s. Later developments on-site included the demolition of the residential housing followed by the construction of several other structures including a public house in the northern part of the site (1930s), and a works in the centre of the site (1950s).

The works and public house were later demolished in the 1980s and early 2000s respectively. The site is currently vacant and has most recently been used as a storage yard.

Over the study period the surrounding area appears to have comprised predominantly residential developments, with occasional small scale industrial and commercial developments.

It was considered possible that potentially contaminated made ground may be present beneath the site, associated with the former on-site structures. However, the risk to end users from potential soil and groundwater contamination on the site was concluded to be **LOW**. Similarly, the risk from ground gas was also considered **LOW**.

An intrusive investigation was recommended to establish geotechnical parameters for proposed development and to provide a contamination assessment of the site to confirm whether or not there are any potential risks.

1.3 Terms of Reference

Earth Environmental and Geotechnical Ltd (EEG) was commissioned by the Client to undertake a Geo-Environmental Investigation of the site in accordance with a proposal A2212/18 dated 26th November 2018.

The objectives of this investigation are as follows:

- *Assess the presence and likely extent of any potential environmental hazards (soil contamination) associated within the areas of the site investigated.*
- *Assess the ground conditions for design of foundations.*
- *Classify the soils for offsite disposal purposes.*

The investigation is required to support a planning application for the site.

1.4 Limitations of the Study

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

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

2.0 SITE LOCATION & DESCRIPTION

The site is located at the junction of Claremont Road (north) and Victory Street (west) and currently comprises a vacant, completely hard surfaced, storage yard, which is absent of any buildings or permanent structures. The surfacing appears to be in poor condition is places, with emerging vegetation.

The site is accessed from Victory Street, via a gate and is generally used for storage of miscellaneous materials including wooden pallets, cabins, a caravan and other discarded/disused items.

The approximate National Grid Reference for the centre of the site is SJ 85087 95107 (X: 385087 Y: 395107) with the closest postcode being M14 5AB. The site is approximately rectangular in shape with maximum dimensions of 50m north-south and 20m east-west and occupies an area of approximately 0.10ha. The topography of the site appears flat and level.

Two inspection chambers are present on-site, presumed to be drainage. No other services have been observed on-site, although water and gas covers are present in the pavement of Claremont Road and Victory Street and may enter the site.

The site is bound by a combination of brick walls and palisade fencing, and the surrounding area comprises predominantly residential housing with a recreational park to the west. Mature trees are present at the eastern boundary, and in the park to the west, approximately 5m to 12m in height.

The site location is shown in Figure 1, below.

Figure 1 Site Location Plan

Site photographs are presented in Figures 2 to 6 below.

Figure 2 Overview of site, looking N

Figure 3 View of the site entrance from Victory Street, looking SE

Figure 4 Drilling rig in position WS1

Figure 5 Soils encountered in WS1

Figure 6 Oily sheen on water surface in WS4

2.2 Proposed Development

It is understood that the client intends to construct 7no. residential dwellings.

Figure 7, below, shows extracts from the proposed development plans.

Figure 7 Development Layout Plans

3.0 SITE INVESTIGATION

3.1 Exploratory Fieldwork

The fieldwork was carried out by EEG on the 20th November 2018 and comprised:

- Five window sample boreholes (designated WS1 to WS5 inclusive) were each sunk to depths of between 3.0m and 3.8m below existing ground level. Window sampler boring is carried out with a small, track-mounted rig, which uses a chain-driven trip hammer to drive sampling tubes or penetrometers into the ground. These tools are coupled to the anvil of the hammer by solid drill rods. Sampling tubes comprise “windowless samplers”, which are plain sampler tubes in which a continuous disturbed sample is recovered within a semi-rigid plastic liner. In order to reduce friction within the borehole, sampling tubes of progressively smaller diameter are used as the borehole depth increases. Sampler diameters generally range from between approximately 90mm to 50mm. Standard Penetration Tests (SPTs) were undertaken in the boreholes in accordance with accordance with BS EN ISO 22476-3.

The fieldwork was carried out in accordance with BS5930:2015 Code of Practice for Site Investigations, Eurocode 7, unless otherwise stated.

The exploratory hole locations were determined on site by EEG based on the proposed development plan and to target potential sources of contamination identified in the Phase I Desk Study report (Reference A2212, dated September 2017) and are shown on the Exploratory Hole Location Plan (Figure 8) overleaf.

Exploratory Hole logs are included in Appendix 1.

Figure 8 Exploratory Hole Location Plan (Based on Proposed Layout)

Each exploratory location was scanned using a Cable Avoidance Tool (CAT) in order to locate unrecorded underground services, and the exploratory locations were repositioned if necessary.

On completion, all samples recovered from the site were taken to a specialist laboratory for testing.

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

All locations and elevations were surveyed by use of a hand-held Trimble GPS with antennae, capable of achieving an accuracy of less than 10cm, depending on the prevailing satellite coverage and obscuring by trees and structures.

A summary of exploratory holes undertaken during the investigation is presented in Table 1, below.

Table 1: Summary of Exploratory Holes Undertaken

Hole	Type	Depth (m)	Date Started	Date Finished	Backfill Details
WS1	WS	3.50*	20/12/2018	20/12/2018	A
WS2	WS	3.80*	20/12/2018	20/12/2018	A
WS3	WS	3.80*	20/12/2018	20/12/2018	A
WS4	WS	3.00*	20/12/2018	20/12/2018	A
WS5	WS	3.00*	20/12/2018	20/12/2018	A
WS=Window Sample Borehole, A=Arisings *Borehole refused. Proposed drilling depth = 6.00m					

3.2 Laboratory Testing Programme

3.2.1 *Geotechnical Testing*

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

TEST	STANDARD (BS1377:1990)	No.
Liquid Limit, Plastic Limit, Plasticity Index	Part 2, Clause 4 / 5	4
Particle Size Distribution	Part 2, Clause 9	2
Single Stage Triaxial Testing	Part 7, Clause 9	3
Sulphate content of 2:1 soil: water extract	Part 3,	4
pH value	Part 3,	4

The results of the laboratory geotechnical tests are discussed in Section 5 and included in Appendix 3.

3.2.2 *Environmental Testing*

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

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

Asbestos Screen, Arsenic, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Thiocyanate, Phenol, Sulphate (SO_4), Sulphide, pH, Sulphur, Soil Organic Matter and speciated Polyaromatic Hydrocarbons (PAH) and speciated Total Petroleum Hydrocarbons (TPH).

The results of the laboratory contamination tests are discussed in Section 7 and included in Appendix 2.

4.0 GROUND CONDITIONS ENCOUNTERED

4.1 Soil Profile Encountered

The BGS mapping for the area indicates the site to be underlain by superficial deposits of Devensian Till (Diamict) and solid geology of the Chester Pebble Beds.

The sequence of strata encountered beneath the site was:

- **Asphalt**
- **Made Ground –** variable material encountered in each of the boreholes to a maximum depth of 2.20m bgl (WS1). Typically comprising:
  - Predominantly dark brown/black sandy gravelly clay containing variable proportions of brick, concrete, sandstone, mudstone, wood, tile, coal and clinker fragments. (With relict building materials in WS1).
  - Grey clayey sandy gravel containing variable proportions of brick, concrete, mudstone, coal and clinker fragments.
- **Devensian Till –**
  - Stiff becoming very stiff, brown, silty, slightly sandy, slightly gravelly clay with occasional silty sand bands. The material was noted to become sandier with depth.

The depths of the various materials encountered in each of the exploratory holes are summarised in Table 2 overleaf.

Table 2: Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m)				GROUND WATER (m bgl)
	Asphalt	Made Ground		DEVENSIAN TILL	
		Gravelly CLAY	Clayey GRAVEL	Silty Sandy Gravelly CLAY	
WS1	GL-0.05	0.05-1.30	1.30-2.20	2.20-3.50	-
WS2	GL-0.05	0.60-1.00	0.05-0.60	1.00-3.80	-
WS3	GL-0.05	0.40-0.80	0.05-0.40	0.80-3.80	-
WS4	GL-0.05	0.05-1.00	-	1.00-3.00	0.40*
WS5	GL-0.05	-	0.05-1.40	1.40-3.00	0.40*
*Perched water.					

4.2 Observable Indications of Contamination

The made ground was observed to contain coal and clinker fragments.

A moderate hydrocarbon odour was detected within the made ground soils encountered in WS4. Significant perched water ingress also occurred in WS4 and an oily sheen was visible on the water surface (refer to Figure 6).

Inclusions of concrete, brick, slate, wood and tile were also noted within the made ground encountered at the site. These particular inclusions are considered generally inert and unlikely to present a risk of contamination.

No other visual or olfactory evidence of contamination was observed.

4.3 Obstructions

Intact brick cobbles were recovered between 1.30m and 2.20m bgl in WS1. Based on the location of this borehole, this material is inferred to be relict building materials used to backfill the former cellar of the public house.

4.4 Groundwater

Perched groundwater was encountered in the made ground of WS4 and WS5 at 0.40m bgl.

5.0 ENGINEERING PROPERTIES OF SOILS ENCOUNTERED

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

5.1 Made Ground

Variable Made Ground was encountered across the site to depths of between 0.80m and 2.20m bgl. Made Ground is not typically considered to be a suitable founding material, and as such, no geotechnical testing was carried out on the material.

Standard Penetration Tests (SPTs) carried out in the Made Ground resulted in **SPT N values** between 10 and 27, as shown on the SPT vs Depth Plot overleaf (Figure 9).

Sulphate content and pH value determination tests were carried out on seven samples of the Made Ground by the chemical laboratory. The **water-soluble sulphate** content of the samples ranged between <32 mg/l SO_4 to 1350 mg/l SO_4 with **pH values** of 7.6 to 8.3.

5.2 Devensian Till

The Till was encountered beneath the Made Ground across the site as a stiff becoming very stiff, Silty, Sandy, Gravelly Clay, with occasional sand bands. The material is referred to as Clay in subsequent sections.

5.2.1 Clay

Two Particle Size Distribution Test was carried out on samples of the Clay at 2.7m and 3.5m bgl, and the lab described the material at 2.7m as stiff, brown, silty, sandy clay with gravel. The clay at 3.5m was described as stiff, brown, silty, very sandy clay with gravel.

SPT tests carried out in the Clay resulted in **SPT N value**s of between 11 and 50, as shown on the SPT vs Depth Plot overleaf (Figure 9). The SPT plot shows a clear sharp increase in shear strength with depth.

In situ hand vane (HV) tests were also carried out on the recovered soils, together with undrained shear strength triaxial compression tests at the geotechnical laboratory.

The results of the HV tests range between 24kPa to 140kPa (maximum reading of the hand shear vane). Figure 10, presented on page 16, shows the results of the HV tests plotted alongside equivalent shear strength values derived from SPT N values, based on correlations by Stroud and Butler [(1975)], together with laboratory derived undrained shear strength values.

There appears to be a good correlation between the results obtained from each method of testing.

