ASOS CAR PARK EXTENSION

LAND WEST OF, PARK SPRING ROAD, LITTLE HOUGHTON, BARNSLEY, S72 7GX

PHASE 2 ENVIRONMENTAL AND GEOTECHNICAL SITE INVESTIGATION REPORT

FOR

ASOS



October 2017

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EXECUTIVE SUMMARY

The site is located to the north west of the existing ASOS warehouse, it is irregular in shape and occupies an area of approximately 0.985ha. The site currently exists as undeveloped scrubland. No buildings or hardstanding currently exist on the site. Access is via the Houghton Main Colliery Roundabout to the immediate south of the site, from Park Spring Road (A6195). Adjacent to the south is a small Gas Powered Electricity Generating Station.

It is understood that the site is to be redeveloped as a supplementary car park associated with the ASOS facility on the opposite side of Park Spring Road.

Ground conditions encountered across the site comprise:

- Made Ground – Topsoil to a depth of 0.1m and generally comprised generally brown, slightly clayey, slightly sandy organic silt.
- Made Ground – Colliery Spoil to depths of between 1.3 and 5.0m, however, this was not fully penetrated in any location. Generally comprised two layers a brown silty slightly sandy gravelly clay which was underlain by a blue grey gravelly clay/silt with a low cobble content

Groundwater was not recorded within any exploratory hole during the site works. During the subsequent monitoring period all boreholes were recorded as dry, with the exception of a small amount of water recorded in BH05 (at 1.97m) on the final visit.

Base on the soil analytical data and comparison of the data to published assessment criteria there were no contaminants of concern present within the near surface soils which pose a risk to end users of the site.

The results of the leachable inorganics have not recorded concentrations above the relevant assessment criteria, therefore the soils on site are not considered to pose a significant risk to controlled waters in the vicinity of the site.

Given the variable nature of the Made Ground encountered across the site and the results of the CBRs, it is recommended that the formation layer is proof rolled and with any soft spots removed and replaced with suitable granular material. Following this and further to the CBR testing results it is recommended that a preliminary design CBR value of 3% is considered achievable.

It is considered that a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures. This equates to a DC-Class for 50 years intended working life of DC-1.

It is understood the potential risk associated with underground coal mining is being assessed by a third party. Therefore no assessment of the potential risk has been carried out as part of this investigation.

1. INTRODUCTION

1.1 Background

RPS Consulting Services Ltd (RPS) was commissioned by ASOS to undertake a Phase 2 Geo-environmental and Geotechnical Site Investigation of land northwest of Park Spring Road, Little Houghton.

The site currently comprises undeveloped scrubland. The assessment has been commissioned prior to the proposed construction of a supplementary car park associated with the ASOS facility situated on the opposite side of Park Spring Road.

1.2 Objectives

The principal objectives of this assessment were as follows:

- To assess the suitability of the site for its proposed use and to support the planning application for redevelopment of the site / discharge of any environmental planning conditions relating to the development;
- To determine the contamination status of soil and groundwater beneath the site;
- To assess whether contamination is present within soil and/or groundwater beneath the site at concentrations which could impact future site uses/occupiers and the wider environment;
- To assess the suitability of the site for its proposed end-use; and
- To determine the engineering properties of the underlying soils and to provide geotechnical parameters to assist preliminary foundation, ground slab and external hard-standing design.

1.3 Legislation and Guidance

This report has been produced in general accordance with

- Contaminated Land (England) Regulations 2006 (as amended);
- DEFRA Environmental Protection Act 1990: Part 2A - *Contaminated Land Statutory Guidance (2012);*
- DEFRA and Environment Agency (2004) Contaminated Land Report 11 (CLR 11): *Model Procedures for the Management of Land Contamination*;
- National Planning Policy Framework (2012);
- CIRIA Document C665: *Assessing Risks Posed by Hazardous Ground Gases to Buildings*;

- British Standard requirements for the *'Investigation of potentially contaminated sites - Code of practice'* (ref. BS10175:2011+A1:2013);
- British Standard requirements for the *'Code of practice for ground investigations'* (ref. BS5930:2015);
- British Standard requirements for the *'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'* (ref BS8485:2015);
- EN 1997-1 (2004): Eurocode 7: *Geotechnical design - Part 1: General rules;* and
- EN 1997-2 (2007): Eurocode 7: *Geotechnical design - Part 2: Ground investigation and testing.*

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

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

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

2. SUMMARY OF PHASE 1 DESK STUDY

2.1 Background

RPS has previously undertaken a Phase 1 Preliminary Risk Assessment for the proposed car park extension reference RCEI528360-002R, dated July 2017, which should be read in conjunction with this report. The salient points relating the phase 1 development area are summarised in this section.

2.2 Site Location and Description

The site is located to the north west of the existing ASOS warehouse across Park Spring Road (A6195) at National Grid Reference SE417064. It is irregular in shape and occupies an area of approximately 0.985ha.

The site currently exists as undeveloped scrubland. No buildings or hardstanding currently exist on the site. Access is via the Houghton Main Colliery Roundabout to the immediate south of the site, from Park Spring Road (A6195). Adjacent to the south is a small Gas Powered Electricity Generating Station.

The site sits between 33.12 m AOD – 33.63 m AOD, sloping down from the north east towards the south west. The centre of the site sits at roughly 33.57 m AOD. The roundabout to the south of the site is at a level of approximately 32.3 m AOD at the proposed junction with the site.

The associated ASOS warehouse is located to the south east of the site beyond Park Spring Road. The wider area is dominated by undeveloped rural/agricultural land. The village of Little Houghton is located approximately 1 km to the south east; Great Houghton town is located approximately 1.5 km directly east; Grimethorpe is approximately 2 km to the north. No residential properties or schools/hospitals are situated within the immediate vicinity of the site.

2.3 Proposed Development

It is understood that the site is to be redeveloped as a supplementary car park associated with the ASOS facility on the opposite side of Park Spring Road. A proposed development plan is included as Figure 3.

2.4 Site History

Historical maps suggest that the site has largely remained undeveloped. Mineral railway lines are shown to truncate the southern portion of the site and the northern extremity of the site from the early 1900s until the late 1980s. The mineral railway is considered to be associated with the Colliery to the south. Land use in the vicinity of the site was largely associated with

Houghton Main Colliery which was present 75m to the southeast of the site from at least 1890 until the late 1990s. The ASOS/XPO logistics warehouse has been present since circa 2010.

2.5 Geology and Hydrogeology

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

Table 1: Descriptions of Geological Strata

Strata	Description	Aquifer Classification
Pennine Middle Coal Measures	Mudstone, Siltstone, and Sandstone.	Secondary A Aquifer

Made Ground and potentially colliery spoil may be present across the site as a result of historical activities. No site investigation reports have been reviewed to verify this. The Groundsure Geo Insight report indicates that the site and surrounding land is classified as artificial ground (Made Ground) by the 1:1,000 scale BGS mapping.

The site is located above a Secondary A Aquifer relating to the bedrock Pennine Middle Coal Measures Formation. These formations are formed of permeable layers capable of supporting water supplies at a local scale, in some cases forming an important source of base flow to rivers.

According to Environment Agency data, the site is not located in a groundwater Source Protection Zone.

2.6 Hydrology

There is one watercourses within 1km of the site which are classified within a River Basin Management Plan published by the EA under the European Water Framework Directive (2000). A list of all nearby watercourses and water bodies are presented in Table 2.

Table 2: Nearby Watercourses and Water Bodies

Watercourse / Body	Quality Classification	Distance and Direction
River Dearne	Current/Predicted Chemical B	196m West
Unnamed water (secondary river/drain)	n/a	250m west
Tertiary river/drain, this connects to a culvert.	n/a	90m northeast

2.7 Landfills and Waste Site

Data provided by the Environment Agency, Local Authority and British Geological Survey indicates that there are no recorded licensed or known historical landfill sites located within 500m of the site.

Groundsure reports have identified several potential areas of unlicensed landfilling within 500m of the site. At distances between 341m and 499m east and south east there records of potential refuse heaps between the years 1904 and 1988.

2.8 Coal Authority

The Coal Authority Interactive Map Viewer indicates that the site is situated within a Development High Risk Area. The information suggests that the site has been subject to surface mining and identifies the site as in an area of 'probable shallow coal mine workings'.

There are three mine entry points located south of the existing ASOS warehouse at approximately 420m SE. No mine entries are indicated to be present within the site boundary.

RPS understands that a third party has undertaken a coal mining risk assessment to support the proposed development.

3. PRELIMINARY CONCEPTUAL SITE MODEL

3.1 Background

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

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

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

3.2 Potential Pollutant Linkages

Each stage of the potential pollutant linkages have been assessed individually on the basis of information obtained during the site reconnaissance and desk study exercise and are discussed in the following section.

3.2.1 Potential contaminant Sources

On-site – Current & Historical

Current on-site potential sources of contaminants of concern associated with the former mineral railways and potential colliery spoil include metals, sulphates, hydrocarbons, PAHs, asbestos, ground gas/mine gas.

Off-site – Current / Historical

Land use in the vicinity of the site associated with the previous land uses including the colliery are a potential source of petroleum hydrocarbons, metals, asbestos and a potential source of ground gas.

3.2.2 Potential Pathways

The site is to be redeveloped as a car park and it is understood that majority of the site will be covered with hardstanding with limited areas of soft landscaping. Following completion of the

development, the presence of the hardstanding will break any the dermal contact and ingestion pathways. However, in areas of soft landscaping, the pathways of dermal contact and ingestion could still be active. In addition, there would be potential for the airborne migration of soil/dust from these areas.

There is the potential for ground gas to impact future site users via the inhalation pathway in indoor areas. However, the proposed site use (surface car park) is not considered to be particularly sensitive to ground gas or concrete attack issues. However, if any enclosed structures or below ground concrete structures are proposed it would be considered prudent to undertake an appropriate investigation.

There is the potential for made ground present on site to represent a source of leachable contaminants, however made ground is likely to extend beyond the site boundaries across a wide area of land. The addition of hardstanding to the site surface as part of the proposed development is likely to reduce surface water infiltrations therefore reducing the potential for soil leaching.

3.2.3 Potential Receptors

Potential human health receptors include future site users and offsite human health receptors.

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

The Pennine Coal Measures present beneath the site are a Secondary A Aquifer, however given the long mining history of the site is not considered to be a sensitive receptor. There are no potable abstractions within the vicinity of the site. The nearest surface water feature is the River Dearne approximately 200m to the west of the site. There is the potential for mobile soil or shallow groundwater contaminants to migrate laterally via permeable strata to the surface waters including the River Dearne.

3.3 Preliminary Conceptual Site Model

A preliminary CSM has been developed on the basis of the site reconnaissance and desk study. The CSM is used to identify potential sources, pathways and receptors (i.e. potential pollutant linkages) onsite and is summarised in Table 3:

Table 3: Preliminary Conceptual Site Model

Potential Source	Contaminants of Concern	*Via*	Potential Pathways	Linkage Potentially Active?	Receptors
On-site – current and historical: former mineral railways and potential colliery spoil	Metals, sulphates, hydrocarbons, PAH, asbestos and ground gas.	Soil	Direct contact/ingestion	✓	Future site users
			Inhalation of volatiles	✓	
			Airborne migration of soil or dust	✓	Offsite users
			Leaching of mobile contaminants	✓	Secondary A Aquifer
		Groundwater	Direct contact/ingestion	✓ ✓	Future site users Offsite users
			Inhalation of volatiles	✓ ✓	Future site users Offsite users. Limited potential for such contamination.
			Vertical and lateral migration in permeable strata	✓ ✓	Secondary A Aquifer River Dearne
Off-site Current and historical: Colliery and associated land uses including spoil tips.	petroleum hydrocarbons, metals and ground gas.	Groundwater	Direct contact/ingestion	✓	Future site users
			Inhalation of volatiles	✓	Future site users Limited potential for such contamination.
On and Off-site: Made Ground / natural strata or bio-degradation of contamination and mine gases	Ground gas.	Ground Gas	Inhalation of ground gas	✓ ✓	Future site users Offsite users
			Explosive risks	✓ ✓	Future site users Offsite users

4. INTRUSIVE SITE INVESTIGATION

4.1 Introduction

A number of potential pollutant linkages have been identified as associated with the site within the CSM presented in Table 3. An intrusive site investigation has been carried out in order to provide preliminary assessment of whether pollutant linkages identified within the outline CSM are currently active or will be made active upon redevelopment of the site.

The investigation also provided information on ground conditions and data for the assessment geotechnical properties of strata underlying the site in relation to the proposed development.

4.2 Description of Works

The site investigation was carried out between 14 September and 15 September 2017. Weather at the time of the investigation was cool and dry with some rain showers. The site investigation comprised:

- 5 window boreholes advanced to a maximum depth of 5.0m below ground level (bgl);
- 8 trial pits advanced to a depth of 3.0 m bgl;
- 6 plate load test; and
- Installation of 5 groundwater/gas monitoring wells.

An exploratory hole location plan is provided as Figure 4.

The rationale behind each of the site investigation locations is summarised in Table 4.

Table 4: Investigation Location Rationale

Exploratory Hole ID	Location onsite	Rationale
WS01 – WS05	For general site coverage	To investigate the shallow ground conditions. To allow for in situ standard penetration tests. To enable collection of soil samples for chemical analysis and geotechnical laboratory classification testing. Soil gas and groundwater monitoring standpipes were installed in each of the borehole locations.
TP01 – TP08	For general site coverage	To investigate the shallow ground conditions, to enable collection of soil samples for chemical analysis and geotechnical laboratory classification.
CBR1 – CBR6	For general site coverage	Plate load testing carried out at location adjacent to trial pit locations to allow calculation of preliminary CBR values.

The soil arisings from each exploratory hole were carefully examined for visual and olfactory evidence of contamination.

A return visit for groundwater sampling was carried out on 21 September 2017. The monitoring wells were inspected for the presence of free-phase hydrocarbon product using an oil/water interface probe and the depth to groundwater was recorded prior to sampling.

Ground gas monitoring was undertaken on three occasions, between 21 September 2017 and 2 October 2017. Installations were monitored for concentrations of methane, carbon dioxide, carbon monoxide, hydrogen sulphide and oxygen. In addition, the flow rate and barometric pressure were recorded.

4.3 Laboratory Testing

4.3.1 Environmental Laboratory Testing – Soils

A total of 10 samples of Made Ground were submitted to a UKAS/MCERTS accredited laboratory and analysed for a number of determinands including:

Inorganic Determinands

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

Organic Determinands

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

4.3.2 Environmental Laboratory Testing – Leachate tests on soils

It was not possible to obtain groundwater samples as the monitoring wells contained insufficient volumes of groundwater, therefore a selection of 3 soil samples were submitted to a UKAS/MCERTS accredited laboratory and analysed for a number of leachable determinands including arsenic, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium, zinc, sulphide, sulphate and total cyanide.

4.3.3 Geotechnical Laboratory Testing

A total of 14 samples of Made Ground were submitted to a UKAS accredited geotechnical testing laboratory and analysed for a range or:

- 8 no. Natural Moisture content and Atterberg limit tests;
- 2 no. compaction tests using 2.5kg rammer; and
- 6 no. SD-1 suite tests.

5. SITE INVESTIGATION FINDINGS

5.1 Ground Conditions

The strata encountered during the intrusive investigation are summarised in Table 5, and described in the following section.

Table 5: Ground Conditions

Strata	Depth to Top of Strata m bgl	Thickness (m)
Made Ground /Topsoil	0.0	0.1
Made Ground/Colliery Spoil	0.1	1.3 – 5.0

All exploratory hole were located in areas of vegetation cover.

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

Geotechnical laboratory certificates are provided as Appendix D.

Made Ground/Topsoil

Directly below the vegetation cover, a thin layer of Made Ground/Topsoil was encountered to a depth of 0.1m bgl. This generally comprised brown slightly clayey, slightly sandy organic silt.

Made Ground/Colliery Spoil

Made Ground/Colliery Spoil was encountered in all locations underlying the Made Ground//Topsoil. The Colliery Spoil was not fully penetrated in any locations.

The Colliery Spoil generally comprised two layers; a brown silty slightly sandy gravelly clay which was underlain by a blue grey gravelly clay/silt with a low cobble content.

Cobble and gravel size constituents generally comprise mudstone, sandstone and rare coal.

Atterberg Limit testing was undertaken on 8 soil samples from the Colliery Spoil, collected at depths ranging from 0.5m bgl to 1.0m bgl, to determine values for Liquid Limit (LL), Plastic Limit (PL) and Plasticity Index (PI). Results for LL ranged from 37% to 40%; PL ranged from 20% to 22%; and PI ranged from 15% to 18%, with modified Plasticity Indexes ranging from 10.35% to 11.73%. This is indicative of a material of intermediate plasticity clay with a low volume change potential.

SPT results obtained from within the Colliery Spoil at depths ranging from 1.0m to 5.0m bgl were variable and gave results ranging from N = 11 to N = 50. Using the correlation by Stroud,

this corresponds approximately to undrained shear strength values ranging from 50kN/m^2 to 225N/m^2, which is indicative of a medium to high strength cohesive material, although it is possible that the tests which refused where as a result of an obstruction within the Colliery Spoil.

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

$$C = f1 \times N$$

Where, conservatively for high plasticity clays, f1 = 4.5.

The coefficient of compressibility (mv) inferred from the SPT tests indicates a range from 0.01m^2/MN to 0.045m^2/MN to.

Approximate coefficient of compressibility values were calculated from SPT results using the correlation by Stroud:

$$Mv = 1/(f_2 \times N)$$

Where, conservatively for high plasticity clays, f_2 = 0.5.

Compaction testing for dry density/ moisture content relationships carried out on two samples indicate the Optimum Moisture Content (OMC) is between 10% and 13% to achieve a maximum dry density of between 1.89 mg/m^3 and 2.0 mg/m^3 . The OMC correlates well with the Natural moisture content recorded for each sample suggesting that little or no modification will be required if it is to be reused in the earthworks.

In situ California Bearing Ratios (CBR) testing was carried out within the Colliery Spoil Strata, at depths of 0.2m bgl, in six locations across the site. The in situ CBR values were calculated using plate load tests with a 450mm diameter plate. The results of the in situ CBR values are summarised in Table 6.

Table 6: In-situ CBR Testing Results

Position	Depth (m bgl)	Stratum	CBR (%)	Modulus of subgrade reaction (K_{610}) (kN/m^2/m)
TP01	0.2	Made Ground – Colliery Spoil	2.5	24.7
TP02	0.2		7.7	47.3
TP03	0.2		5.5	38.8
TP04	0.2		7.1	45.3
TP05	0.2		8.4	49.8
TP07	0.2		9.3	52.8

5.2 Groundwater

Groundwater was not recorded within any exploratory hole during the site works. During the subsequent monitoring period all boreholes were recorded as dry, with the exception of a small amount of water recorded in BH05 (at 1.97m) on the final visit. The volumes were insufficient for the purpose of sampling. As an alternative soil samples were subject to leachate analysis.

5.3 Field Evidence of Contamination

5.3.1 Visual and Olfactory Evidence of Contamination

No visual or olfactory evidence of contamination was noted within soil or groundwater during the intrusive investigation.

5.4 Ground Gas Monitoring

Ground gas monitoring has been undertaken on three occasions between 21 September 2017 and 2 October 2017. Installations were monitored for concentrations of methane, carbon dioxide and oxygen. In addition, the flow rate and barometric pressure were recorded. The results of the ground gas monitoring are presented in Appendix E.

Methane was not recorded at concentrations exceeding the instrument limit of detection of <0.1% volume/volume (v/v) during the three monitoring visits. Carbon dioxide was recorded at a maximum concentration of 11% v/v within monitoring well BH03, screened within the Made ground, on 29 October 2017.

The maximum recorded peak ground gas flow rate was <0.1l/hr, recorded in all monitoring wells.

The lowest recorded oxygen concentration was 4.5% v/v within monitoring well BH01 on 29 October 2017. Atmospheric pressure ranged from 1015mb to 1008mb during the three monitoring periods.