Figure 9 SPT vs Depth Plot

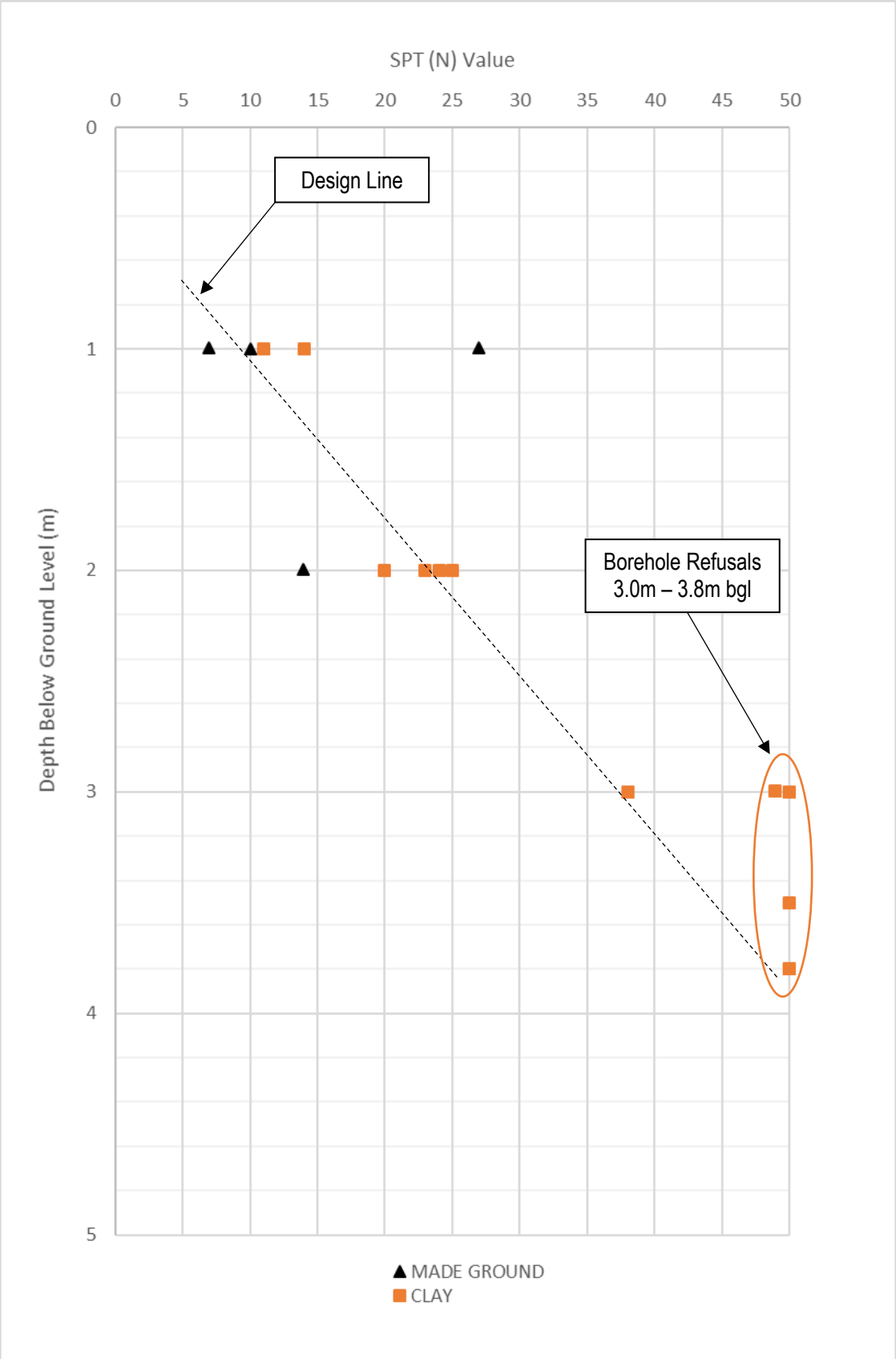
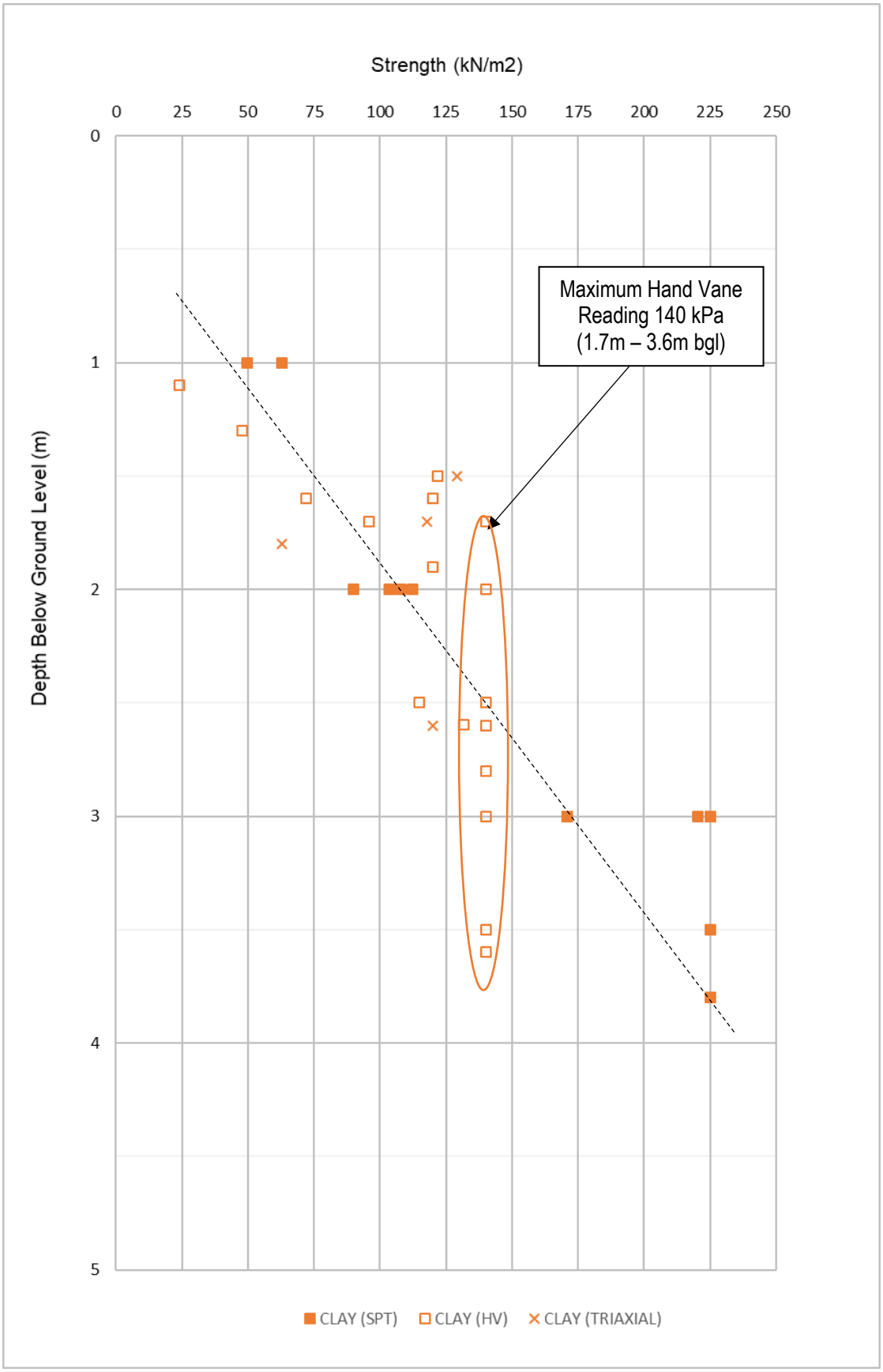


Figure 10 Strength vs Depth Plot

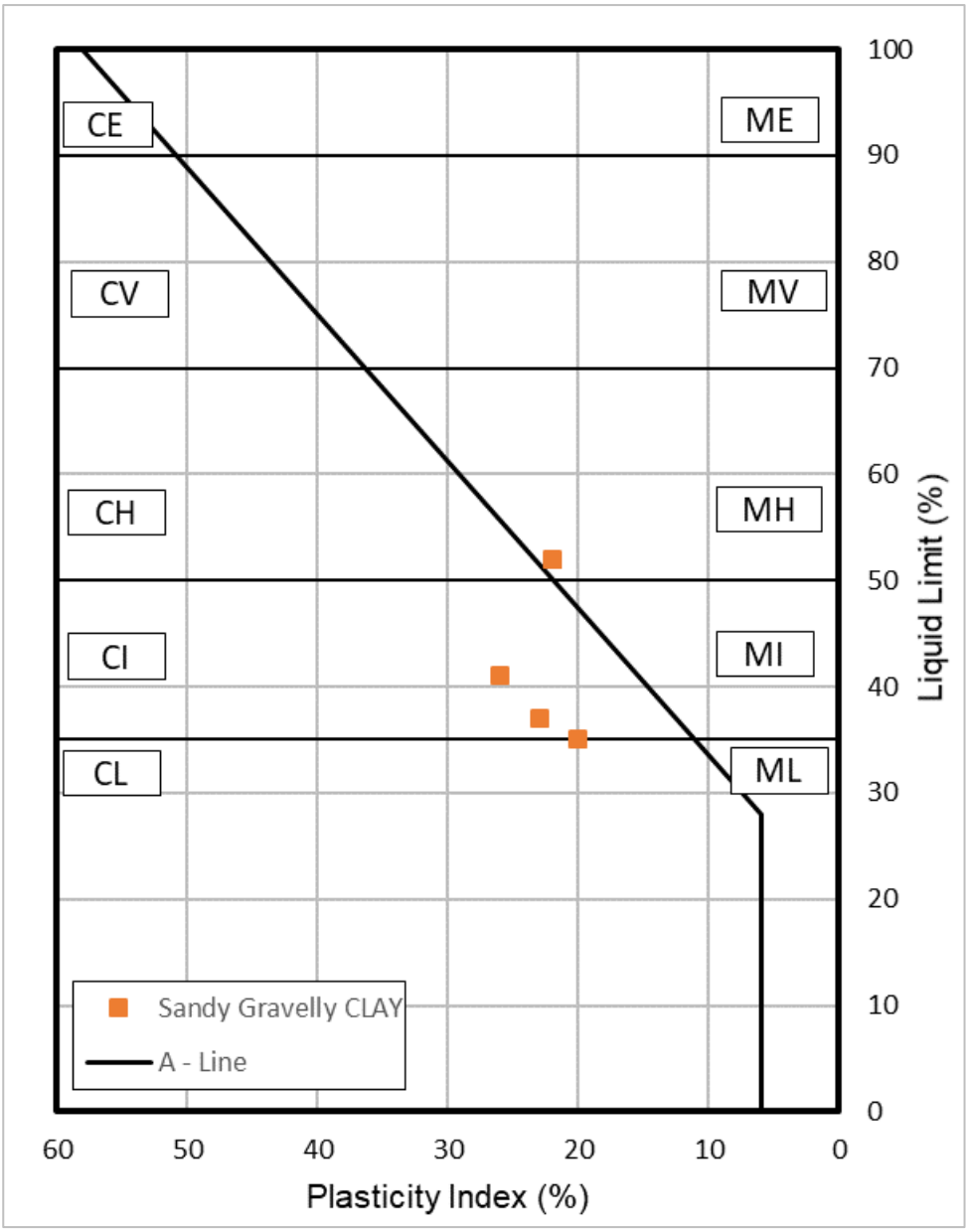


Atterberg Limit tests were carried out on four samples of the Clay. Results of the tests reported **liquid limit** values of between 35% and 52%, and **plastic limit** values of between 15% and 30%, resulting in **plasticity index** values of 20% to 26%. These results suggest the Clay is of **intermediate to high plasticity**.

It should be noted that the sample displaying **high plasticity** properties was retrieved from WS2 at 1.2m bgl, and was described by the lab as a clayey sandy silt.

Results are shown on the Plasticity Chart below. Full test results are included in Appendix 3.

Figure 11 Plasticity Chart



For design purposes, a value of plasticity index = 23% is recommended, based on the average of the results.

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

$$Ip' = Ip \times \frac{\text{\% less than 425µm}}{100\%}$$

Ip' = modified plasticity index
Ip = plasticity index.

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

The **Natural Moisture Content** (NMC) and **Liquid Limit** (LL) of the soil can be used to give an indication of **soil desiccation**, i.e. where the NMC is less than 40% of the LL, the soil is inferred to be desiccated, as summarised in Table 3 below.

Table 3: Soil Desiccation Indicators in the Clay

Location	Depth (m)	Liquid Limit (%)	40% Liquid Limit (%)	Natural Moisture Content (%)	Desiccation
WS1	2.7	37	14.8	18	No
WS2	1.2	52	20.8	43	No
WS3	1.8	35	14	19	No
WS5	1.7	41	16.4	20	No

The results in the above table show that none of the soils tested present evidence of desiccation.

Results of the SPT, HV and triaxial compression tests in the Clay are summarised in the table below.

Table 4: Summary of Design Parameters (Clay)

Depth	SPT N Value Range	Design N Value*	Equivalent Shear Strength** (kN/m²)	Average Hand Vane Shear Strength (kN/m²)	Laboratory Undrained Shear Strength (kN/m²)	Coefficient of Volume Compressibility**
1.0	11-14	11	50	66	63	0.20
2.0	14-25	20	90	124	118-129	0.11
3.0	38-50	38	171	140	120	0.06

*Based on lower quartile of SPT N value
**Based on correlation by Stroud & Butler (1975)

Based on Figure 10 and the table above, there appears to be a good correlation between the shear strength values derived from each method of testing, although in the interest of safety, it would be prudent to apply the more conservative values of 50kN/m^2 (medium strength) at 1.0m and 90kN/m^2 (high strength) at 2.0m in the design of foundations.

The coefficient of volume compressibility (mv) has been estimated using the following correlation by Stroud and Butler [1975]: for a clay with a plasticity index of 23%, mv = 1 / (450 x N value).

Sulphate content and pH value determinations were carried out by the geotechnical laboratory on four samples of the Clay. Values of **water-soluble sulphate** ranged from 210mg/l SO_4 to 360mg/l SO_4, with **pH values** ranging from 6.9 to 7.2.

6.0 GEOTECHNICAL ASSESSMENT

6.1 Proposed Development

It is understood that the client intends to construct seven residential houses with associated driveways and gardens.

Detailed information regarding structural loadings and proposed foundation type was not available, however, we anticipate the loadings to be typical of a two-storey house (50kN/m^2 to 75kN/m^2).

6.2 Ground Conditions

The exploratory holes generally encountered Made Ground over stiff natural Clay containing occasional sandy bands.

The Made Ground extended to 2.20m bgl in the north of the site (WS1); in the area of the former public house (presumed cellar backfill material). Elsewhere, the Made Ground was 0.80m to 1.40m deep. Soft silty clay with high plasticity was also encountered between 1.00 and 1.40m bgl in WS2.

Groundwater seepages were encountered during the fieldwork within the Made Ground soils at 0.40m bgl. Groundwater strikes in the natural Clay were not encountered.

6.3 Foundation Considerations

Conventional shallow strip foundations are considered suitable for the site, bearing into the natural stiff Clay and are considered in Section 6.3.1, overleaf.

It should, however, be noted that Made Ground may extend deeper than recorded in the area of the former Public House in the north of the site (2.20m bgl WS1), and an alternative foundation solution may be required in this part of the site.

For clays of medium volume change potential, the NHBC recommended a minimum foundation depth of 0.90m below the lowest of the existing or finished ground level.

The natural clay soils are susceptible to volume change due to the influence of trees although no evidence of desiccation has been encountered. Mature trees (mixed species) are present along the eastern boundary of the site (offsite) and will remain in situ.

The proposed development will be within influencing distance of the trees that border the site. In accordance with NHBC Chapter 4.2 (2016) guidance, the foundations may therefore need to be extended to depths of greater than 2.50m bgl depending on tree species and proximity.

Based on the proposed development layout provided, the new structures will be within 10m to 12m of the boundary trees. Within this proximity, foundations may be required to be 2.0m to 2.5m deep, dependent on species.

On that basis, it is unlikely that foundation depths will need to be extended beyond 2.5m based on tree influence, and therefore specialist foundation design (piles) are not thought to be required. It is recommended that a tree survey is carried out to identify the species present in order to accurately determine suitable foundation depth.

6.3.1 *Shallow Strip Foundations*

The following table summarises anticipated allowable bearing pressures for strip foundations placed at different depths in the natural Clays at founding level. The bearing capacities are calculated based on Hansen's (1978) method and assuming a factor of safety against bearing capacity failure of 3. For the purpose of the calculation, groundwater has been assumed to be at 3.0m bgl.