The CIRIA Report C665 ‘Assessing risks posed by hazardous ground gases to buildings’ outlines indicative guideline concentrations for carbon dioxide and methane in association with gas flow rates for which gas protection measures may be required in new residential or commercial developments. The methodology is based on the Modified Wilson and Card approach that characterises the gas regime into a series of Characteristic Situations (1 to 5), with corresponding indicative gas protection measures. Using this methodology, the ground gas regime at this site corresponds to Characteristic Situation 2, whereby basic gas protection measures are required for any buildings on site.

6. CHEMICAL RESULTS AND ASSESSMENT

The concentrations of contaminants of concern within soil and groundwater can be compared to published assessment criteria (AC) to determine whether these represent an unacceptable risk to identified receptors.

6.1 Human Health Assessment Criteria

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

It is understood the site is to be redeveloped as an overflow car park for the ASOS warehouse, therefore the assessment has been based on a commercial end use.

Soil Organic Matter (SOM) for samples of Made Ground collected on site ranged from 0.5% to 3.3%. Concentrations of contaminants of concern have therefore been compared to S4UL (2.5% SOM) values.

A notable exclusion from the S4ULs is lead. In the absence of a S4UL for lead, the Category 4 Screening Level (C4SL) has been selected, published by DEFRA in 2014. It is noted that the C4SL are based on the acceptance of a low level of toxicological concern, rather than the more conservative standard adopted in the derivation of S4ULs, which are based on a tolerable or minimal level of risk.

In the absence of available guidance from DEFRA and the Environment Agency for the assessment of acute risks from cyanide, it is considered appropriate to use the methods proposed by the Massachusetts Department of Environmental Protection (MADEP) and the first edition of the SNIFFER Framework, which can be used as a basis for assessing acute risks. See Appendix B for further details. Using this method, an AC of 53 mg/kg has been derived for the assessment of acute risk.

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

6.1.1 Comparison of Soil Analyses to Assessment Criteria

Chemical analysis by a UKAS/MCERTS accredited laboratory was undertaken on ten samples of Made Ground for a suite of metals, asbestos, polycyclic aromatic hydrocarbon (PAH) and total petroleum hydrocarbons (TPH). These samples were collected on a non-targeted sampling grid.

A comparison of soil analyses to the relevant assessment criteria is summarised below and presented as Appendix F. Analytical certificates for soils are presented in Appendix G.

The data set has been assessed as one averaging area. This is based on historic and current site uses of the site and the similarities in ground conditions encountered across the site during the site investigation.

Made Ground

None of the contaminants of concern were recorded at concentrations above their respective AC for any of the soil samples.

Ten samples of Made Ground were submitted for an asbestos screen. Asbestos was not identified in any of the samples submitted for screening.

6.2 Controlled Waters Assessment Criteria

The preliminary conceptual site model identified that the site is underlain by a Secondary A Aquifer, is not within a Source Protection Zone and there are no abstractions within proximity of the site. The nearest surface water feature is the River Dearne approximately 200m to the west of the site.

On the basis of the above the results of the soil leachate analysis have been compared the Environmental Quality Standards (EQS) for freshwater values. Where such values are not available, the UK Drinking Water Standard values have been used.

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

6.2.1 Comparison of Soil Leachate Analyses to Assessment Criteria

As no shallow groundwater has been encountered at the site during the site works and subsequent monitoring, chemical analysis was undertaken on three soils samples collected from the Made Ground for leachable inorganics.

A comparison of soil leachate analyses to the relevant assessment criteria is presented as Appendix F. Analytical certificates for groundwater samples are presented in Appendix G.

The results of the leachable inorganic have not recorded concertation above the relevant assessment criteria.

6.2.2 Summary of Soil Leachate Analysis

The results of the leachable inorganics have not recorded concentrations above the relevant assessment criteria, therefore the soils on site are not considered to pose a significant risk to controlled waters in the vicinity of the site.

7. REVISED CONCEPTUAL SITE MODEL

7.1 Introduction

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

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

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

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

7.2 Future Site Users

Based on the analytical data and published assessment criteria there are no contaminants of concern present within the near surface soils which pose a risk to end users of the site. It is understood the proposed development will largely comprise hardstanding which would further reduce the risk.

On the basis of the above, the potential risk to future site users from concentrations of contaminants of concern identified within soil sampled from beneath the site is considered to be **LOW**.

7.3 Off-site Human Health Receptors

Following redevelopment, for areas of the site covered by building footprint or hardstanding there is limited potential for the air-borne migration of soil or dust to impact neighbouring receptors.

Concentrations of contaminants of concern considered to represent a significant risk to human health receptors were not recorded within soil samples analysed from beneath the site.

The potential risk to offsite human health receptors from these concentrations of contaminants of concern is therefore considered to be **LOW**.

7.4 Construction / Maintenance Workers

S4ULs cannot be used to assess the acute (short term exposure) risk that personnel in close contact with exposed soils may experience during demolition, redevelopment or site maintenance duties.

Potential risks to construction workers can easily be controlled in most site areas by the use of appropriate personal protective equipment (disposable coveralls, gloves, and particulate/vapour masks) and by adopting high levels of personal hygiene.

Providing contractors undertake and implement a site specific risk assessment and resulting mitigation measures are taken, based on the available information, the potential risk to ground workers is considered to be **LOW**.

7.5 Controlled waters

No shallow groundwater was encountered during the site works or subsequent monitoring period. Therefore the potential risk the site poses to underlying groundwater has been carried out by undertaking leachability analysis on a number of samples for a range of metals. The results of these have been compared to the EQS values to provide an indication of potential risk.

The results of the leachable inorganics have not recorded concentrations above the relevant assessment criteria, therefore the soils on site are not considered to pose a significant risk to controlled waters in the vicinity of the site.

7.6 Structures and Infrastructure

7.6.1 Buildings

Based on the ground gas monitoring undertaken onsite as part of the current investigation CIRIA CS2 is applicable to the site, whereby basic ground gas protection may be required for any building on site.

Gas protection measure will need to be designed according to BS 8485:2015. For CS2 (commercial / industrial), CIRIA Report 665 suggests that typical gas protection measures may comprise of:

a) Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft) with at least 1200 g DPM. All joints and penetrations sealed.

b) Beam and block or pre cast concrete slab and minimum 2000 g DPM/reinforced gas membrane. All joints and penetrations sealed.

c) Possibly underfloor venting or pressurisation in combination with a) and b) depending on

Given the presence of hydrocarbon contamination of soils and groundwater RPS recommends that the gas protection membrane adopted as part of the protection measures meets a specification to prevent the ingress of hydrocarbon and VOCs vapours.

The installation of the gas protection measures will require appropriate independent verification in accordance with BS 8485:2015.

It is understood the site is to be redeveloped for a single story open air car park with no buildings. Therefore no gas protections would be required unless development plans are revised.

7.7 Conceptual Model

The potential source-pathway-receptor linkages and associated risks upon completion of the proposed development at the site, as identified following completion of the assessment, are summarised in the revised CSM in Table 7.

Table 7: Revised Conceptual Site Model

Potential Source	Contaminants of Concern	*Via*	Potential Pathways	Linkage Potentially Active?	Receptors
Onsite – current: Onsite – historical:	Metals, hydrocarbons and asbestos	Soil	Direct contact/ingestion	×	Future site users
			Inhalation of volatiles	×	
			Airborne migration of soil or dust	×	Future Site users Offsite users
			Leaching of mobile contaminants	×	N/A
		Groundwater	Direct contact/ingestion	× ×	Future site users Offsite users
			Inhalation of volatiles	× ×	Future site users Offsite users
			Vertical and lateral migration in permeable strata	×	Secondary A Aquifer River Dearne

Potential Source	Contaminants of Concern	*Via*	Potential Pathways	Linkage Potentially Active?	Receptors
Offsite – current: Offsite – historical:	Metals, and hydrocarbons	Groundwater	Direct contact/ingestion	×	Future site users
			Inhalation of volatiles	×	Future site users
On and offsite – Made Ground / natural strata or bio-degradation of contamination.	Carbon dioxide and methane	Ground Gas	Inhalation of ground gas	× ×	Future site users Offsite users
			Explosive risks	× ×	Future site users Offsite users

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

8. GEOTECHNICAL ASSESSMENT

8.1 Introduction

It is understood that the site is to be redeveloped as an overflow car park for the ASOS warehouse, with the majority of the site to be covered in hardstanding car parking and access routes. The proposed layout is shown as Figure 3 (drawing ref: 6057-004, aja architects)

8.2 Preliminary Geotechnical Risk Register

The potential preliminary geotechnical hazards associated with the development are summarised in Table 8. The table provides an assessment of whether the site is likely to be affected by the hazard and the possible consequences and engineering considerations.

Table 8: Geotechnical Risk Register

Hazard Description	Is hazard likely to be present / affect the site? (H / M / L / NA?)	Comments / possible engineering requirements where hazard present
Sudden lateral / vertical changes in ground conditions	L/M	The ground conditions from existing ground level are generally consistent with topsoil overlying Made Ground /Colliery Spoil. Ground conditions encountered across the site during the site investigation are not highly variable with the exception of the potential for inherent variability within the colliery spoil itself. It is considered the Colliery Spoil should be suitable as formation layer for the proposed car park in is present condition.
Highly compressible / low bearing capacity soils, (including peat and soft clay)	L/M	The– Colliery Spoil encountered was generally of moderate to high strength, although given its inherent variability, the potential for localised soft spots should not be discounted. The site should be proof rolled prior to construction with any softs spots excavated and replaced with engineered granular fill.
Ground dissolution features / natural cavities	L	Ground conditions beneath the site are not consistent with these conditions.
Shrinking and swelling clays	L	Based on the Atterberg Test results and the consolidation characteristics of the Colliery Spoil, it is considered to have a low volume change potential. There does not appear to be evidence of a desiccated zone in the upper horizons of the Colliery Spoil. Mature trees have been identified adjacent to the site. The potential effect of these on the depth required for any foundation should be assessed.
Slope stability issues	L	Whilst no significant slopes are present onsite, any temporary created as part of the development should be subject to appropriate geotechnical design based on site-specific site investigation information.
High groundwater table (including waterlogged ground)	L	Groundwater was not encountered during the site investigation works and all borehole locations remained dry during the monitoring period.