Table 5: Summary of Allowable Bearing Pressures for Strip Foundations

Foundation Depth	Strata	Design Value (Section 6)	Strip Foundation Width	Allowable Bearing Pressure
1.0m	CLAY	c_u = 50kN/m^2	0.60m	177kN/m^2
			0.75m	181kN/m^2
			0.90m	185kN/m^2
1.5m		c_u = 70kN/m^2	0.60m	301kN/m^2
			0.75m	305kN/m^2
			0.90m	310kN/m^2
2.0m		c_u = 90kN/ m^2	0.60m	474kN/m^2
			0.75m	480kN/m^2
			0.90m	486kN/m^2
2.5m		c_u = 120kN/ m^2	0.60m	777kN/m^2
			0.75m	783kN/m^2
			0.90m	787kN/m^2

Assuming materials beneath foundations are homogeneous over the depth of influence of the foundation for a loading of 50kN/m^2, settlement of the order of around 5-6mm is anticipated for 0.60m wide strip foundations placed in the natural Clay.

Settlements for other bearing pressures may be estimated on a pro-rata basis but bearing pressures should not exceed the allowable net bearing pressure based on ultimate bearing capacity.

Foundations should be designed in accordance with NHBC Chapter 4.2, where constructed within the zone of influence of any trees. In this context soils beneath the site should be considered as having medium volume change potential.

If any Made Ground, particularly loose or soft material is encountered at foundation level this should be excavated and replaced with suitable granular fill or the foundation extended to suitable strata. Floor slabs may be designed as ground bearing where Made Ground is excavated and replaced with suitable granular fill.

All foundation excavations should be inspected by a suitable qualified engineer to prove that the founding strata is suitable and uniform along the length of the foundation, and capable of taking the anticipated structural loadings.

6.4 Ground Floor Slabs

Floor slabs should be designed as suspended with a subfloor void appropriate to medium volume change potential where located within the zone of influence of a tree or if Made Ground of 600mm thickness or greater is present.

6.5 Pavement Design

The ground investigation identified the soil type at subgrade level to typically be Made Ground. Based on the recommendations for design CBR values provided in Interim advice note 73/06, Revision 1 (2009), a conservative design CBR value of 1% should be adopted in areas where Made Ground is encountered at subgrade level.

It is recommended that in-situ CBR testing is carried out in areas of proposed road pavement in order to determine a suitable design value.

Once formation level for the new road pavements has been achieved, formation excavations should be examined by a suitably experienced engineer or inspector to check for soft or unsuitable material, which should be removed and replaced with compacted granular fill. Also, to ensure good compaction and remove unevenness, the formation should be compacted with equipment suitable for use in the ground conditions encountered. Careful inspection of this work will also help identify any soft spots at or just below formation level.

Exposed subgrades are likely to deteriorate rapidly on exposure to wet weather and should be shaped to shed water. Subbase should be placed as soon as possible to minimise the exposure of subgrade to adverse weather conditions.

6.6 Chemical Attack on Buried Concrete

Water soluble sulphate content and pH value determinations were carried out by both the geotechnical and chemical laboratories.

Based on the assumption of mobile groundwater, the results have been compared to current guidance provided within BRE Special Digest 1 'Concrete in Aggressive Ground' (2005) and the recommended classification for the strata encountered is summarised in the table below:

Table 6: Summary of Concrete Classification for Encountered Soils

Soil Type	Sulphate Content Range (mg/l)	Characteristic Sulphate Content (mg/l)	pH Content Range	Characteristic pH Value	Design Sulphate Class	Aggressive Chemical Environment for Concrete
Made Ground	32-1350	1250	7.6-8.3	7.6	DS-2	AC-2
Devensian Till (Clay)	210-360	360	6.9-7.2	6.9	DS-1	AC-1

The above table is based on characteristic values derived from the water-soluble sulphate content (2:1 water/soil extract).

The above classifications should be applied to concrete foundations and ground bearing floor slabs.

6.7 Suitability of Excavated Materials

Acceptability criteria and testing, and methods of compaction/placement will depend on the type of contract and specification used for the construction of the proposed development and it is recommended that earthworks specifications are reviewed by a suitably qualified engineer, once these have been prepared by the relevant parties.

Demolition rubble may be re-used as structural fill, providing it is not contaminated and subject to processing (breaking down etc.). Granular Made Ground could be suitable as structural fill providing it is not contaminated and doesn't have excessive amounts of clay.

6.8 Temporary Works

Formations in the Made Ground and natural Clay will be susceptible to damage both by weather and trafficking, and should be protected immediately on exposure, particularly in areas where construction plant will access the site.

Excavations in Made Ground are likely to be unstable and should be battered back to an angle of 1 in 2, or a system of close sheeting and shoring adopted to ensure stability, and in particular where personnel are required to enter excavations. All excavations should be adequately supported where personnel are required to enter.

Groundwater seepages could be encountered near surface within excavations, particularly during the wetter months of the year. Pumping of excavations from a suitable located sump is likely to be required to keep excavations dry.

All natural materials on site should capable of being excavated using conventional excavating machinery.

7.0 SOIL CONTAMINATION RISK ASSESSMENT

7.1 Tier I Human Health Soil Risk Assessment – Groundworkers During Development

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

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

Table 7: Summary of Guideline Values for Protection of Workers and the General Public During Development of Contaminated Land

Contaminant	Typical Values* for:					Test Results	Class
	Uncontaminated Soils	Slight Contamination	Contaminated	Heavy Contamination	Unusually Heavy Contamination		
	Class A	Class B	Class C	Class D	Class E		
pH (alkaline)	7 - 8	8 - 9	9 - 10	10 - 12	12	7.6-8.3	A-B
Arsenic	0 - 30	30 - 50	50 - 100	100 - 500	500	8-18	A
Cadmium	0 - 1	1 - 3	3 - 10	10 - 50	50	< 0.2-1.6	A-B
Chromium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	11-19	A
Copper	0 - 100	100 - 200	200 - 500	500 - 2500	2500	24-195	A-B
Lead	0 - 500	500 - 1000	1000 - 2000	2000 – 1%	1.0%	53-323	A
Mercury	0 - 1	1 - 3	3 - 10	10 - 50	50	< 1	A
Nickel	0 - 20	20 - 50	50 - 200	200 - 1000	1000	11-26	A-B
Zinc	0 - 250	250 - 500	500 - 1000	1000 - 5000	5000	49-507	A-C
Boron	0 - 2	2 - 5	5 - 50	50 - 250	250	< 1	A
Beryllium	0 - 5	5 - 10	10 - 20	20 - 50	50	0.6-1	A
Vanadium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	19-33	A
Sulphate	0 - 2000	2000 - 5000	5000 – 1%	1% - 5%	5.05%	372-3.99%	A-D
Sulphide	0 - 10	10 - 20	20 - 100	100 - 500	500	< 5	A
Cyanide (free)	0 - 1	1 - 5	5 - 50	50 - 100	100	< 2	A
Phenol	0 - 2	2 - 5	5 - 50	50 - 250	250	< 2	A

Based on the above results the soils are generally classified as a combination of non-contaminated and slightly contaminated.

However, due to a high concentration of Zinc in the made ground in WS2, the material is classified as contaminated. Similarly, due to elevated sulphate concentrations in the made ground in WS1, the material is classified as heavily contaminated.

The overall potential risk from soil contamination to construction workers, ground workers and members of the public during construction is therefore considered **MODERATE**.

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

The following sections provide a Human Health Soil Assessment for groundworkers during development and future residential end users together with an assessment of the risk to flora (plants) in soft landscapes areas.

At a Tier I stage the long term (chronic) human health toxicity of the soil has been assessed with reference to DEFRA/Environment Agency Contaminated Land Exposure Assessment (CLEA) Soil Guideline Values (SGV) for generic site land uses, soils and exposure. Where Environment Agency generic guidance is absent, reference has been made to the Chartered Institute of Environmental Health (CIEH) S4ULs for human health risk assessment.

In the case of arsenic, cadmium, hexavalent chromium, lead and benzo(a)pyrene DEFRA Category 4 Screening Levels (C4SL) have been adopted.

A conservative Soil Organic Matter (SOM) of 1% has been adopted for organic chemicals for the purposes of the initial assessment. A SOM of 6% has been adopted for inorganic chemicals as detailed in 'The LQM / CIEH S4ULS for human health assessment', (2015).

The soil chemical testing results are presented in Appendix 2 and summarised in Table 8, below.

Table 8: Assessment of Soil Chemical Data

Parameter	WS1 0.30m MG	WS1 1.00m MG	WS2 0.60m MG	WS3 0.60m MG	WS4 0.40m MG	WS4 0.90m MG	WS5 0.50m MG	Assessment Criteria (mg/kg)
Arsenic	14	12	11	8	18	13	15	37
Boron	< 1	< 1	< 1	< 1	< 1	< 1	< 1	290
Beryllium	0.6	1	0.9	0.7	1	0.9	0.6	1.7
Cadmium	1.4	0.2	0.3	< 0.2	1.6	0.7	0.5	11
Chromium	11	19	14	17	19	17	15	910
Free Cyanide	< 2	< 2	< 2	< 2	< 2	< 2	< 2	41
Hexavalent Chromium	< 2	< 2	< 2	< 2	< 2	< 2	< 2	21
Copper	195	30	91	24	51	39	34	2400
Lead	323	127	97	53	209	268	218	200
Mercury	< 1	< 1	< 1	< 1	< 1	< 1	< 1	40
Nickel	11	20	17	13	26	19	22	180
Selenium	< 3	< 3	< 3	< 3	< 3	< 3	< 3	250
Vanadium	21	25	22	22	33	27	19	410
Zinc	175	55	507	49	471	272	138	3700
pH	7.6	8.3	7.9	7.8	7.8	7.6	7.8	N/A
Naphthalene	< 0.1	5.02	0.13	< 0.1	0.2	< 0.1	< 0.1	2.3
Acenaphthylene	< 0.1	0.21	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	170
Acenaphthene	< 0.1	< 0.1	0.15	< 0.1	< 0.1	< 0.1	< 0.1	210
Fluorene	< 0.1	0.16	0.16	< 0.1	< 0.1	< 0.1	< 0.1	170
Phenanthrene	0.49	1.54	0.81	0.56	0.31	0.14	0.19	95
Anthracene	0.17	1.52	0.3	0.15	< 0.1	< 0.1	< 0.1	2400
Fluoranthene	1.28	0.89	1.35	0.74	0.53	0.31	0.42	280

Parameter	WS1 0.30m MG	WS1 1.00m MG	WS2 0.60m MG	WS3 0.60m MG	WS4 0.40m MG	WS4 0.90m MG	WS5 0.50m MG	Assessment Criteria (mg/kg)
Pyrene	1.36	0.87	1.37	0.71	0.55	0.31	0.41	620
Benzo(a)anthracene	0.66	0.9	0.64	0.51	0.4	0.32	0.35	7.2
Chrysene	0.72	2.08	0.46	0.26	0.2	< 0.1	< 0.1	15
Benzo(b)fluoranthene	0.73	1.58	0.72	0.51	0.46	0.31	0.33	2.6
Benzo(k)fluoranthene	0.13	1.37	0.15	< 0.1	< 0.1	< 0.1	< 0.1	77
Benzo(a)pyrene	0.4	4.79	0.45	0.32	0.24	0.14	0.16	5.0
Indeno(1,2,3-cd)pyrene	0.5	1.76	0.51	0.45	0.42	0.38	0.37	27
Di-benz(a,h)anthracene	**0.34**	**0.55**	**0.33**	**0.32**	**0.31**	< 0.1	< 0.1	0.24
Benzo(ghi)perylene	< 0.1	2.6	0.32	0.29	0.28	0.22	0.2	320
Phenol	< 2	< 2	< 2	< 2	< 2	< 2	< 2	280
Benzene	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	87
Toluene	< 0.005	0.010	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	130
Ethylbenzene	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	47
Xylene	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	60
Aliphatic >C5 - C6	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	78
Aliphatic >C6 - C8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	230
Aliphatic >C8 - C10	< 2	< 2	< 2	< 2	< 2	< 2	< 2	65
Aliphatic >C10 - C12	< 2	< 2	< 2	< 2	< 2	< 2	< 2	330
Aliphatic >C12 - C16	< 3	< 3	< 3	< 3	< 3	< 3	< 3	2400
Aliphatic >C16 - C21	22	< 3	< 3	< 3	9	< 3	11	92000
Aliphatic >C21 - C34	1172	54	39	77	294	48	162	92000
Aromatic >C5 - C7	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	140
Aromatic >C7 - C8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	290
Aromatic >C8 - C10	< 2	< 2	< 2	< 2	< 2	< 2	< 2	83
Aromatic >C10 - C12	< 2	< 2	< 2	< 2	< 2	< 2	< 2	180
Aromatic >C12 - C16	3	< 2	5	3	2	< 2	< 2	330
Aromatic >C16 - C21	42	5	33	12	21	12	6	540
Aromatic >C21 - C35	1478	97	149	209	241	132	189	1500
Asbestos	**D**	ND	ND	ND	**D**	ND	ND	-

Notes for Table 8
Concentrations in **red** above assessment criteria
ND = Not Detected, **D** = Detected

Based on the results of the chemical testing, each of the samples tested contained concentrations of contaminants in exceedance of screening criteria relevant to residential end use with plant uptake.

Lead was in exceedance in WS1, WS4 and WS5, Naphthalene was in exceedance in WS1 and Di-benz(a,h)anthracene was in exceedance in WS1, WS2, WS3 and WS4.

The samples from WS1,WS3 and WS5 are beneath plots and therefore do not pose a risk. Samples from WS2 and WS4 are within garden areas and remedial measures are required within these areas.

Asbestos was detected in WS1 at 0.30m as microscopic loose fibres of Chrysotile and in WS4 at 0.40m as a Chrysotile fibre bundle. The asbestos has been quantified by the chemical laboratory as 0.055 % in WS1 and <0.001% in WS4.

7.3 Soil Waste Assessment

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

The results are summarised in the table below and presented in full in Appendix 4.

Table 9: Waste Classification of Soils

Location	Depth (m bgl)	HazWaste Classification
WS1	0.30	**Hazardous**
WS1	1.00	Non-Hazardous
WS2	0.60	Non-Hazardous
WS3	0.60	Non-Hazardous
WS4	0.40	Non-Hazardous
WS4	0.90	Non-Hazardous
WS5	0.50	Non-Hazardous

As shown above, with the exception of the Made Ground at 0.30m in WS1, the soils have been classified as Non-Hazardous in accordance with Environment Agency guidance WM3.

Waste Acceptance Criteria testing would be required to determine whether the Non-Hazardous samples could be classified as Inert, however, this was outside the scope of this investigation.

8.0 REVIEW OF CONCEPTUAL MODEL

A Revised Conceptual Model has been prepared for the site and is presented as Table 12, overleaf. The Revised Conceptual Model reviews the Preliminary Conceptual Model (PCM) presented as Table 3 in Section 6.0 of EEG Phase 1 GeoEnvironmental Investigation report (Reference: A2212/17, dated September 2017) using the information obtained during this site investigation and considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 10 and Table 11 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and CLR11.

Table 12 considers whether a pollution linkage is present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.

The Revised Conceptual Model is based on a proposed residential end use.

Table 10: Consequence, Probability and Risk

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

Table 11: Estimation of Level of Risk

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

8.1 Sources of Contamination

The Phase I Desk Study report for the site outlined the potential for the presence of soil contamination associated with:

- Works and Public House on-site
- Made Ground and asbestos containing materials (ACM) associated with the former structures

The site investigation identified the following:

- Made Ground to a maximum depth of 2.20m bgl.
- Each of the Made Ground soil samples contained concentrations of contaminants exceedance of screening criteria relevant to residential end use with plant uptake.
- Asbestos (Chrysotile) was detected in the Made Ground at two locations.

8.2 Receptors

The following receptors have been considered for the construction and operational stages of the proposed redevelopment.

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

8.3 Pollutant Pathways

The following pathways have been considered for the construction and operational stages of the proposed redevelopment.

- Direct contact via dermal contact, ingestion, inhalation of potentially contaminated soils.
- Downward vertical migration of contaminants to shallow groundwater and lateral migration to on-site drainage ditch.
- Vertical and lateral migration of ground gas associated with Made Ground soils.

Table 12: Revised Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Made Ground (Exceedances of Lead, Naphthalene and Di-benz(a,h)anthracene)	Dermal contact, ingestion and inhalation of soils dust	Current Site Users	Unlikely	Moderate	Low	The site is currently a storage yard covered by hardstanding, with infrequent use. The risk to current site users from direct contact with potential contamination is considered to be **LOW**.
		Adjacent land users	Low Likelihood	Moderate	Moderate to Low	The site is located within a residential area. Soil dust may be generated during the construction phase. The risk is therefore considered **MODERATE to LOW.** Implementation of usual dust control measures as part of good site working practices would reduce this risk to **LOW**.
		Future land users	Likely	Moderate	Moderate	Contaminant exceedances have been encountered in Made Ground soils across the site. The proposed development will include residential properties with private gardens. The risk to future site users via direct exposure is therefore considered to be **MODERATE.** Appropriate remediation in the form of clean capping in proposed garden areas will reduce this risk to **LOW**.
		Construction Workers	Likely	Moderate	Moderate	Construction workers are likely to be exposed to contaminated soils during construction works. The risk is therefore **MODERATE,** however, assuming appropriate health and safety measures are adopted (in line with CDM and other relevant health and safety guidance) a **LOW** risk to construction workers is anticipated.
	Downward vertical/lateral leaching and migration of contaminants	Underlying shallow groundwater	Low Likelihood	Moderate	Moderate to Low	The site is underlain by a Principal Aquifer; however, shallow groundwater was not encountered beneath (except perched water in the Made Ground). The underlying superficial soils are predominantly cohesive with generally low permeability, which will inhibit migration to the underlying Aquifer. Furthermore, there are no nearby abstraction licenses nearby, therefore the risk to controlled waters is considered **LOW.**
	Vertical or lateral migration of ground gas	Current Site Users	Unlikely	Moderate	Low risk	The site is currently a storage yard covered by hardstanding, with no frequent or permanent occupiers. The risk to current site users from ground gas is therefore considered **LOW.**
		Adjacent land users	Unlikely	Moderate	Low risk	The cohesive low permeability nature of the underlying superficial deposits will act as a barrier to ground gas migration. The risk to adjacent site users from potential ground gas is considered **LOW.**

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
		Future land users	Low Likelihood	Moderate	Moderate to Low	Given the presence of Made Ground at the site, there may be potential for ground gas generation. The risk to future site users is therefore considered **MODERATE to LOW**. The excavation and removal of the potential source or installation of gas membranes would reduce this risk to **LOW.**
		Construction Workers	Low Likelihood	Moderate	Moderate to Low	Construction workers may be exposed to elevated CH4 and CO2 conditions or depleted oxygen conditions in confined spaces/excavations. However, the duration will be short term. The risk is considered **MODERATE to LOW.**
Asbestos (Chrysotile <0.001-0.055%)	Inhalation of fibres	Current Site Users	Unlikely	High	Low	Asbestos is only harmful when disturbed. The site is currently a storage yard covered by hardstanding, with infrequent use. The risk of direct contact with receptors is therefore considered **LOW**.
		Adjacent land users	Low Likelihood	High	Moderate	Asbestos (up to 0.055%) has been detected in the Made Ground at the site. Ground disturbance during the construction phase may allow fibres to become airborne. The risk to adjacent users is therefore considered **MODERATE**. Implementation as Asbestos Management Plan would reduce this risk to **LOW**.
		Future land users	Likely	High	**High**	Asbestos (up to 0.055%) has been detected in the Made Ground at the site. The proposed development will include residential properties with private gardens. The risk to future site users via direct exposure is therefore considered to be **HIGH.** Implementation as Asbestos Management Plan together with appropriate remediation in the form of removal, burial, or clean capping in proposed garden areas would reduce this risk to **LOW**.
		Construction Workers	Likely	High	**High**	Asbestos (up to 0.055%) has been detected in the Made Ground at the site. Construction workers are likely to be exposed to airborne fibres during construction/excavation works due to ground disturbance. The risk to construction workers is **HIGH.** Implementation as Asbestos Management Plan would reduce this risk to **LOW**. Communication of risk, suitable training and PPE/RPE will be required.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The following section provides a summary of the conclusions and recommendations based on the findings of the site investigation.

9.1 Soil Contamination

Ground conditions across the site generally comprised Made Ground (to a maximum depth of 2.20m bgl) over stiff natural clays.

Based on the results of the chemical testing, seven soil samples of Made Ground from five locations contained contaminant concentrations (including Lead, Naphthalene and Di-benz(a,h)anthracene) in exceedance of screening criteria relevant to residential end use with plant uptake.

There is therefore considered to be a **MODERATE** risk from soil contamination to residential end users. Remediation will therefore be required in order to mitigate this risk.

It is recommended that all garden and landscaped areas are capped with a minimum 600mm of validated clean cover soils, incorporating an appropriate physical barrier at the base of the capping layer, to act as a no dig layer for future residents and to prevent potential bioturbation.

Based on the soil contamination test results there is also considered to be a **MODERATE** potential risk to construction workers, ground workers and members of the public. Appropriate measures, such as PPE, site health plans, appropriate disposal of material arisings will mitigate this risk.

The groundworks contractor must provide a soil management plan including methods of dealing with any unanticipated soil contamination encountered during groundworks

9.2 Asbestos

Asbestos was detected in WS1 at 0.30m as microscopic loose fibres of Chrysotile (0.055% by mass) and in WS4 at 0.40m as a Chrysotile fibre bundle (<0.001% by mass).

An Asbestos Management Plan will therefore need to be prepared for the site. Precautions will include (but are not limited to):

- Ensuring that the risk is communicated to all site personnel at induction stage
- Ensuring all site personnel have suitable training and PPE/RPE
- Ensuring that the soils do not become dry and dusty

All garden and landscaped areas in proximity of where asbestos has been encountered should be capped with a minimum 600mm of validated clean cover soils, incorporating an appropriate physical barrier at the base of the capping layer.

Additional sampling in the vicinity of WS1 and WS4 may be carried out to determine the extent of the asbestos impacted soils requiring remediation.

9.3 Soil Waste Assessment

With the exception of the Made Ground at 0.30m in WS1, the soils have been classified as Non-Hazardous in accordance with Environment Agency guidance WM3. Shallow made ground soils in the vicinity of WS1 have been classified as Hazardous.

9.4 Foundation Recommendations

Ground conditions generally comprised Made Ground (to a maximum depth of 2.20m bgl) over stiff natural Clay.

Conventional shallow strip foundations are considered suitable for the site, bearing into the natural firm/stiff Clay at a minimum recommended depth of 1.0m bgl providing suitable bearing strata is encountered. Foundations will need to be extended deeper in the northern part of the site in the area of the former Public House due to the presence of deeper Made Ground (presumed cellar backfill).

Where foundations are within influencing distance of existing trees (whether removed or retained), these may need to be extended to up to 2.5m in accordance with NHBC Chapter 4.2.

It is recommended that a full tree survey be carried out in order to accurately determine suitable foundation depths for the proposed new buildings.

9.5 Site Personnel

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

APPENDIX 1

EXPLORATORY HOLE LOGS

EARTH ENVIRONMENTAL & GEOTECHNICAL Houldsworth Mill Business & Arts Centre Houldsworth Street Stockport SK5 6DA	# Borehole Log		Borehole No. **WS1** Sheet 1 of 1
Project Name: Claremont Road	Project No. A2212	Co-ords: 385084.00 - 395111.00	Hole Type WS
Location: Manchester		Level:	Scale 1:20
Client: Jordan Contractors Ltd		Dates: 20/12/2018 - 20/12/2018	Logged By JS

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					0.05			ASPHALT.	
		0.30	ES					MADE GROUND: Blackish brown, sandy, gravelly CLAY with frequent cobbles of concrete and intact bricks. Gravel of fine to coarse, subangular mudstone, brick, concrete, wood, plastic, coal, clinker and tile fragments.	
					0.80			MADE GROUND: Firm brown, sandy, gravelly CLAY. Gravel of fine to coarse subangular brick, concrete and clinker.	
		1.00		N=27 (2,10/6,7,7,7)					1
					1.30			MADE GROUND: Sandy GRAVEL and COBBLES of intact, broken and crushed bricks. (Probable relict basement foundations).	
		2.00		N=14 (3,4/4,3,3,4)					2
					2.20			Stiff becoming very stiff, brown mottled blue grey, silty, slightly sandy, slightly gravelly CLAY. Gravel of fine to coarse, subrounded to rounded mudstone and siltstone.	
		2.70 - 3.00	U	HVP=132					
		3.00		N=49 (4,5/12,12,12,13)					3
		3.50		N=50 (9,12/50 for 275mm) HVP=140	3.50			*Refusal in very stiff clay.* End of borehole at 3.50 m	
									4

Remarks
1. Hand dug pit to 1.2m.
2. No groundwater encountered.
3. Borehole backfilled with arisings.

EARTH ENVIRONMENTAL & GEOTECHNICAL

EARTH ENVIRONMENTAL & GEOTECHNICAL Houldsworth Mill Business & Arts Centre Houldsworth Street Stockport SK5 6DA	# Borehole Log		Borehole No. **WS2** Sheet 1 of 1
Project Name: Claremont Road	Project No. A2212	Co-ords: 385089.00 - 395102.00	Hole Type WS
Location: Manchester		Level:	Scale 1:20
Client: Jordan Contractors Ltd		Dates: 20/12/2018 - 20/12/2018	Logged By JS

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					0.05			ASPHALT.	
								MADE GROUND: Grey, clayey, sandy fine to coarse, subangular GRAVEL of mudstone, concrete, clinker and brick fragments.	
		0.60	ES		0.60			MADE GROUND: Soft dark grey, slightly sandy, slightly gravelly CLAY. Gravel of fine to medium, subangular mudstone and occasional brick fragments.	
		1.00		N=7 (2,2/2,1,2,2) HVP=24	1.00			Soft grey silty, slightly sandy, slightly gravelly CLAY with occasional decayed organic inclusions. Gravel of fine to medium, subrounded to rounded mudstone and siltstone.	1
		1.20	D	HVP=48					
					1.40			Stiff brown mottled blue grey, silty, slightly sandy, slightly gravelly CLAY. Gravel of fine to coarse, subrounded to rounded mudstone and siltstone.	
				HVP=72					
		1.80 - 2.00	U					*...Silty SAND band between 1.9m and 2.0m.*	
		2.00		N=24 (3,4/5,6,6,7)					2
				HVP=140	2.50			Very stiff, brown, slightly silty, slightly gravelly CLAY. Gravel of fine to medium, subangular to subrounded mudstone, siltstone and sandstone.	
		3.00		N=38 (5,5/7,9,10,12)					3
				HVP=140					
		3.80		N=50 (25 for 135mm/50 for 265mm)	3.80			*Refusal in very stiff clay.* End of borehole at 3.80 m	4

Remarks
1. Hand dug pit to 1.2m.
2. No groundwater encountered.
3. Borehole backfilled with arisings.

EARTH ENVIRONMENTAL & GEOTECHNICAL

EARTH ENVIRONMENTAL & GEOTECHNICAL Houldsworth Mill Business & Arts Centre Houldsworth Street Stockport SK5 6DA	# Borehole Log		Borehole No. **WS3** Sheet 1 of 1
Project Name: Claremont Road	Project No. A2212	Co-ords: 385082.00 - 395093.00	Hole Type WS
Location: Manchester		Level:	Scale 1:20
Client: Jordan Contractors Ltd		Dates: 20/12/2018 - 20/12/2018	Logged By JS

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					0.05			ASPHALT.	
								MADE GROUND: Grey clayey, sandy fine to coarse, subangular GRAVEL of mudstone, concrete, clinker and brick fragments.	
					0.40			MADE GROUND: Soft dark grey, slightly sandy, slightly gravelly CLAY. Gravel of fine to medium, subangular mudstone and occasional brick fragments.	
		0.60	ES						
					0.80			Firm becoming stiff, brown mottled blue grey, silty, slightly sandy, slightly gravelly CLAY. Gravel of fine to coarse, subrounded to rounded mudstone and siltstone.	
		1.00		N=11 (1,2/2,2,3,4)					1
		1.50 - 1.80	U	HVP=122					
		2.00		N=23 (2,4/4,6,6,7) HVP=140	2.00			Stiff becoming very stiff, brown, slightly silty, slightly gravelly CLAY. Gravel of fine to medium, subangular to subrounded mudstone, siltstone and sandstone.	2
		3.00		N=38 (5,6/7,7,10,14) HVP=140				*...With occasional silty SAND partings from 3.0m.*	3
		3.50	D	HVP=140					
		3.80		N=50 (10,14/50 for 255mm)	3.80			*Refusal in very stiff clay.* End of borehole at 3.80 m	4

Remarks
1. Hand dug pit to 1.2m.
2. No groundwater encountered.
3. Borehole backfilled with arisings.