Hazard Description	Is hazard likely to be present / affect the site? (H / M / L / NA?)	Comments / possible engineering requirements where hazard present
Filled and Made Ground (including embankments)	H	Made Ground was encountered across the site and was not fully penetrated at depths of between 2.0m and 5.0m bgl. However, the colliery spoil is relatively consistent and appears to have been engineered in place resulting in an suitable formation strata for the proposed development
Obstructions (including foundations, services, basements, tunnels and adjacent sub-structures)	L/M	The site has had a limited development history and no significant obstructions were encountered in the intrusive development. However relic structures could be encountered associated with the history of the surrounding area. It is likely these obstructions, if encountered may be removed using standard construction plant.
Underground mining	N/A	The site is located within the Development High Risk Area, however, it is understood that a third party is undertaking a coal mining risk assessment. As such the risk association with coal mining are not considered within this assessment.
Concrete classification	L	Testing has indicated a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures.
Seismic Activity	L	The Eurocode 8 seismic hazard zoning maps for the UK (Musson and Sargeant, 2007) indicate that horizontal Peak Ground Acceleration (PGA) values with 10% probability of being exceeded in 50 years (475 year return period) are between 0.00 and 0.02g, which is considered very low.

8.3 Roads and Pavements

In situ CBRs undertaken during the site investigation at depths of 0.2m across the site have recorded CBR values between 2.5% and 9.3 %.

Given the variable nature of the Made Ground encountered across the site and the results of the CBRs, it is recommended that the formation layer is proof rolled and with any soft spots removed and replaced with suitable granular material. Following this and further to the CBR testing results it is recommended that a preliminary design CBR value of 3% is considered achievable.

It would be prudent to undertake further plate loading tests to determine CBR values when final road levels are known, prior to construction, to assure the design process.

If a higher CBR value is required, or a thinner overall pavement construction is considered desirable, it may be possible to undertake surface rotovated lime/cement stabilisation of the near surface colliery spoil which could act as an improved sub-base for the pavement construction. That laboratory testing does not indicate the onerous present of sulphates in the soil which would preclude this technique. Consultation should be sought from a specialist ground improvement contractor is this is considered further.

8.4 Chemical Attack on Buried Concrete

Samples collected from Made Ground - Colliery Spoil were tested for Full SD - 1 suite, including pH, sulphate content, Chloride, Nitrate and Ammoniacal Nitrate. The results are presented in Table 9.

Table 9: Results of pH and sulphate testing

Stratum	No. Samples	Range of pH	Characteristic pH	Range of Sulphate (mg/l)	Characteristic Sulphate (mg/l)	Design Sulphate Class	ACEC Class	DC Class
Made Ground	6	7.53 – 8.36	7.56	64.2 – 199.4	188.8	DS-1	AC-1	DC1

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

- Brownfield ground conditions;
- Mobile groundwater conditions;
- For a data set of five to nine samples, the characteristic value for soluble sulphate has been calculated from the average of the highest two results, while the characteristic value for pH is taken as the average of the lowest two pH results.

Based on the above, it is considered that a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures. This equates to a DC-Class for 50 years intended working life of DC-1.

8.5 Underground Coal Mining

It is understood the potential risk associated with underground coal mining is being assessed by a third party. Therefore no assessment of the potential risk has been carried out as part of this investigation.

8.6 Temporary Works and Excavations

The site has not had a significant development history and no buried obstructions were encountered during the site investigation. If relic structures are present at, these may require partial or total removal to enable the construction of the proposed development. It should be possible to excavate any relic structures still remaining with conventional earth moving plant.

Groundwater was not encountered during the site investigation works or during the subsequent monitoring visits. Therefore it is not anticipated that significant groundwater inflows will be encountered during any excavations.

If groundwater is encountered during excavation, degradation of the formation may occur. The formation should therefore be adequately protected from seepages and protected from adverse

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

It is noted that several large established trees are present around the perimeter of the site. It would be prudent to seek the advice of a aborculturalist if it is proposed to remove these trees as part of the works, as the reduction in water demand may have an associated impact on the volume change of the soil.

9. WASTE RE-USE AND WASTE CHARACTERISATION

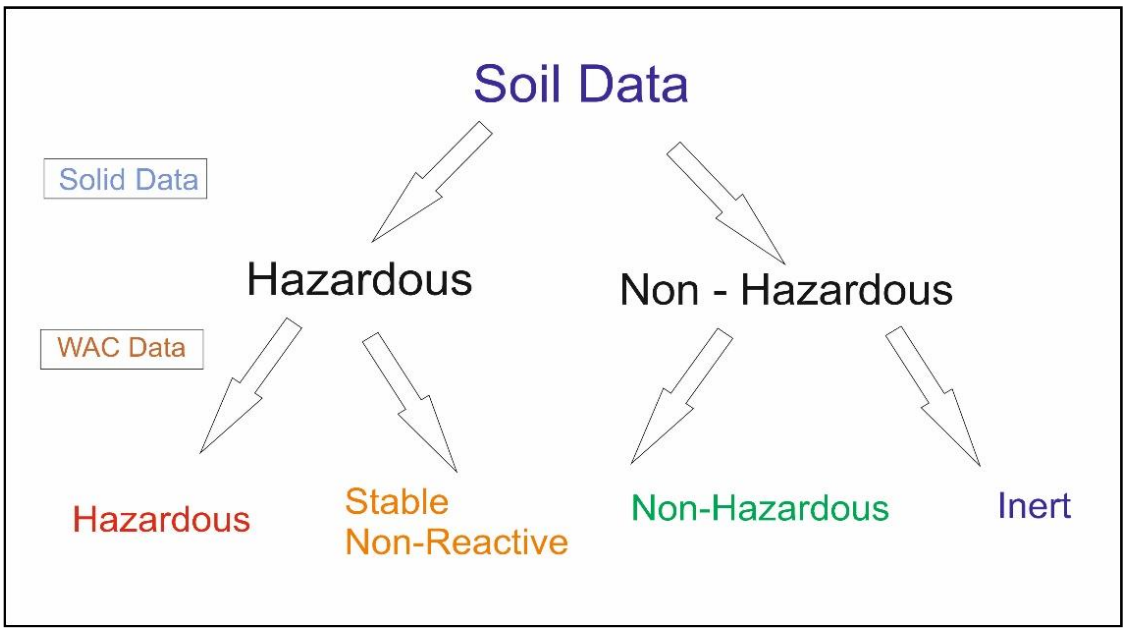
9.1 Assessment criteria

Soil arisings generated through excavation associated with the development may need to be removed from site. Should no suitable offsite re-use options be available, disposal to landfill may need to be considered. However, if contaminated material is to be disposed of, use of soil treatment facilities should also be considered.

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

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

Waste Characterisation Categories



9.2 Soil Sampling and Testing

Solid Suite of Analysis

Chemical analysis was undertaken on ten samples of Made Ground. All soil samples were analysed for the following solid suite of analysis:

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

WAC Testing

No WAC testing has been carried out as part of the current commission.

All soil analysis results are provided in Appendix G.

9.3 Solid Soil Data

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

The results of the analysis show that all ten samples of Made Ground would potentially be suitable for disposal as non-hazardous waste. Subject to confirmatory WAC testing.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

Based on soil analytical data there are no contaminates of concern present within the near surface soils which pose a risk to end users of the proposed development. It is understood that the proposed development will largely comprise a tarmac car park which would mitigate the risk further.

The results of the leachable inorganics analysis have not recorded concentrations above the relevant assessment criteria, therefore the soils on site are not considered to pose a significant risk to controlled waters in the vicinity of the site.

It is considered that a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) Classification of AC-1 would be appropriate for all buried concrete structures. This equates to a DC-Class for 50 years intended working life of DC-1.

Given the variable nature of the Made Ground encountered across the site and the results of the CBRs, it is recommended that the formation layer is proof rolled and with any soft spots removed and replaced with suitable granular material. Following this and further to the CBR testing results it is recommended that a preliminary design CBR value of 3% is considered achievable.

It is understood the potential risk associated with underground coal mining is being assessed by a third party. Therefore no assessment of the potential risk has been carried out as part of this investigation.

Figure 1

Site Location Plan



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RPS
Unit 12, Watersedge Business Park, Modwen Road, Salford Quays, M5 3EZ
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Client: ASOS