EARTH ENVIRONMENTAL & GEOTECHNICAL

EARTH ENVIRONMENTAL & GEOTECHNICAL Houldsworth Mill Business & Arts Centre Houldsworth Street Stockport SK5 6DA	# Borehole Log		Borehole No. **WS4** Sheet 1 of 1
Project Name: Claremont Road	Project No. A2212	Co-ords: 385094.00 - 395089.00	Hole Type WS
Location: Manchester		Level:	Scale 1:20
Client: Jordan Contractors Ltd		Dates: 20/12/2018 - 20/12/2018	Logged By JS

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					0.05			ASPHALT.	
		0.40	ES					MADE GROUND: Grey, sandy, gravelly, sightly cobbly CLAY. Gravel and cobbles of fine to coarse, subangular mudstone, brick, concrete, shale, coal and clinker fragments. Slight hydrocarbon odour.	
					0.70			MADE GROUND: Soft dark grey, slightly sandy, slightly gravelly CLAY. Gravel of fine to medium, subangular mudstone and occasional brick fragments.	
		0.90	ES						
		1.00		N=14 (1,2/2,4,4,4)	1.00			Firm becoming stiff, brown mottled blue grey, silty, slightly sandy, slightly gravelly CLAY. Gravel of fine to coarse, subrounded to rounded mudstone and siltstone.	1
				HVP=96					
		1.80	D						
				HVP=120					
		2.00		N=20 (2,2/3,5,6,6)					2
				HVP=140					
					2.60			Very stiff, brown, slightly silty, slightly gravelly CLAY. Gravel of fine to medium, subangular to subrounded mudstone, siltstone and sandstone.	
		2.70	D						
				HVP=140					
		3.00		N=51 (8,11/51 for 265mm)	3.00			*Refusal in very stiff clay.* End of borehole at 3.00 m	3
									4

Remarks
1. Hand dug pit to 1.2m.
2. Perched groundwater inflow from 0.40m.
3. Borehole backfilled with arisings.

EARTH ENVIRONMENTAL & GEOTECHNICAL

EARTH ENVIRONMENTAL & GEOTECHNICAL Houldsworth Mill Business & Arts Centre Houldsworth Street Stockport SK5 6DA	# Borehole Log		Borehole No. **WS5** Sheet 1 of 1
Project Name: Claremont Road	Project No. A2212	Co-ords: 385085.00 - 395081.00	Hole Type WS
Location: Manchester		Level:	Scale 1:20
Client: Jordan Contractors Ltd		Dates: 20/12/2018 - 20/12/2018	Logged By JS

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					0.05			ASPHALT.	
								SUBBASE: Yellowish brown sandy, fine to coarse, subangular GRAVEL of limestone, sandstone and concrete.	
					0.25			MADE GROUND: Grey, clayey, sandy fine to coarse, subangular GRAVEL of mudstone, concrete, clinker, slate and brick fragments.	
	▼	0.50	ES						
		1.00		N=10 (2,2/2,3,3,2)					1
					1.40			Stiff becoming very stiff, brown mottled blue grey, silty, slightly sandy, slightly gravelly CLAY. Gravel of fine to coarse, subrounded to rounded mudstone and siltstone.	
				HVP=120					
		1.70 - 1.90	U						
		2.00		N=25 (3,4/5,6,7,7) HVP=135					2
				HVP=140					
		3.00		N=50 (9,9/50 for 260mm) HVP=140	3.00			*Refusal. Sandstone recovered at base of sampler. Possible bedrock.*	3
								End of borehole at 3.00 m	
									4

Remarks
1. Hand dug pit to 1.2m.
2. Perched groundwater inflow from 0.40m.
3. Borehole backfilled with arisings.

EARTH ENVIRONMENTAL & GEOTECHNICAL

APPENDIX 2

CHEMICAL TESTING RESULTS

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russell.jarvis@dets.co.uk

DETS Report No: 18-86918

Site Reference: Claremont Road, Manchester

Project / Job Ref: A2212

Order No: A2212/JS

Sample Receipt Date: 21/12/2018

Sample Scheduled Date: 21/12/2018

Report Issue Number: 1

Reporting Date: 04/01/2019

Authorised by:

Russell Jarvis
Associate Director of Client Services

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Soil Analysis Certificate							
DETS Report No: 18-86918		**Date Sampled**	20/12/18	20/12/18	20/12/18	20/12/18	20/12/18
Earth Environmental & Geotechnical Ltd		**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Claremont Road, Manchester		**TP / BH No**	WS1	WS1	WS2	WS3	WS4
Project / Job Ref: A2212		**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A2212/JS		**Depth (m)**	0.30	1.00	0.60	0.60	0.40
Reporting Date: 04/01/2019		**DETS Sample No**	379904	379905	379906	379907	379908

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Detected	Not Detected	Not Detected	Not Detected	Detected
Sample Matrix (S)	Material Type	N/a	NONE	Chrysotile present in microscopic loose fibrous asbestos debris				Fibre bundle present in soil
Asbestos Type (S)	PLM Result	N/a	**ISO17025**	Chrysotile				Chrysotile
pH	pH Units	N/a	**MCERTS**	7.6	8.3	7.9	7.8	7.8
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Total Sulphate as SO_4	mg/kg	< 200	NONE	39860	2765	713	372	531
Total Sulphate as SO_4	%	< 0.02	NONE	3.99	0.28	0.07	0.04	0.05
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	1350	1110	195	96	67
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	1.35	1.11	0.19	0.10	0.07
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Organic Matter	%	< 0.1	**MCERTS**	2	1.3	2.9	1.5	2.7
Arsenic (As)	mg/kg	< 2	**MCERTS**	14	12	11	8	18
Barium (Ba)	mg/kg	< 5	NONE	143	125	97	88	192
Beryllium (Be)	mg/kg	< 0.5	NONE	0.6	1	0.9	0.7	1
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	1.4	0.2	0.3	< 0.2	1.6
Chromium (Cr)	mg/kg	< 2	**MCERTS**	11	19	14	17	19
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	**MCERTS**	195	30	91	24	51
Lead (Pb)	mg/kg	< 3	**MCERTS**	323	127	97	53	209
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	**MCERTS**	11	20	17	13	26
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 2	NONE	21	25	22	22	33
Zinc (Zn)	mg/kg	< 3	**MCERTS**	175	55	507	49	471
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40)	mg/kg	< 6	**MCERTS**	3800	239	377	483	1010

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)

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Soil Analysis Certificate							
DETS Report No: 18-86918	**Date Sampled**	20/12/18	20/12/18				
Earth Environmental & Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied				
Site Reference: Claremont Road, Manchester	**TP / BH No**	WS4	WS5				
Project / Job Ref: A2212	**Additional Refs**	None Supplied	None Supplied				
Order No: A2212/JS	**Depth (m)**	0.90	0.50				
Reporting Date: 04/01/2019	**DETS Sample No**	379909	379910				

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected	Not Detected			
Sample Matrix (S)	Material Type	N/a	NONE					
Asbestos Type (S)	PLM Result	N/a	**ISO17025**					
pH	pH Units	N/a	**MCERTS**	7.6	7.8			
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2			
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2			
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2			
Total Sulphate as SO_4	mg/kg	< 200	NONE	469	714			
Total Sulphate as SO_4	%	< 0.02	NONE	0.05	0.07			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	41	32			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.04	0.03			
Sulphide	mg/kg	< 5	NONE	< 5	< 5			
Organic Matter	%	< 0.1	**MCERTS**	2.4	2.2			
Arsenic (As)	mg/kg	< 2	**MCERTS**	13	15			
Barium (Ba)	mg/kg	< 5	NONE	174	146			
Beryllium (Be)	mg/kg	< 0.5	NONE	0.9	0.6			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.7	0.5			
Chromium (Cr)	mg/kg	< 2	**MCERTS**	17	15			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	**MCERTS**	39	34			
Lead (Pb)	mg/kg	< 3	**MCERTS**	268	218			
Mercury (Hg)	mg/kg	< 1	NONE	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	**MCERTS**	19	22			
Selenium (Se)	mg/kg	< 3	NONE	< 3	< 3			
Vanadium (V)	mg/kg	< 2	NONE	27	19			
Zinc (Zn)	mg/kg	< 3	**MCERTS**	272	138			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			
EPH (C10 - C40)	mg/kg	< 6	**MCERTS**	381	426			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs							
DETS Report No: 18-86918		**Date Sampled**	20/12/18	20/12/18	20/12/18	20/12/18	20/12/18
Earth Environmental & Geotechnical Ltd		**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Claremont Road, Manchester		**TP / BH No**	WS1	WS1	WS2	WS3	WS4
Project / Job Ref: A2212		**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A2212/JS		**Depth (m)**	0.30	1.00	0.60	0.60	0.40
Reporting Date: 04/01/2019		**DETS Sample No**	379904	379905	379906	379907	379908
Determinand	**Unit**	**RL**	**Accreditation**				
Naphthalene	mg/kg	< 0.1	**MCERTS**	< 0.1	5.02	0.13	< 0.1	0.20
Acenaphthylene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.21	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1	0.15	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	**MCERTS**	< 0.1	0.16	0.16	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	**MCERTS**	0.49	1.54	0.81	0.56	0.31
Anthracene	mg/kg	< 0.1	**MCERTS**	0.17	1.52	0.30	0.15	< 0.1
Fluoranthene	mg/kg	< 0.1	**MCERTS**	1.28	0.89	1.35	0.74	0.53
Pyrene	mg/kg	< 0.1	**MCERTS**	1.36	0.87	1.37	0.71	0.55
Benzo(a)anthracene	mg/kg	< 0.1	**MCERTS**	0.66	0.90	0.64	0.51	0.40
Chrysene	mg/kg	< 0.1	**MCERTS**	0.72	2.08	0.46	0.26	0.20
Benzo(b)fluoranthene	mg/kg	< 0.1	**MCERTS**	0.73	1.58	0.72	0.51	0.46
Benzo(k)fluoranthene	mg/kg	< 0.1	**MCERTS**	0.13	1.37	0.15	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	**MCERTS**	0.40	4.79	0.45	0.32	0.24
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	**MCERTS**	0.50	1.76	0.51	0.45	0.42
Dibenz(a,h)anthracene	mg/kg	< 0.1	**MCERTS**	0.34	0.55	0.33	0.32	0.31
Benzo(ghi)perylene	mg/kg	< 0.1	**MCERTS**	< 0.1	2.60	0.32	0.29	0.28
Total EPA-16 PAHs	mg/kg	< 1.6	**MCERTS**	6.8	25.8	7.9	4.8	3.9

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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Soil Analysis Certificate - Speciated PAHs							
DETS Report No: 18-86918	**Date Sampled**	20/12/18	20/12/18				
Earth Environmental & Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied				
Site Reference: Claremont Road, Manchester	**TP / BH No**	WS4	WS5				
Project / Job Ref: A2212	**Additional Refs**	None Supplied	None Supplied				
Order No: A2212/JS	**Depth (m)**	0.90	0.50				
Reporting Date: 04/01/2019	**DETS Sample No**	379909	379910				

Determinand	**Unit**	**RL**	**Accreditation**					
Naphthalene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	**MCERTS**	0.14	0.19			
Anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	**MCERTS**	0.31	0.42			
Pyrene	mg/kg	< 0.1	**MCERTS**	0.31	0.41			
Benzo(a)anthracene	mg/kg	< 0.1	**MCERTS**	0.32	0.35			
Chrysene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	**MCERTS**	0.31	0.33			
Benzo(k)fluoranthene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	**MCERTS**	0.14	0.16			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	**MCERTS**	0.38	0.37			
Dibenz(a,h)anthracene	mg/kg	< 0.1	**MCERTS**	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	**MCERTS**	0.22	0.20			
Total EPA-16 PAHs	mg/kg	< 1.6	**MCERTS**	2.1	2.4			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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4480

Soil Analysis Certificate - TPH CWG Banded							
DETS Report No: 18-86918		**Date Sampled**	20/12/18	20/12/18	20/12/18	20/12/18	20/12/18
Earth Environmental & Geotechnical Ltd		**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Claremont Road, Manchester		**TP / BH No**	WS1	WS1	WS2	WS3	WS4
Project / Job Ref: A2212		**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A2212/JS		**Depth (m)**	0.30	1.00	0.60	0.60	0.40
Reporting Date: 04/01/2019		**DETS Sample No**	379904	379905	379906	379907	379908
Determinand	**Unit**	**RL**	**Accreditation**				
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	**MCERTS**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	**MCERTS**	22	< 3	< 3	< 3	9
Aliphatic >C21 - C34	mg/kg	< 10	**MCERTS**	1172	54	39	77	294
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	1194	54	39	77	303
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	**MCERTS**	3	< 2	5	3	2
Aromatic >C16 - C21	mg/kg	< 3	**MCERTS**	42	5	33	12	21
Aromatic >C21 - C35	mg/kg	< 10	**MCERTS**	1478	97	149	209	241
Aromatic (C5 - C35)	mg/kg	< 21	NONE	1523	102	186	225	265
Total >C5 - C35	mg/kg	< 42	NONE	2717	156	226	301	568

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 18-86918	**Date Sampled**	20/12/18	20/12/18			
Earth Environmental & Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Claremont Road, Manchester	**TP / BH No**	WS4	WS5			
Project / Job Ref: A2212	**Additional Refs**	None Supplied	None Supplied			
Order No: A2212/JS	**Depth (m)**	0.90	0.50			
Reporting Date: 04/01/2019	**DETS Sample No**	379909	379910			

Determinand	**Unit**	**RL**	**Accreditation**					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	**MCERTS**	< 3	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	**MCERTS**	< 3	11			
Aliphatic >C21 - C34	mg/kg	< 10	**MCERTS**	48	162			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	48	173			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aromatic >C10 - C12	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aromatic >C12 - C16	mg/kg	< 2	**MCERTS**	< 2	< 2			
Aromatic >C16 - C21	mg/kg	< 3	**MCERTS**	12	6			
Aromatic >C21 - C35	mg/kg	< 10	**MCERTS**	132	189			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	145	195			
Total >C5 - C35	mg/kg	< 42	NONE	193	369			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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

4480

Soil Analysis Certificate - BTEX / MTBE							
DETS Report No: 18-86918		**Date Sampled**	20/12/18	20/12/18	20/12/18	20/12/18	20/12/18
Earth Environmental & Geotechnical Ltd		**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Claremont Road, Manchester		**TP / BH No**	WS1	WS1	WS2	WS3	WS4
Project / Job Ref: A2212		**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A2212/JS		**Depth (m)**	0.30	1.00	0.60	0.60	0.40
Reporting Date: 04/01/2019		**DETS Sample No**	379904	379905	379906	379907	379908
Determinand	**Unit**	**RL**	**Accreditation**				
Benzene	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	**MCERTS**	< 5	10	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	**MCERTS**	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	**MCERTS**	< 5	< 5	< 5	< 5	< 5

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 18-86918	**Date Sampled**	20/12/18	20/12/18			
Earth Environmental & Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Claremont Road, Manchester	**TP / BH No**	WS4	WS5			
Project / Job Ref: A2212	**Additional Refs**	None Supplied	None Supplied			
Order No: A2212/JS	**Depth (m)**	0.90	0.50			
Reporting Date: 04/01/2019	**DETS Sample No**	379909	379910			

Determinand	**Unit**	**RL**	**Accreditation**					
Benzene	ug/kg	< 2	**MCERTS**	< 2	< 2			
Toluene	ug/kg	< 5	**MCERTS**	< 5	< 5			
Ethylbenzene	ug/kg	< 2	**MCERTS**	< 2	< 2			
p & m-xylene	ug/kg	< 2	**MCERTS**	< 2	< 2			
o-xylene	ug/kg	< 2	**MCERTS**	< 2	< 2			
MTBE	ug/kg	< 5	**MCERTS**	< 5	< 5			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C

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Tel : 01622 850410

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 18-86918	
Earth Environmental & Geotechnical Ltd	
Site Reference: Claremont Road, Manchester	
Project / Job Ref: A2212	
Order No: A2212/JS	
Reporting Date: 04/01/2019	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
379904	WS1	None Supplied	0.30	12.4	Black sandy clay with stones and concrete
379905	WS1	None Supplied	1.00	17.7	Brown sandy clay with stones and concrete
379906	WS2	None Supplied	0.60	17.7	Brown sandy clay with stones and concrete
379907	WS3	None Supplied	0.60	16	Brown sandy clay with stones
379908	WS4	None Supplied	0.40	15.1	Black sandy clay with stones and brick
379909	WS4	None Supplied	0.90	22.1	Black sandy clay with brick
379910	WS5	None Supplied	0.50	15.1	Black sandy clay with stones

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

Insufficient Sample I/S

Unsuitable Sample U/S

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Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 18-86918
Earth Environmental & Geotechnical Ltd
Site Reference: Claremont Road, Manchester
Project / Job Ref: A2212
Order No: A2212/JS
Reporting Date: 04/01/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

4480

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

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410
russell.jarvis@dets.co.uk

DETS Report No: 19-00085

Site Reference:	Claremont Road, Manchester
Project / Job Ref:	A2212
Order No:	None Supplied
Sample Receipt Date:	21/12/2018
Sample Scheduled Date:	07/01/2019
Report Issue Number:	2
Reporting Date:	14/01/2019

Authorised by:

Russell Jarvis
Associate Director of Client Services

This report supersedes 19-00085, issue no.1.

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

DETS Ltd
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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

UKAS TESTING
4480

Soil Analysis Certificate							
DETS Report No: 19-00085	**Date Sampled**	20/12/18	20/12/18				
Earth Environmental & Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied				
Site Reference: Claremont Road, Manchester	**TP / BH No**	WS1	WS4				
Project / Job Ref: A2212	**Additional Refs**	None Supplied	None Supplied				
Order No: None Supplied	**Depth (m)**	0.30	0.40				
Reporting Date: 14/01/2019	**DETS Sample No**	380636	380637				

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Quantification (S)	%	< 0.001	**ISO17025**	0.055	< 0.001			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C
Subcontracted analysis (S)

DETS Ltd
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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 19-00085
Earth Environmental & Geotechnical Ltd
Site Reference: Claremont Road, Manchester
Project / Job Ref: A2212
Order No: None Supplied
Reporting Date: 14/01/2019

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
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Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
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Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
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Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
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Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
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Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10 C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX 3

GEOTECHNICAL TESTING RESULTS

TEST REPORT

Client Earth Environmental & Geotechnical Ltd

Address Houldsworth Mills Business & Arts Centre
Houldsworth Street
Reddish
Stockport
SK5 6DA

Contract A2212 -
Claremont Road, Manchester

Job Number MRN 3507/4
Date of Issue 11 January 2019
Page **1 of 15**

Approved Signatories

S J Hutchings, O P Davies

Notes

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

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

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

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.

MURRAY RIX
33C VAUXHALL INDUSTRIAL ESTATE
GREG STREET, REDDISH, STOCKPORT SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.5: 1990

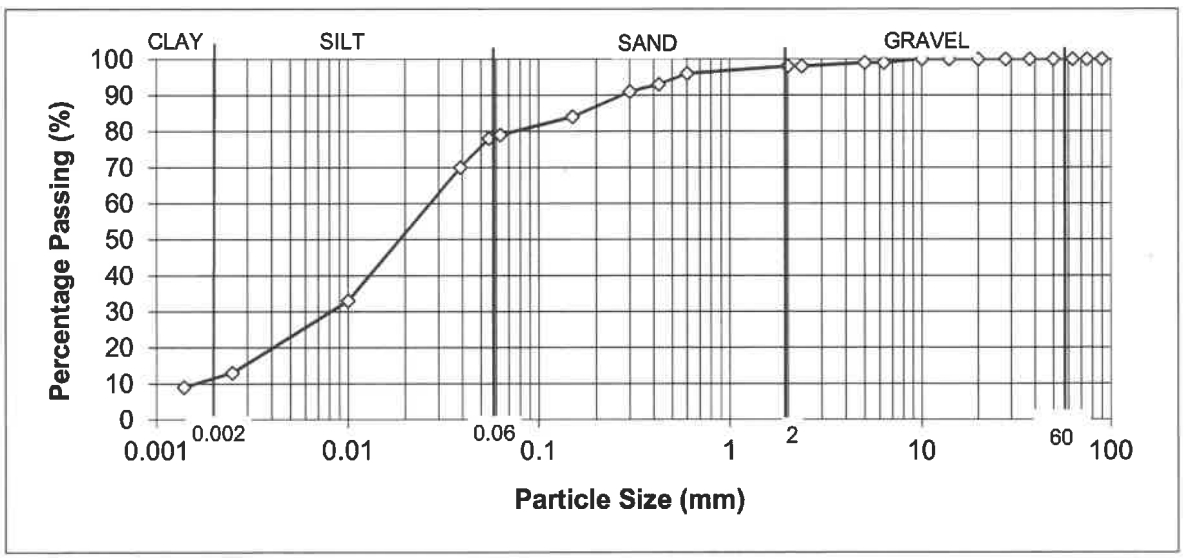
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 - Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS1 U 2.7-3m	DATE SAMPLED	20-Dec-18
LAB SAMPLE No	80729	DATE RECEIVED	20-Dec-18
DATE TESTED	03-Jan-19	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2.36	98	
90	100		2	98	
75	100		0.6	96	
63	100		0.425	93	
50	100		0.3	91	
37.5	100		0.15	84	
28	100		0.063	79	
20	100		0.055	78	
14	100		0.039	70	
10	100		0.01	33	
6.3	99		0.0025	13	
5	99		0.0014	9	



REMARKS
As received moisture content = 18%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 11-Jan-19

MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

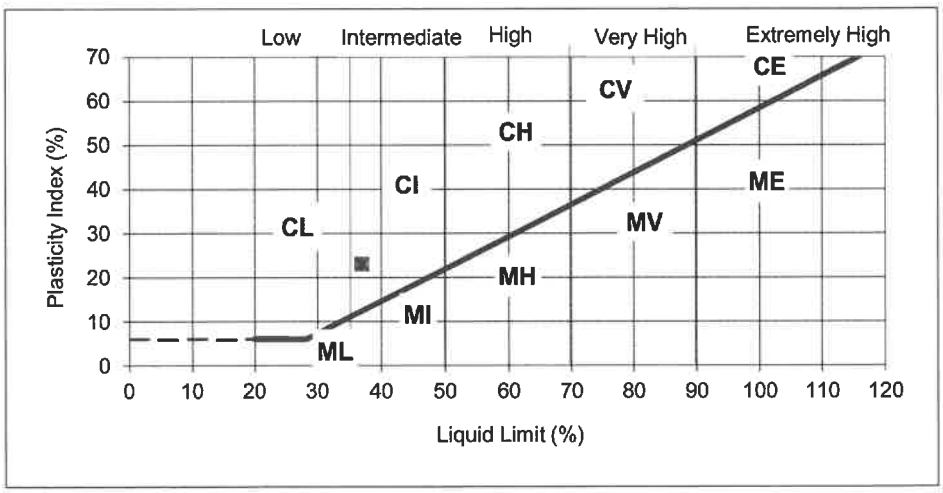
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 - Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS1 U 2.7-3m	DATE SAMPLED	20-Dec-18
SAMPLE No.	80729	DATE RECEIVED	20-Dec-18
DATE TESTED	04-Jan-19	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
18	37	17	23	93



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons) DATE 11-Jan-19
(Laboratory Manager)

MURRAY RIX
33C VAUXHALL INDUSTRIAL ESTATE, GREG STREET
REDDISH, STOCKPORT SK5 7BR
TEL 0161 475 0870 FAX 161 475N 0871

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION
BS 1377: PART 7: 1990:CLAUSE 8 SINGLE STAGE

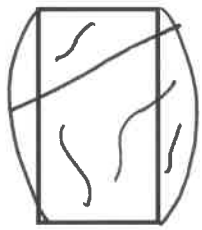
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS1 U 2.7-3m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80729	DATE RECEIVED	20 December 2018
DATE TESTED	03 January 2019	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	144	mm
SPECIMEN DIAMETER	72	mm
MOISTURE CONTENT OF SAMPLE	18	%
BULK DENSITY	2.12	Mg/m^3
DRY DENSITY	1.80	Mg/m^3
DEPTH OF TOP OF SPECIMEN	2.75	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT FAILURE



Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
60	17	2.0	239.8	120

REMARKS

SIGNED

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

DATE 11 January 2019

MURRAY RIX
UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET
REDDISH, STOCKPORT, SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS1 U 2.7-3m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80729	DATE RECEIVED	20 December 2018
DATE TESTED	02 January 2019	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	6.9	
Sulphate as SO_4 (2:1 Water Extract)	0.28	g/l

REMARKS

SIGNED

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

DATE 11 January 2019

MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

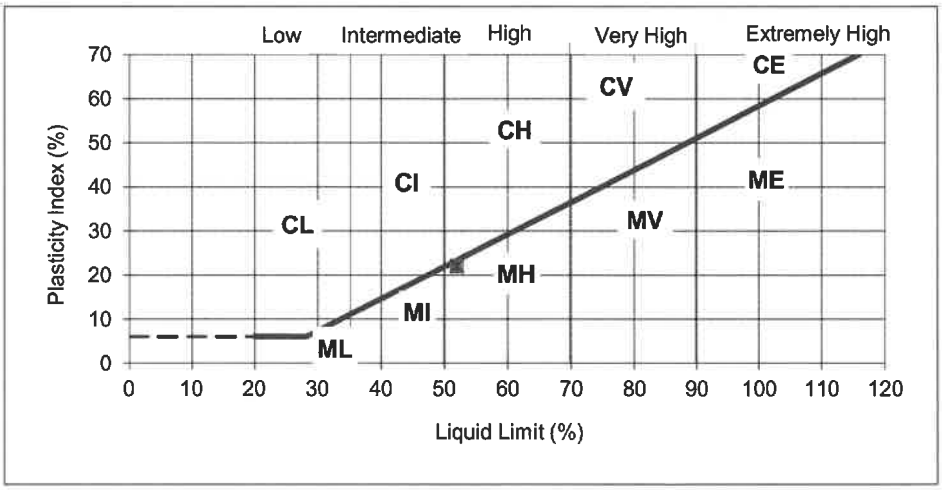
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 - Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS2 D 1.2m	DATE SAMPLED	20-Dec-18
SAMPLE No.	80730	DATE RECEIVED	20-Dec-18
DATE TESTED	04-Jan-19	SAMPLED BY	Client

MATERIAL	Firm grey clayey sandy SILT
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
43	52	30	22	83



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons) DATE 11-Jan-19
(Laboratory Manager)

MURRAY RIX
UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET
REDDISH, STOCKPORT, SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS2 D 1.2m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80730	DATE RECEIVED	20 December 2018
DATE TESTED	02 January 2019	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	
Sulphate as SO_4 (2:1 Water Extract)	0.21	g/l

REMARKS

SIGNED

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

DATE 11 January 2019

MURRAY RIX
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REDDISH, STOCKPORT SK5 7BR
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TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION
BS 1377: PART 7: 1990:CLAUSE 8 SINGLE STAGE