Date: October 2017 Scale: NTS

Project:ASOS Car Park Extension

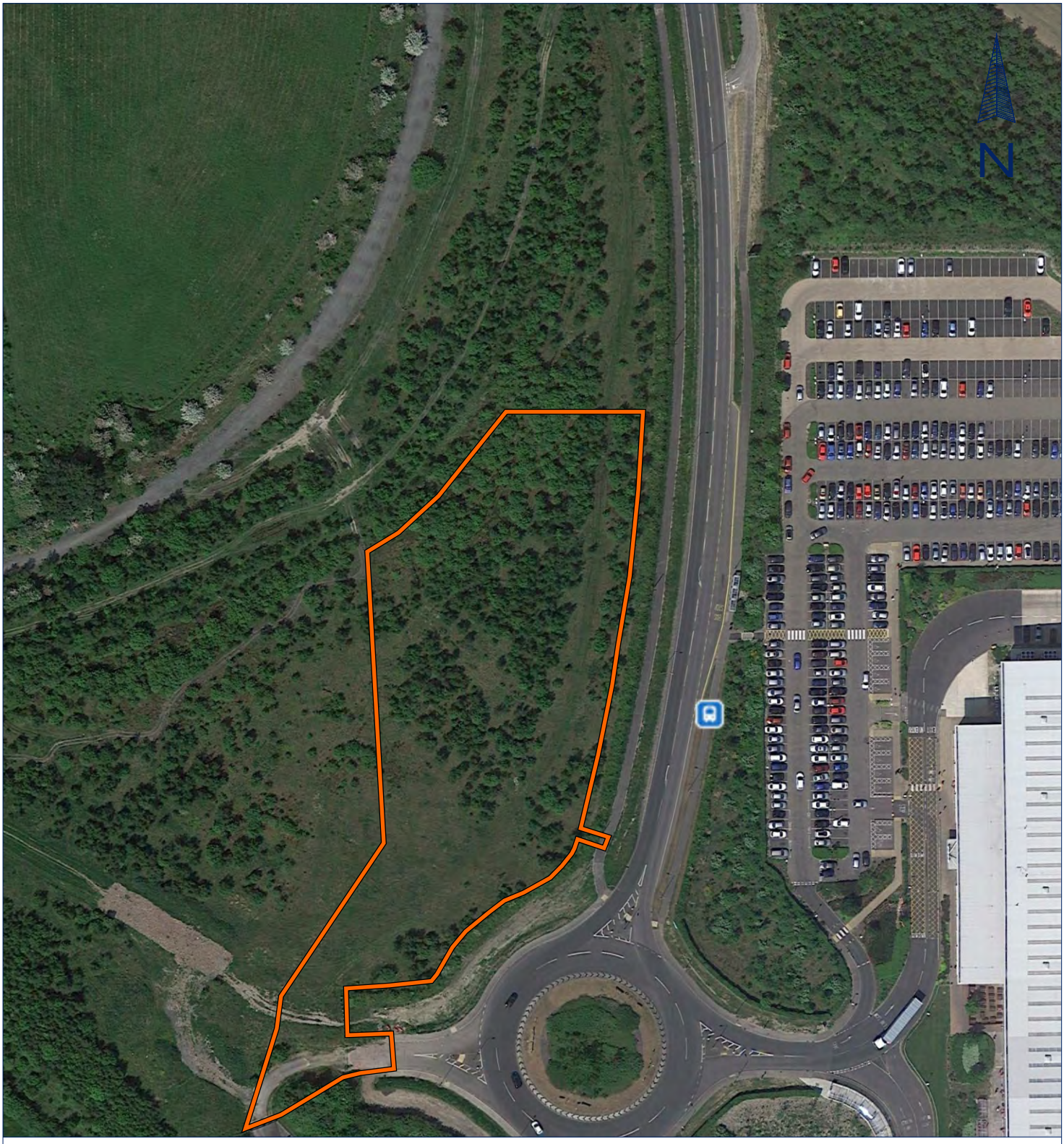
Figure: 01 Rev: 00

Title:Site Location Plan

Job Ref: RCEI54564

Figure 2

Site Plan



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Client: ASOS

Date: October 2017 Scale: NTS

Project: ASOS Car Park Extension

Figure: 02 Rev: 00

Title: Site Plan

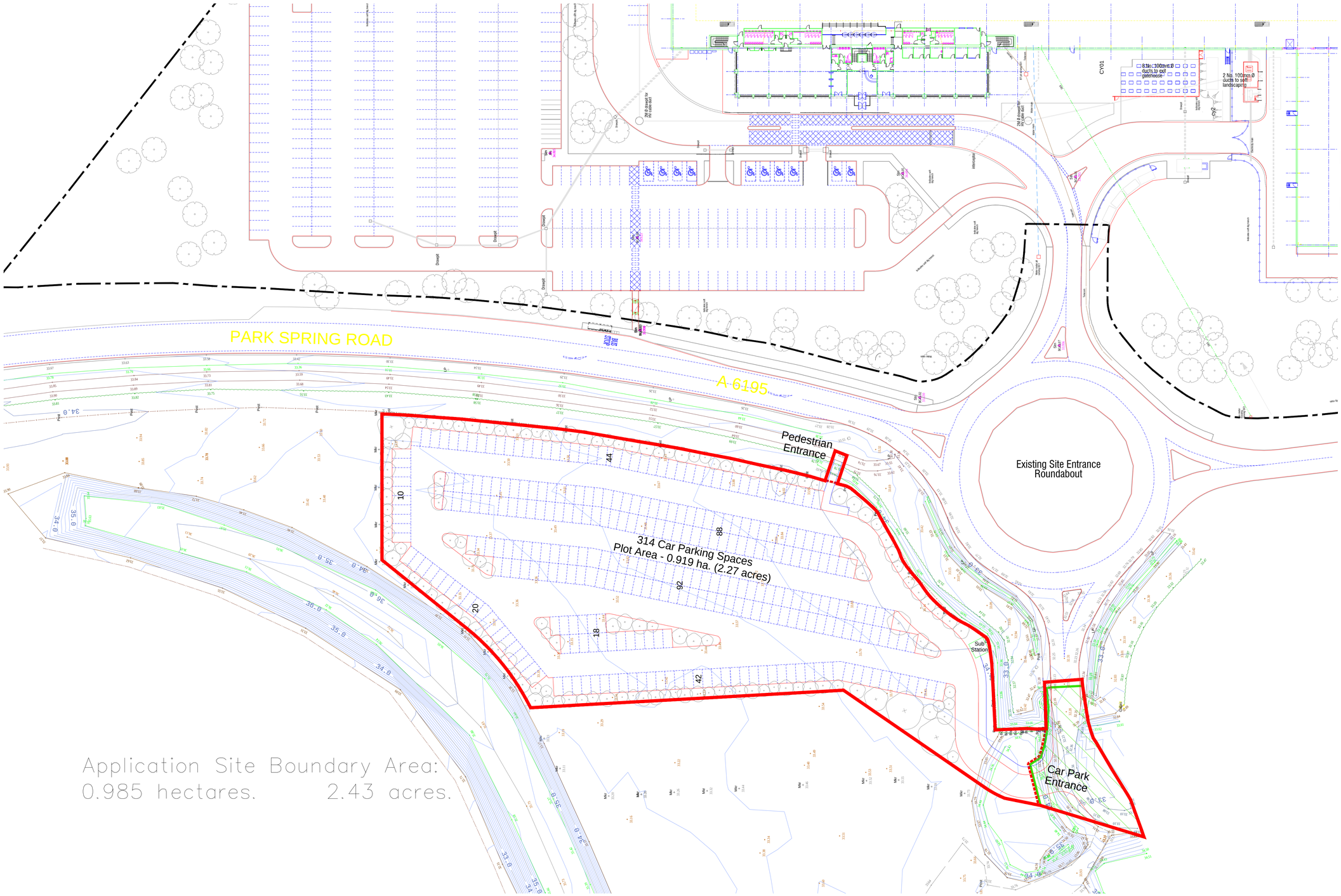
Job Ref: RCEI54564

Figure 3

Proposed Development Plan

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For Soft Landscaping please refer to JBLA Landscaping Proposals

no.	date	revision	by

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client

project

Proposed Car Park
ASOS.COM
Spring Park Road
Little Houghton, Youkshire

drawing

Proposed Car Park Layout

scale	1:500@A1	drawn	RPW
checked	SPP	date	30.06.17

no

6057 – 004

Figure 4

Exploratory Hole Location Plan

Point ID	East	North	Elevation
BH1	441756.822	406486.176	33.568
BH2	441725.070	406517.187	33.336
BH3	441701.025	406475.205	33.386
BH4	441725.358	406434.883	33.744
BH5	441675.467	406379.164	33.648
TP1	441697.831	406386.442	33.823
TP2	441747.856	406438.098	33.854
TP3	441755.050	406504.884	33.387
TP4	441728.941	406508.804	33.307
TP5	441697.408	406487.217	33.324
TP6	441711.237	406487.903	33.376
TP7	441708.477	406431.873	33.423
TP8	441674.692	406366.549	34.479

PARK SPRING ROAD

A 6195

Pedestrian Entrance

Existing Site Entrance Roundabout

Car Park Entrance

314 Car Parking Spaces
Plot Area - 0.919 ha. (2.27 ac

Sub Station

Application Site Boundary Area:
0.985 hectares. 2.43 acres.

BH## Borehole Location

TP## Trial Pit Location

Site Boundary

RPS

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Client: ASOS

Project: ASOS Car Park, Park Spring Road

Title: Exploratory hole location plan

Date: Sept 2017 Scale: NTS

Drawn: TF Job Ref: RCEI54564

Figure Number: Rev: 00

www.rpsgroup.com

Appendix A

Part 2A (The Contaminated Land Regime)

Contaminated Land Definition

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

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

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

a) *significant harm* is being caused or there is a *significant possibility* of such harm being caused; or
b) *significant pollution* of controlled waters[2] is being caused or there is a significant possibility of such pollution being caused[3],

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

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

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

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

[2] In Scotland the term "controlled water" has been updated to "water environment" under the Contaminated Land (Scotland) Regulations 2005 in line with the Water Environment and Water Services (Scotland) Act 2003.

[3] The definition was amended in 2012 by implementation of the Water Act 2003.

[4] Groundwater in this context does not include waters within underground strata but above the saturated zone.

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

The Risk Assessment Methodology

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

The Risk Assessment

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

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

For further information please see the Contaminated Land section on the DEFRA website (www.defra.gov.uk).

[5] The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 and Contaminated Land (Wales) Regulations 2006.

Appendix B

General Notes

RPS HEALTH, SAFETY & ENVIRONMENT

Phase 2 – Site Investigations

General Notes

1. The assessments made in this report are based on the ground conditions as revealed by intrusive investigations, together with the results of any field or laboratory testing or chemical analysis undertaken and other relevant data which may have been obtained including previous site investigations. In any event, ground contamination often exists as small discrete areas of contamination ("hot spots") and there can be no certainty that any or all such areas have been located and/or sampled.

2. There may be special conditions appertaining to the site which have not been taken into account in the report. The assessment may be subject to amendment in the light of additional information becoming available.

3. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS Companies for inaccuracies within the data supplied by other parties.

4. Whilst the report may express an opinion on possible ground conditions between or beyond trial pit or borehole locations, or on the possible presence of features based on either visual, verbal or published evidence this is for guidance only and no liability can be accepted for the accuracy thereof.

5. Comments on groundwater conditions are based on observations made at the time of the investigation unless otherwise stated. Groundwater conditions may vary due to seasonal or other effects.

6. This report is prepared and written in the context of the agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or part after its original submission.

7. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the client deemed to be granted on payment in full to the RPS Company by the client of the outstanding amounts.

8. The report is provided for sole use by the Client and is confidential to them and their professional advisors. No responsibility whatsoever for the contents of the report will be accepted to any person other than the Client.

9. These terms apply in addition to the RPS Group "Standard Terms of Business" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms of Business the said Standard Terms of Business shall prevail). In the absence of such a written contract the Standard Terms of Business will apply.

Appendix C

Exploratory Hole Logs and Photographs

RPS Health, Safety and Environment
Unit 12, Watersedge Business Park
Modwen Road, Salford Quays, M5 3EZ
Tel: 0161 874 3737 Fax: 0161 877 3959

Site	Trial Pit Number
Asos Car Park	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.82	ASOS	54564
	Location (Handheld GPS) 441697.831 E 406386.442 N	**Dates** 14/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				33.72	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
1.00	B1				(2.60)	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
				31.12	2.70	Complete at 2.70m		

Plan

Remarks

No Groundwater
TP Terminated at 2.7m

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP01

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RPS Health, Safety and Environment
Unit 12, Watersedge Business Park
Modwen Road, Salford Quays, M5 3EZ
Tel: 0161 874 3737 Fax: 0161 877 3959

Site	Trial Pit Number
Asos Car Park	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.85	ASOS	54564
	Location (Handheld GPS) 441747.856 E 406438.098 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				33.75	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
0.50	B1				(2.40)	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
				31.35	2.50	Complete at 2.50m		

Plan

Remarks

No Groundwater
TP Terminated at 2.5m

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP02

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RPS Health, Safety and Environment
Unit 12, Watersedge Business Park
Modwen Road, Salford Quays, M5 3EZ
Tel: 0161 874 3737 Fax: 0161 877 3959

Site	Trial Pit Number
Asos Car Park	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.39	ASOS	54564
	Location (Handheld GPS) 441755.05 E 406504.884 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				33.29	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
						Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)		
					(0.60)			
				32.69	0.70			
1.00	B1					Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
					(0.90)			
				31.79	1.60			
						Complete at 1.60m		

Plan

Remarks

TP terminated at 1.6m
No Groundwater

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP03

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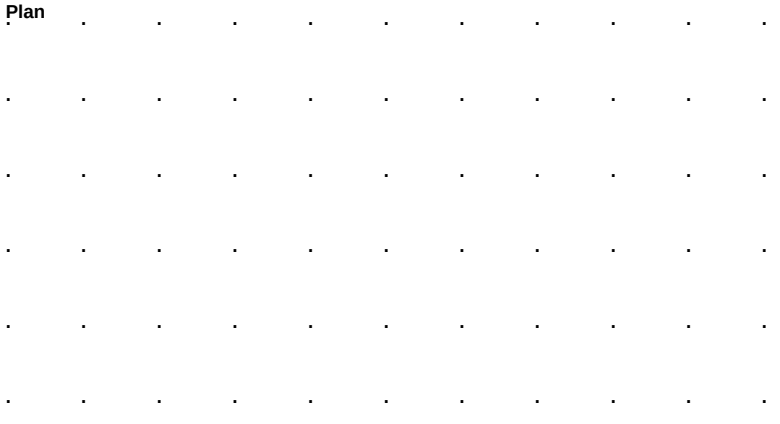
RPS Health, Safety and Environment
Unit 12, Watersedge Business Park
Modwen Road, Salford Quays, M5 3EZ
Tel: 0161 874 3737 Fax: 0161 877 3959

Site	Trial Pit Number
Asos Car Park	TP04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.31	ASOS	54564
	Location (Handheld GPS) 441728.941 E 406508.804 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				33.21	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
0.50	B1				(0.80)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)		
				32.41	0.90			
					(1.50)	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
				30.91	2.40			
						Complete at 2.40m		

Plan



Remarks

TP terminated at 2.4m
No Groundwater

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP04

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Site	Trial Pit Number
Asos Car Park	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.32	ASOS	54564
	Location (Handheld GPS) 441697.408 E 406487.217 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
				33.22	0.10			
					(0.40)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)		
				32.82	0.50			
0.80	B1				(0.80)	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
				32.02	1.30			
						Complete at 1.30m		

Plan

Remarks

TP terminated at 1.3m
No Groundwater

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP05

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Site	Trial Pit Number
Asos Car Park	TP06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.38	ASOS	54564
	Location (Handheld GPS) 441711.237 E 406487.903 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				33.28	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
					(0.70)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)		
0.80 0.80	B1 E1			32.58	0.80	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
					(2.20)			
				30.38	3.00	Complete at 3.00m		

Plan

Remarks

TP terminated at 3.0m
No Groundwater

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP06

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Site	Trial Pit Number
Asos Car Park	TP07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		33.42	ASOS	54564
	Location (Handheld GPS) 441708.477 E 406431.873 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10)	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
				33.32	0.10			
					(0.20)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)		
				33.12	0.30			
0.50 0.50	B1 E1					Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
					(2.60)			
				30.52	2.90	Complete at 2.90m		

Plan

Remarks

TP Terminated at 2.9m
No Groundwater

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP07

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Site	Trial Pit Number
Asos Car Park	TP08

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit		34.48	ASOS	54564
	Location (Handheld GPS) 441674.692 E 406366.549 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				34.38	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)		
0.50 0.50	B1 E1				(1.40)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)		
				32.98	1.50	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)		
					(1.40)			
				31.58	2.90	Complete at 2.90m		

Plan

Remarks

No Groundwater
TP Terminated at 2.9m

Scale (approx)	Logged By	Figure No.
1:20	TF	54564.TP08

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Tel: 0161 874 3737 Fax: 0161 877 3959

Site	Number
Asos Car Park	BH01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		33.57	ASOS	54564
	Location (Handheld GPS) 441756.822 E 406486.176 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				33.47	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)			
0.30	E1				(0.70)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)			
				32.77	0.80				
1.00-1.45	SPT N=50		10,10/20,30			Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)			
1.30	E2				(1.20)				
2.00-2.45	SPT N=50		20,5/17,13,15,5	31.57	2.00				
						Complete at 2.00m			

Remarks
No Groundwater
Borehole terminated at 2.0m on refusal

Scale (approx)	Logged By
1:20	TF

Figure No. 54564.BH01

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Site
Asos Car Park

Number
BH02

Excavation Method
Drive-in Window Sampler

Dimensions

Ground Level (mOD)
33.34

Client
ASOS

Job Number
54564

Location (Handheld GPS)
441725.07 E 406517.187 N

Dates
15/09/2017

Engineer
TF

Sheet
1/2

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				33.24	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)			
0.30	E1				(0.70)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)			
				32.54	0.80				
1.00-1.45	SPT N=20		4,3/4,5,5,6			Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)			
1.30	E2								
2.00-2.45	SPT N=11		5,3/3,2,3,3						
					(4.20)				
3.00-3.45	SPT N=40		25/16,10,10,4						
4.00-4.45	SPT N=25		4,4/4,5,6,10						

Remarks
No Groundwater
Terminated at 5m on refusal

Scale (approx)
1:20

Logged By
TF

Figure No.
54564.BH02

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Site
Asos Car Park

Number
BH02

Excavation Method
Drive-in Window Sampler

Dimensions

Ground Level (mOD)
33.34

Client
ASOS

Job Number
54564

Location (Handheld GPS)
441725.07 E 406517.187 N

Dates
15/09/2017

Engineer
TF

Sheet
2/2

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(4.20)				
5.00-5.45	SPT N=50		15,5/5,5,30,10	28.34	5.00	Terminated at 5.00m			

Remarks

Scale (approx)
1:20

Logged By
TF

Figure No.
54564.BH02

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Site
Asos Car Park

Number
BH03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		33.39	ASOS	54564
	Location (Handheld GPS) 441701.025 E 406475.205 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				33.29	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)			
0.30	E1				(0.70)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)			
				32.59	0.80				
1.00-1.45	SPT N=50		15,10/14,16,16,4			Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)			
1.30	E2				(1.20)				
2.00-2.45	SPT N=49		16,9/15,16,17,1	31.39	2.00				
						Complete at 2.00m			

Remarks
Borehole terminated at 2.0m on refusal
No Groundwater

Scale (approx)	Logged By
1:20	TF

Figure No.
54564.BH03

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Tel: 0161 874 3737 Fax: 0161 877 3959

Site
Asos Car Park

Number
BH04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		33.74	ASOS	54564
	Location (Handheld GPS) 441725.358 E 406434.883 N	**Dates** 01/01/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				33.64	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)			
0.30	E1				(0.70)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)			
				32.94	0.80				
1.00-1.45	SPT N=50		13,12/13,14,16,7			Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)			
1.30	E2				(1.20)				
2.00-2.45	SPT N=50		16,9/16,15,16,3	31.74	2.00				
						Complete at 2.00m			

Remarks
Borehole terminated at 2.0m on refusal
No Groundwater

Scale (approx)	Logged By
1:20	TF

Figure No.
54564.BH04

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Tel: 0161 874 3737 Fax: 0161 877 3959

Site	Number
Asos Car Park	BH05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Window Sampler		33.65	ASOS	54564
	Location (Handheld GPS) 441675.467 E 406379.164 N	**Dates** 15/09/2017	**Engineer** TF	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
				33.55	(0.10) 0.10	Brown slightly clayey slightly sandy organic SILT (TOPSOIL)			
					(0.20)	Firm to stiff brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of sandstone and mudstone with occasional coal fragments (MADE GROUND, COLLIERY SPOIL)			
0.30	E1			33.35	0.30				
1.00-1.45	SPT N=50		10,11/13,16,17,4		(1.70)	Firm to stiff blueish grey gravelly CLAY/SILT, with low cobble content of mudstone and sandstone. Gravel is fine to coarse angular to sub-rounded of mudstone and sandstone with occasional coal fragments. (MADE GROUND, COLLIERY SPOIL)			
1.30	E2								
2.00-2.45	SPT N=50		9,9/9,11,12,18	31.65	2.00				
						Complete at 2.00m			