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS2 U 1.8-2m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80731	DATE RECEIVED	20 December 2018
DATE TESTED	03 January 2019	SAMPLED BY	Client

MATERIAL	Firm brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	170	mm
SPECIMEN DIAMETER	85	mm
MOISTURE CONTENT OF SAMPLE	20	%
BULK DENSITY	2.12	Mg/m^3
DRY DENSITY	1.77	Mg/m^3
DEPTH OF TOP OF SPECIMEN	1.80	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT FAILURE

Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
40	20	2.0	126.4	63

REMARKS

SIGNED

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

DATE 11 January 2019

MURRAY RIX

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Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

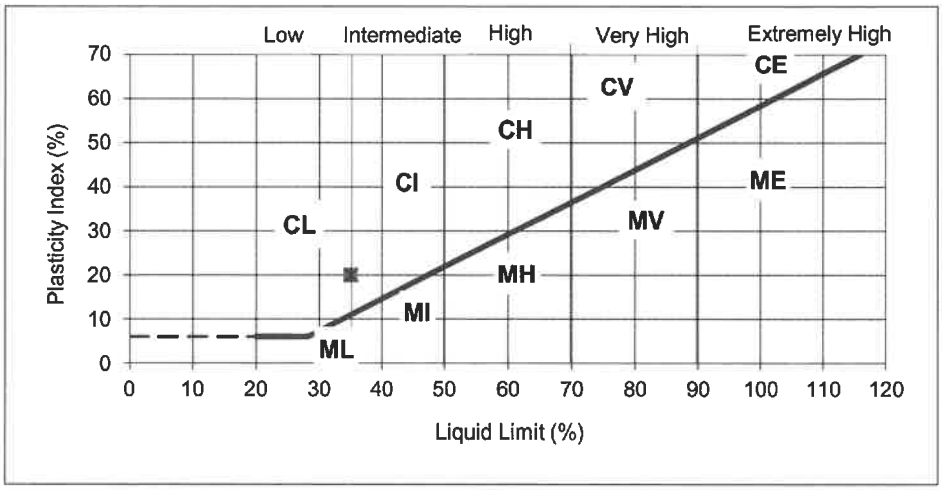
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 - Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS3 U 1.5-1.8m	DATE SAMPLED	20-Dec-18
SAMPLE No.	80732	DATE RECEIVED	20-Dec-18
DATE TESTED	04-Jan-19	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
19	35	15	20	90



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons) DATE 11-Jan-19
(Laboratory Manager)

MURRAY RIX
33C VAUXHALL INDUSTRIAL ESTATE, GREG STREET
REDDISH, STOCKPORT SK5 7BR
TEL 0161 475 0870 FAX 161 475N 0871

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION
BS 1377: PART 7: 1990:CLAUSE 8 SINGLE STAGE

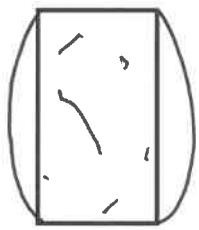
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS3 U 1.5-1.8m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80732	DATE RECEIVED	20 December 2018
DATE TESTED	03 January 2019	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	167	mm
SPECIMEN DIAMETER	84	mm
MOISTURE CONTENT OF SAMPLE	19	%
BULK DENSITY	2.18	Mg/m^3
DRY DENSITY	1.83	Mg/m^3
DEPTH OF TOP OF SPECIMEN	1.55	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT FAILURE



Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
40	20	2.0	257.9	129

REMARKS

SIGNED

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

DATE 11 January 2019

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UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET
REDDISH, STOCKPORT, SK5 7BR
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TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS3 U 1.5-1.8m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80732	DATE RECEIVED	20 December 2018
DATE TESTED	02 January 2019	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.0	
Sulphate as SO_4 (2:1 Water Extract)	0.29	g/l

REMARKS

SIGNED

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

DATE 11 January 2019

MURRAY RIX
33C VAUXHALL INDUSTRIAL ESTATE
GREG STREET, REDDISH, STOCKPORT SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.5: 1990

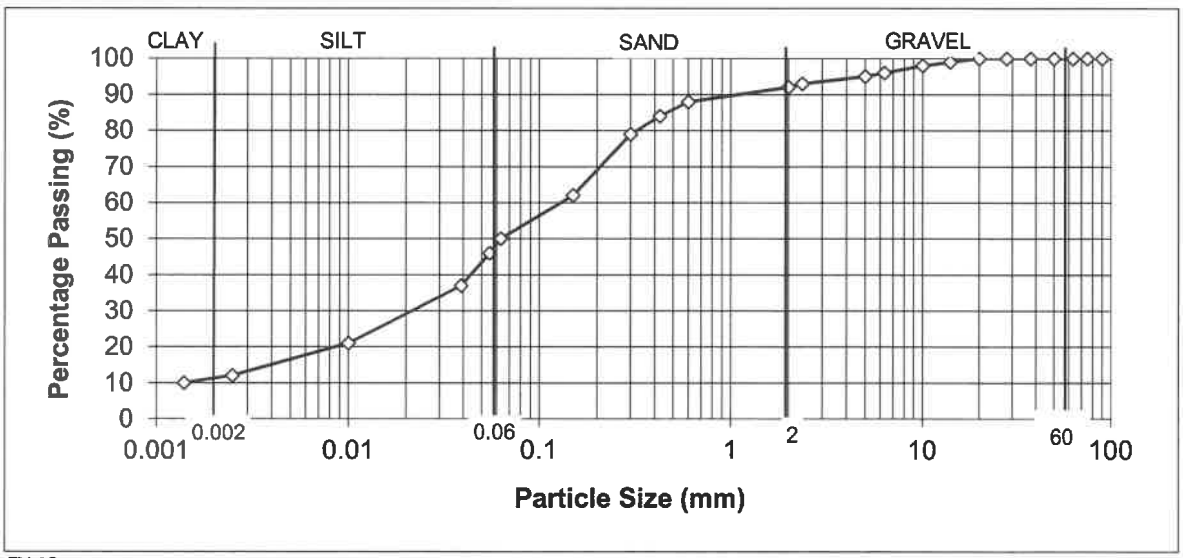
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 - Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS3 D 3.5m	DATE SAMPLED	20-Dec-18
LAB SAMPLE No	80733	DATE RECEIVED	20-Dec-18
DATE TESTED	03-Jan-19	SAMPLED BY	Client

MATERIAL	Stiff brown silty very sandy CLAY with gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		2.36	93	
90	100		2	92	
75	100		0.6	88	
63	100		0.425	84	
50	100		0.3	79	
37.5	100		0.15	62	
28	100		0.063	50	
20	100		0.055	46	
14	99		0.039	37	
10	98		0.01	21	
6.3	96		0.0025	12	
5	95		0.0014	10	



REMARKS
As received moisture content = 11%

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 11-Jan-19

MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
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UKAS TESTING 1580

TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

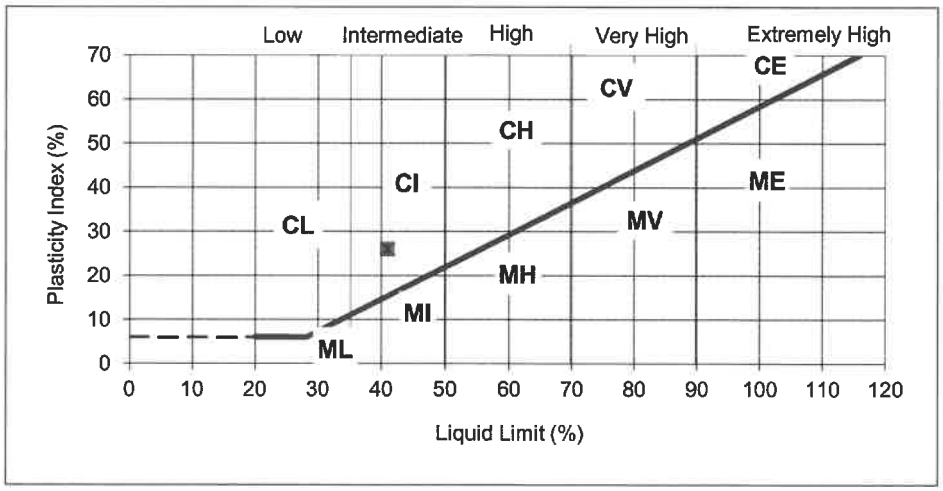
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 - Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS5 U 1.7-1.9m	DATE SAMPLED	20-Dec-18
SAMPLE No.	80736	DATE RECEIVED	20-Dec-18
DATE TESTED	04-Jan-19	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20	41	15	26	88



REMARKS
Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 11-Jan-19

MURRAY RIX
33C VAUXHALL INDUSTRIAL ESTATE, GREG STREET
REDDISH, STOCKPORT SK5 7BR
TEL 0161 475 0870 FAX 161 475N 0871

TEST CERTIFICATE

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION
BS 1377: PART 7: 1990:CLAUSE 8 SINGLE STAGE

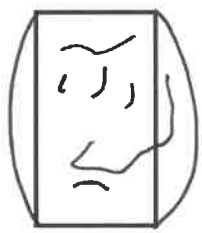
CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS5 U 1.7-1.9m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80736	DATE RECEIVED	20 December 2018
DATE TESTED	03 January 2019	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation sample

SPECIMEN LENGTH	160	mm
SPECIMEN DIAMETER	84	mm
MOISTURE CONTENT OF SAMPLE	20	%
BULK DENSITY	2.12	Mg/m^3
DRY DENSITY	1.77	Mg/m^3
DEPTH OF TOP OF SPECIMEN	1.70	m
RATE OF STRAIN	2	%/min
RUBBER MEMBRANE THICKNESS	0.6	mm

SPECIMEN AT FAILURE



Measured Cell Pressure (kPa)	Strain at Failure (%)	Membrane Correction (kPa)	Corrected Max Deviator Stress (kPa)	Shear Stress Cu (kPa)
40	20	2.0	236.3	118

REMARKS

SIGNED

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

DATE 11 January 2019

MURRAY RIX
UNIT 33C, VAUXHALL IND. ESTATE, GREG STREET
REDDISH, STOCKPORT, SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871

TEST CERTIFICATE

pH and Sulphate as SO_4
BS 1377: PART 3: 1990

CLIENT	Earth Environmental & Geotechnical Ltd
SITE	A2212 – Claremont Road, Manchester
JOB NUMBER	MRN 3507/4

SAMPLE LABEL	WS5 U 1.7-1.9m	DATE SAMPLED	20 December 2018
LAB SAMPLE No	80736	DATE RECEIVED	20 December 2018
DATE TESTED	02 January 2019	SAMPLED BY	Client

ADVISED SOURCE	Site Investigation Sample
PRE TREATMENT	Air Dried

PH Value	7.2	
Sulphate as SO_4 (2:1 Water Extract)	0.36	g/l

REMARKS

SIGNED

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

DATE 11 January 2019

APPENDIX 4

SOIL WASTE ASSESSMENT

Waste Classification Report

2AZP2-J2JM3-K3YLW

Job name

A2212 Claremont Road, Manchester

Description/Comments

Project

A2212

Site

Claremont Road, Manchester

Related Documents

#	Name	Description
None		

Waste Stream Template

Example waste stream template for contaminated soils

Classified by

Name:
Jessica Sheridan
Date:
09 Jan 2019 16:31 GMT
Telephone:
0161 975 6088

Company:
Earth Environmental & Geotechnical
Houldsworth Mill Business & Arts Centre
Houldsworth Street, Reddish
Stockport
SK5 6DA

Report

Created by: Jessica Sheridan
Created date: 09 Jan 2019 16:31 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS1[2]	0.3	Hazardous	HP 3(i), HP 7, HP 11	2
2	WS1[3]	1	Non Hazardous		5
3	WS2[1]	0.6	Non Hazardous		8
4	WS3[1]	0.6	Non Hazardous		11
5	WS4[2]	0.4	Non Hazardous		14
6	WS4[3]	0.9	Non Hazardous		17
7	WS5[1]	0.5	Non Hazardous		20

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	23
Appendix B: Rationale for selection of metal species	24
Appendix C: Version	25

Classification of sample: WS1[2]

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

Sample details

Sample Name:
WS1[2]
Sample Depth:
0.3 m
Moisture content:
12.4%
(dry weight correction)

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

Hazard properties

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.242%)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.242%)

Hazard properties (substances considered hazardous until shown otherwise)

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

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.242%)

Determinands

Moisture content: 12.4% Dry Weight 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 }				14	mg/kg	1.32	16.445	mg/kg	0.00164 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
2		beryllium { beryllium oxide }				0.6	mg/kg	2.775	1.482	mg/kg	0.000148 %	✓	
		004-003-00-8	215-133-1	1304-56-9									

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.4	mg/kg	1.142	1.423	mg/kg	0.000142 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		11	mg/kg	1.462	14.303	mg/kg	0.00143 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		195	mg/kg	1.126	195.328	mg/kg	0.0195 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	323	mg/kg	1.56	448.239	mg/kg	0.0287 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		11	mg/kg	2.976	29.127	mg/kg	0.00291 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		175	mg/kg	2.469	384.455	mg/kg	0.0384 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		2717	mg/kg		2417.26	mg/kg	0.242 %	✓	
14		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	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		**<LOD**
20		pH			PH		7.6	pH		7.6	pH	7.6 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25		phenanthrene		201-581-5	85-01-8		0.49	mg/kg		0.436	mg/kg	0.0000436 %	✓	
26		anthracene		204-371-1	120-12-7		0.17	mg/kg		0.151	mg/kg	0.0000151 %	✓	
27		fluoranthene		205-912-4	206-44-0		1.28	mg/kg		1.139	mg/kg	0.000114 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
28	•	pyrene				1.36	mg/kg		1.21	mg/kg	0.000121 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.66	mg/kg		0.587	mg/kg	0.0000587 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				0.72	mg/kg		0.641	mg/kg	0.0000641 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.73	mg/kg		0.649	mg/kg	0.0000649 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.13	mg/kg		0.116	mg/kg	0.0000116 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.4	mg/kg		0.356	mg/kg	0.0000356 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34	•	indeno[123-cd]pyrene				0.5	mg/kg		0.445	mg/kg	0.0000445 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.34	mg/kg		0.302	mg/kg	0.0000302 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36	•	benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
			205-883-8	191-24-2									
37		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.338 %		