Remarks
Borehole terminated at 2.0m on refusal
No Groundwater

Scale (approx)	Logged By
1:20	TF

Figure No. 54564.BH05

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Photo 1: Excavating Trial Pit 1



Photo 2: Section of Trial Pit 4

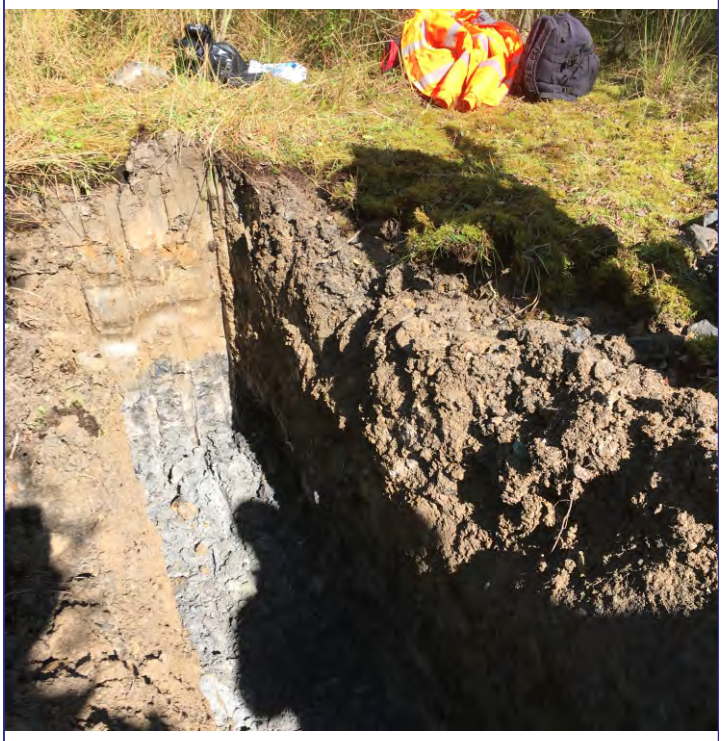


Photo 3: Trial Pit 6



Photo 4: Trial Pit 3 arisings

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Client: ASOS
Date: October 2017 Scale: NTS
Project: ASOS Car Park Extension
Appendix: C Rev: 00
Title: Site Investigation Photographs
Job Ref: RCEI54564



Photo 5: Window Sampling at BH02



Photo 6: Window Sampling at BH04



Photo 7: CBR Plate Bearing Test



Photo 8: Window sampling at BH03

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Client: ASOS
Date: October 2017 Scale: NTS
Project: ASOS Car Park Extension
Appendix: C Rev: 00
Title: Site Investigation Photographs
Job Ref: RCEI54564

Appendix D

Geotechnical Laboratory Certificates

LABORATORY REPORT

REPORT

4043

Contract Number: PSL17/4502

Report Date: 18 September 2017

Client's Reference:

Client Name: RPS Health, Safety and Environment
Unit 12 Waters Edge Business Park
Modwen Road
Salford Quays
Manchester
M5 3EZ

For the attention of: Tom Ford

Contract Title: Grimethorpe, Barnsley

Date Received: 15/9/2017
Date Commenced: 15/9/2017
Date Completed: 18/9/2017

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)	A Watkins (Director)	R Berriman (Quality Manager)
L Knight (Senior Technician)	C Marshall (Laboratory Manager)	A Fry (Senior Technician)

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VERTICAL DEFORMATION TESTS.

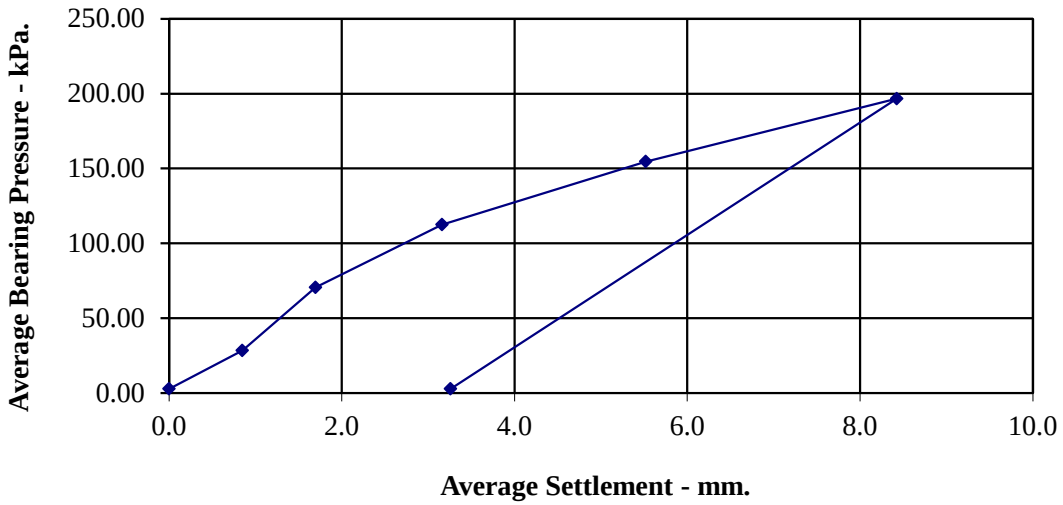
BS 1377 : Part 9 : 1990.

Date of Test: 15-Sep-17

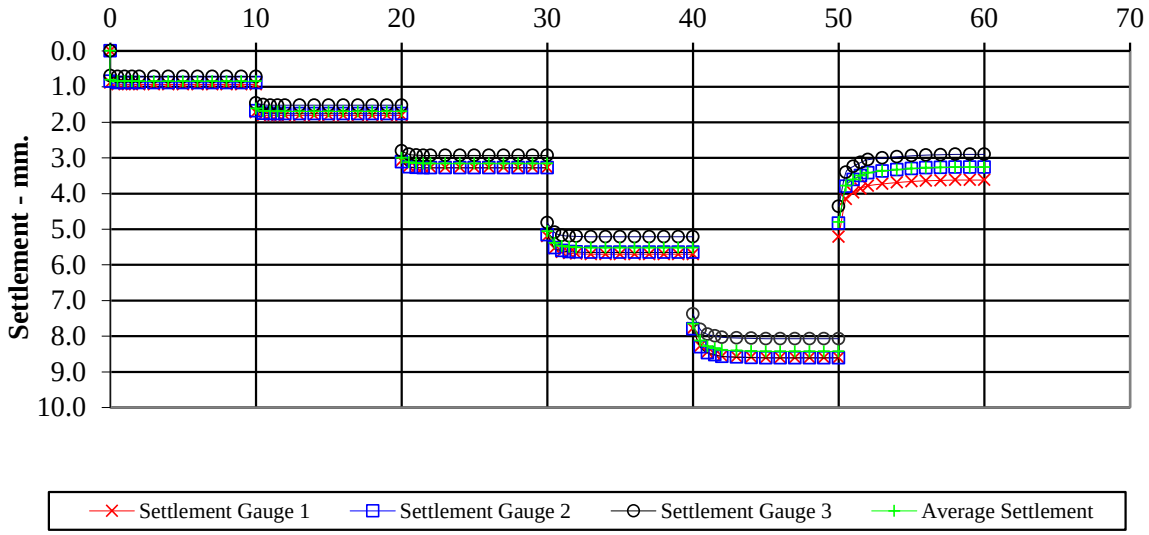
Test Position: 1 **Depth (m):** 0.20

Plate Area (m2): 0.1625971 **Type of Kentledge:** Wheeled

Maximum Applied Pressure (kPa): 196.67
Maximum Deformation (mm): 8.43
Description: Clay



Time - minutes.



Compiled By	Date	Checked By	Date	Approved By	Date	Contract No.
	18/09/17		18/09/17		18/09/17	PSL17/4502
Grimethorpe, Barnsley						Page of

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Professional Soils Laboratory Ltd.
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Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	**15-Sep-17**	
Test Position	**1**	
Depth (m)	**0.20**	
Description	**Clay**	
Maximum Deflection	**8.43**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load(@1.25mm)	**49.0**	**kN/m^2**
Plate diameter	**455**	**mm**
Conversion factor for plate diameter	**0.629**	
K_{762}(modulus of subgrade reaction)	**24.7**	**kN/m^2/mm**
CBR Value	**2.5**	**%**

Checked/Approved	Date
	18/09/17

Grimethorpe, Barnsley	**Contract No.** **PSL17/4502**

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VERTICAL DEFORMATION TESTS.

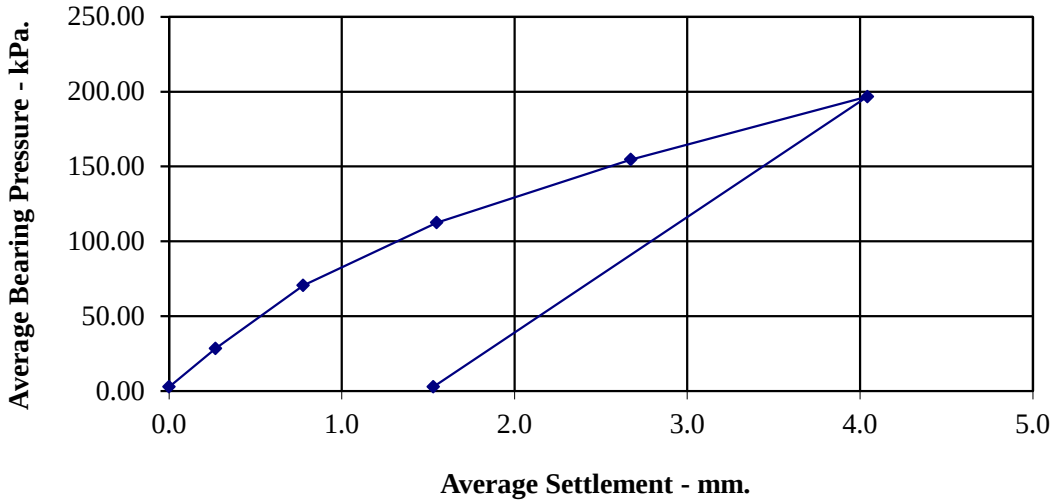
BS 1377 : Part 9 : 1990.