Key

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

Classification of sample: WS1[3]

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

Sample details

Sample Name:
WS1[3]
Sample Depth:
1 m
Moisture content:
17.7%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 17.7% Dry Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12	mg/kg	1.32	13.461	mg/kg	0.00135 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1	mg/kg	2.775	2.358	mg/kg	0.000236 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.194	mg/kg	0.0000194 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		19	mg/kg	1.462	23.594	mg/kg	0.00236 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30	mg/kg	1.126	28.697	mg/kg	0.00287 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	127	mg/kg	1.56	168.306	mg/kg	0.0108 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		20	mg/kg	2.976	50.574	mg/kg	0.00506 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		55	mg/kg	2.469	115.388	mg/kg	0.0115 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		156	mg/kg		132.54	mg/kg	0.0133 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		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	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		0.01	mg/kg		0.0085	mg/kg	0.00000085 %	✓	
17	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { • salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		**<LOD**
20	•	pH			PH		8.3	pH		8.3	pH	8.3 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		5.02	mg/kg		4.265	mg/kg	0.000427 %	✓	
22	•	acenaphthylene		205-917-1	208-96-8		0.21	mg/kg		0.178	mg/kg	0.0000178 %	✓	
23	•	acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24	•	fluorene		201-695-5	86-73-7		0.16	mg/kg		0.136	mg/kg	0.0000136 %	✓	
25	•	phenanthrene		201-581-5	85-01-8		1.54	mg/kg		1.308	mg/kg	0.000131 %	✓	
26	•	anthracene		204-371-1	120-12-7		1.52	mg/kg		1.291	mg/kg	0.000129 %	✓	
27	•	fluoranthene		205-912-4	206-44-0		0.89	mg/kg		0.756	mg/kg	0.0000756 %	✓	
28	•	pyrene		204-927-3	129-00-0		0.87	mg/kg		0.739	mg/kg	0.0000739 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.9	mg/kg		0.765	mg/kg	0.0000765 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		2.08	mg/kg		1.767	mg/kg	0.000177 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.58	mg/kg		1.342	mg/kg	0.000134 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.37	mg/kg		1.164	mg/kg	0.000116 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		4.79	mg/kg		4.07	mg/kg	0.000407 %	✓	
34	•	indeno[123-cd]pyrene		205-893-2	193-39-5		1.76	mg/kg		1.495	mg/kg	0.00015 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.55	mg/kg		0.467	mg/kg	0.0000467 %	✓	
36	•	benzo[ghi]perylene		205-883-8	191-24-2		2.6	mg/kg		2.209	mg/kg	0.000221 %	✓	
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.0519 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free phase detected

Hazard Statements hit:

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

Because of determinand:

toluene: (conc.: 8.5e-07%)

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0133%)

Classification of sample: WS2[1]

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

Sample details

Sample Name:
WS2[1]
Sample Depth:
0.6 m
Moisture content:
17.7%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 17.7% Dry Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11	mg/kg	1.32	12.339	mg/kg	0.00123 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9	mg/kg	2.775	2.122	mg/kg	0.000212 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.291	mg/kg	0.0000291 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		14	mg/kg	1.462	17.385	mg/kg	0.00174 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		91	mg/kg	1.126	87.048	mg/kg	0.0087 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	97	mg/kg	1.56	128.549	mg/kg	0.00824 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		17	mg/kg	2.976	42.988	mg/kg	0.0043 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		507	mg/kg	2.469	1063.665	mg/kg	0.106 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		226	mg/kg		192.014	mg/kg	0.0192 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		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	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		**<LOD**
20		pH			PH		7.9	pH		7.9	pH	7.9 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		0.13	mg/kg		0.11	mg/kg	0.000011 %	✓	
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23		acenaphthene		201-469-6	83-32-9		0.15	mg/kg		0.127	mg/kg	0.0000127 %	✓	
24		fluorene		201-695-5	86-73-7		0.16	mg/kg		0.136	mg/kg	0.0000136 %	✓	
25		phenanthrene		201-581-5	85-01-8		0.81	mg/kg		0.688	mg/kg	0.0000688 %	✓	
26		anthracene		204-371-1	120-12-7		0.3	mg/kg		0.255	mg/kg	0.0000255 %	✓	
27		fluoranthene		205-912-4	206-44-0		1.35	mg/kg		1.147	mg/kg	0.000115 %	✓	
28		pyrene		204-927-3	129-00-0		1.37	mg/kg		1.164	mg/kg	0.000116 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.64	mg/kg		0.544	mg/kg	0.0000544 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		0.46	mg/kg		0.391	mg/kg	0.0000391 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.72	mg/kg		0.612	mg/kg	0.0000612 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.15	mg/kg		0.127	mg/kg	0.0000127 %	✓	
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.45	mg/kg		0.382	mg/kg	0.0000382 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.51	mg/kg		0.433	mg/kg	0.0000433 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.33	mg/kg		0.28	mg/kg	0.000028 %	✓	
36		benzo[ghi]perylene		205-883-8	191-24-2		0.32	mg/kg		0.272	mg/kg	0.0000272 %	✓	
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.153 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free phase detected

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0192%)

Classification of sample: WS3[1]

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

Sample details

Sample Name:
WS3[1]
Sample Depth:
0.6 m
Moisture content:
16%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 16% Dry Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8	mg/kg	1.32	9.106	mg/kg	0.000911 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.7	mg/kg	2.775	1.675	mg/kg	0.000167 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		**<LOD**
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		17	mg/kg	1.462	21.419	mg/kg	0.00214 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		24	mg/kg	1.126	23.294	mg/kg	0.00233 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	53	mg/kg	1.56	71.267	mg/kg	0.00457 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13	mg/kg	2.976	33.355	mg/kg	0.00334 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		49	mg/kg	2.469	104.306	mg/kg	0.0104 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		301	mg/kg		259.483	mg/kg	0.0259 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		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	<0.0000005 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		<LOD
20		pH			PH		7.8	pH		7.8	pH	7.8 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		0.56	mg/kg		0.483	mg/kg	0.0000483 %	✓	
26		anthracene		204-371-1	120-12-7		0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
27		fluoranthene		205-912-4	206-44-0		0.74	mg/kg		0.638	mg/kg	0.0000638 %	✓	
28		pyrene		204-927-3	129-00-0		0.71	mg/kg		0.612	mg/kg	0.0000612 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.51	mg/kg		0.44	mg/kg	0.000044 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		0.26	mg/kg		0.224	mg/kg	0.0000224 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.51	mg/kg		0.44	mg/kg	0.000044 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.32	mg/kg		0.276	mg/kg	0.0000276 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.45	mg/kg		0.388	mg/kg	0.0000388 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.32	mg/kg		0.276	mg/kg	0.0000276 %	✓	
36		benzo[ghi]perylene		205-883-8	191-24-2		0.29	mg/kg		0.25	mg/kg	0.000025 %	✓	
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
											Total:	0.0525 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free phase detected

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0259%)

Classification of sample: WS4[2]

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

Sample details

Sample Name:
WS4[2]
Sample Depth:
0.4 m
Moisture content:
15.1%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15.1% Dry Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	20.648	mg/kg	0.00206 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1	mg/kg	2.775	2.411	mg/kg	0.000241 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1.6	mg/kg	1.142	1.588	mg/kg	0.000159 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		19	mg/kg	1.462	24.126	mg/kg	0.00241 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		51	mg/kg	1.126	49.887	mg/kg	0.00499 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	209	mg/kg	1.56	283.233	mg/kg	0.0182 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		26	mg/kg	2.976	67.231	mg/kg	0.00672 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		471	mg/kg	2.469	1010.459	mg/kg	0.101 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		568	mg/kg		493.484	mg/kg	0.0493 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		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	<0.0000005 %		**<LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		**<LOD**
20		pH			PH		7.8	pH		7.8	pH	7.8 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		0.2	mg/kg		0.174	mg/kg	0.0000174 %	✓	
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
25		phenanthrene		201-581-5	85-01-8		0.31	mg/kg		0.269	mg/kg	0.0000269 %	✓	
26		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
27		fluoranthene		205-912-4	206-44-0		0.53	mg/kg		0.46	mg/kg	0.000046 %	✓	
28		pyrene		204-927-3	129-00-0		0.55	mg/kg		0.478	mg/kg	0.0000478 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.4	mg/kg		0.348	mg/kg	0.0000348 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		0.2	mg/kg		0.174	mg/kg	0.0000174 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.46	mg/kg		0.4	mg/kg	0.00004 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		**<LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.24	mg/kg		0.209	mg/kg	0.0000209 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.42	mg/kg		0.365	mg/kg	0.0000365 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.31	mg/kg		0.269	mg/kg	0.0000269 %	✓	
36		benzo[ghi]perylene		205-883-8	191-24-2		0.28	mg/kg		0.243	mg/kg	0.0000243 %	✓	
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		**<LOD**
											Total:	0.188 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free phase detected

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0493%)

Classification of sample: WS4[3]

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

Sample details

Sample Name:
WS4[3]
Sample Depth:
0.9 m
Moisture content:
22.1%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 22.1% Dry Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13	mg/kg	1.32	14.058	mg/kg	0.00141 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9	mg/kg	2.775	2.046	mg/kg	0.000205 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7	mg/kg	1.142	0.655	mg/kg	0.0000655 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		17	mg/kg	1.462	20.349	mg/kg	0.00203 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		39	mg/kg	1.126	35.962	mg/kg	0.0036 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	268	mg/kg	1.56	342.367	mg/kg	0.0219 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		19	mg/kg	2.976	46.314	mg/kg	0.00463 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		272	mg/kg	2.469	550.081	mg/kg	0.055 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		193	mg/kg		158.067	mg/kg	0.0158 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		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	<0.0000005 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
18		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		<LOD
20		pH			PH		7.6	pH		7.6	pH	7.6 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		0.14	mg/kg		0.115	mg/kg	0.0000115 %	✓	
26		anthracene		204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27		fluoranthene		205-912-4	206-44-0		0.31	mg/kg		0.254	mg/kg	0.0000254 %	✓	
28		pyrene		204-927-3	129-00-0		0.31	mg/kg		0.254	mg/kg	0.0000254 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.32	mg/kg		0.262	mg/kg	0.0000262 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.31	mg/kg		0.254	mg/kg	0.0000254 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.14	mg/kg		0.115	mg/kg	0.0000115 %	✓	
34		indeno[123-cd]pyrene		205-893-2	193-39-5		0.38	mg/kg		0.311	mg/kg	0.0000311 %	✓	
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36		benzo[ghi]perylene		205-883-8	191-24-2		0.22	mg/kg		0.18	mg/kg	0.000018 %	✓	
37		phenol	604-001-00-2	203-632-7	108-95-2		<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
											Total:	0.107 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free phase detected

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0158%)

Classification of sample: WS5[1]

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

Sample details

Sample Name:
WS5[1]
Sample Depth:
0.5 m
Moisture content:
15.1%
(dry weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15.1% Dry Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		15	mg/kg	1.32	17.207	mg/kg	0.00172 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.6	mg/kg	2.775	1.447	mg/kg	0.000145 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		**<LOD**
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5	mg/kg	1.142	0.496	mg/kg	0.0000496 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		15	mg/kg	1.462	19.047	mg/kg	0.0019 %	✓	
6		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<2	mg/kg	1.923	<3.846	mg/kg	<0.000385 %		**<LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		34	mg/kg	1.126	33.258	mg/kg	0.00333 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	218	mg/kg	1.56	295.43	mg/kg	0.0189 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		**<LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22	mg/kg	2.976	56.888	mg/kg	0.00569 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<3	mg/kg	2.554	<7.661	mg/kg	<0.000766 %		**<LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		138	mg/kg	2.469	296.058	mg/kg	0.0296 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		369	mg/kg		320.591	mg/kg	0.0321 %	✓	

#		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		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									
15		benzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<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]									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<2	mg/kg	1.884	<3.768	mg/kg	<0.000377 %		<LOD
		006-007-00-5											
20		pH				7.8	pH		7.8	pH	7.8 pH		
				PH									
21		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				0.19	mg/kg		0.165	mg/kg	0.0000165 %	✓	
			201-581-5	85-01-8									
26		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				0.42	mg/kg		0.365	mg/kg	0.0000365 %	✓	
			205-912-4	206-44-0									
28		pyrene				0.41	mg/kg		0.356	mg/kg	0.0000356 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				0.35	mg/kg		0.304	mg/kg	0.0000304 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.33	mg/kg		0.287	mg/kg	0.0000287 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.16	mg/kg		0.139	mg/kg	0.0000139 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.37	mg/kg		0.321	mg/kg	0.0000321 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.2	mg/kg		0.174	mg/kg	0.0000174 %	✓	
			205-883-8	191-24-2									
37		phenol				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0959 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No free phase detected

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0321%)

Appendix A: Classifier defined and non CLP determinands

- **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: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

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

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

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s)/Risk Phrase(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

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

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

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

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

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

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

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

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

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

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

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

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

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

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

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

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

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

beryllium {beryllium oxide}

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

boron {diboron trioxide; boric oxide}

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

cadmium {cadmium oxide}

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

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

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

chromium in chromium(VI) compounds {chromium(VI) 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 (edit as required)

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {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. (edit as required)

zinc {zinc sulphate}

Low chromium in samples

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

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

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2019.3.3745.7658 (03 Jan 2019)
HazWasteOnline Database: 2019.3.3745.7658 (03 Jan 2019)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
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
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
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

APPENDIX 5

REPORT LIMITATIONS

REPORT LIMITATIONS

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

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

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

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

The report was written in 2022 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations, or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

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

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

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

Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full of those it was requested from, the items relied on have not been verified.
No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

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

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

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