Date of Test: 15-Sep-17

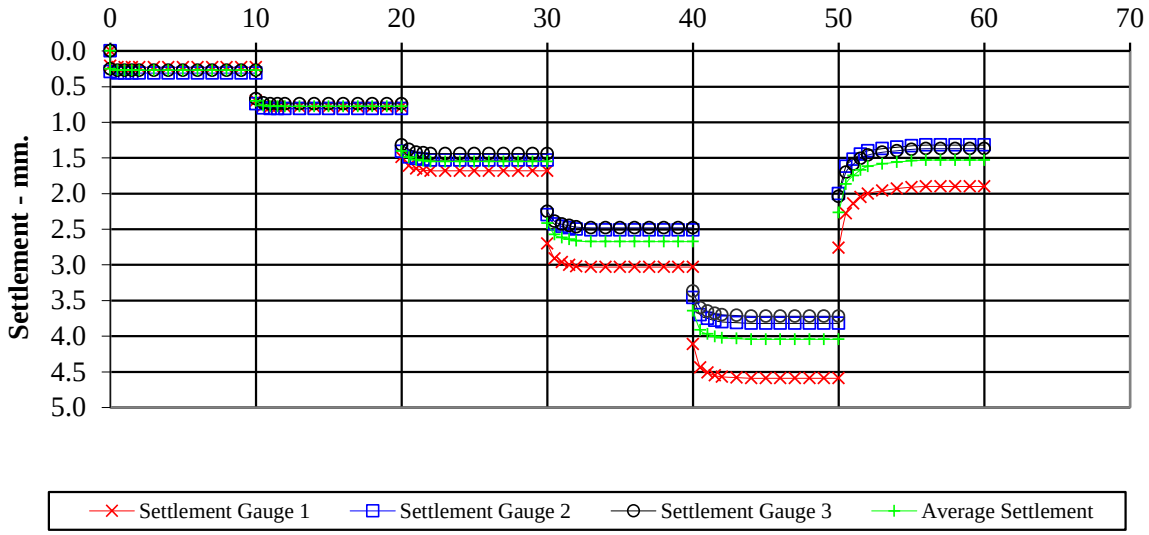
Test Position: 2 **Depth (m):** 0.20

Plate Area (m2): 0.1625971 **Type of Kentledge:** Wheeled

Maximum Applied Pressure (kPa): 196.67
Maximum Deformation (mm): 4.04
Description: Clay



Time - minutes.



Compiled By	Date	Checked By	Date	Approved By	Date	Contract No.
	18/09/17		18/09/17		18/09/17	PSL17/4502
Grimethorpe, Barnsley						Page of

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Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	**15-Sep-17**	
Test Position	**2**	
Depth (m)	**0.20**	
Description	**Clay**	
Maximum Deflection	**4.04**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load(@1.25mm)	**94.0**	**kN/m^2**
Plate diameter	**455**	**mm**
Conversion factor for plate diameter	**0.629**	
K_{762}(modulus of subgrade reaction)	**47.3**	**kN/m^2/mm**
CBR Value	**7.7**	**%**

Checked/Approved	Date
	18/09/17

Grimethorpe, Barnsley	**Contract No.** **PSL17/4502**

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tel: 0844 8156641 . fax: 0844 8156642
e-mail: awatkins@prosoils.co.uk

VERTICAL DEFORMATION TESTS.

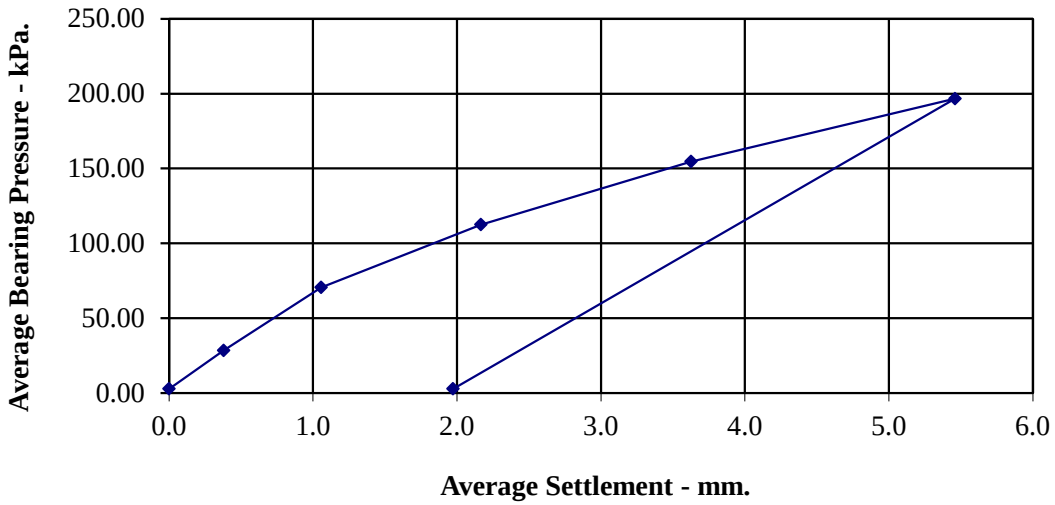
BS 1377 : Part 9 : 1990.

Date of Test: 15-Sep-17

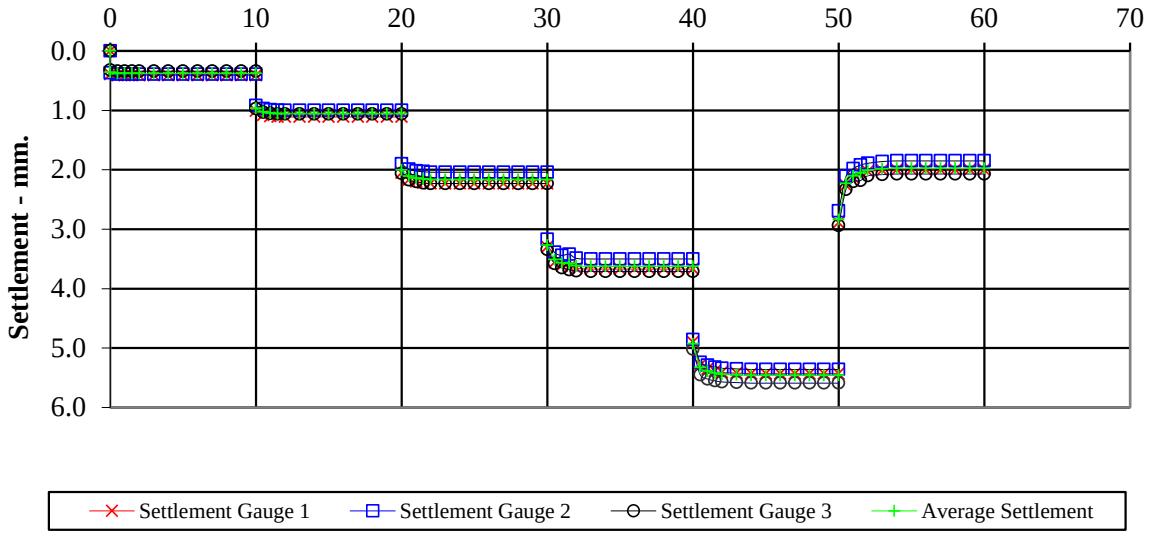
Test Position: 3 **Depth (m):** 0.20

Plate Area (m2): 0.1625971 **Type of Kentledge:** Wheeled

Maximum Applied Pressure (kPa): 196.67
Maximum Deformation (mm): 5.46
Description: Clay



Time - minutes.



Compiled By	Date	Checked By	Date	Approved By	Date	Contract No.
	18/09/17		18/09/17		18/09/17	PSL17/4502
Grimethorpe, Barnsley						Page of

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Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	**15-Sep-17**	
Test Position	**3**	
Depth (m)	**0.20**	
Description	**Clay**	
Maximum Deflection	**5.46**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load(@1.25mm)	**77.0**	**kN/m^2**
Plate diameter	**455**	**mm**
Conversion factor for plate diameter	**0.629**	
K_{762}(modulus of subgrade reaction)	**38.8**	**kN/m^2/mm**
CBR Value	**5.5**	**%**

Checked/Approved	Date
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Grimethorpe, Barnsley	**Contract No.** **PSL17/4502**

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VERTICAL DEFORMATION TESTS.

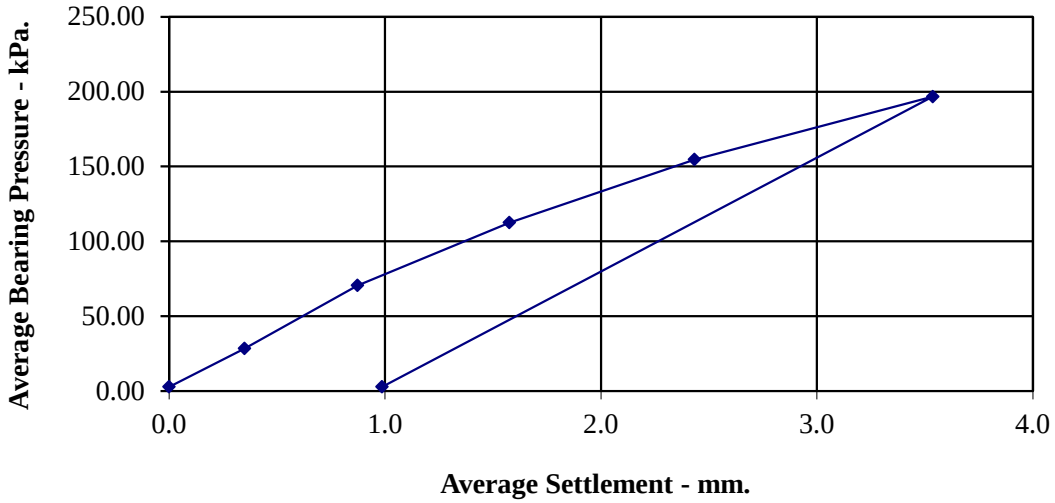
BS 1377 : Part 9 : 1990.

Date of Test: 15-Sep-17

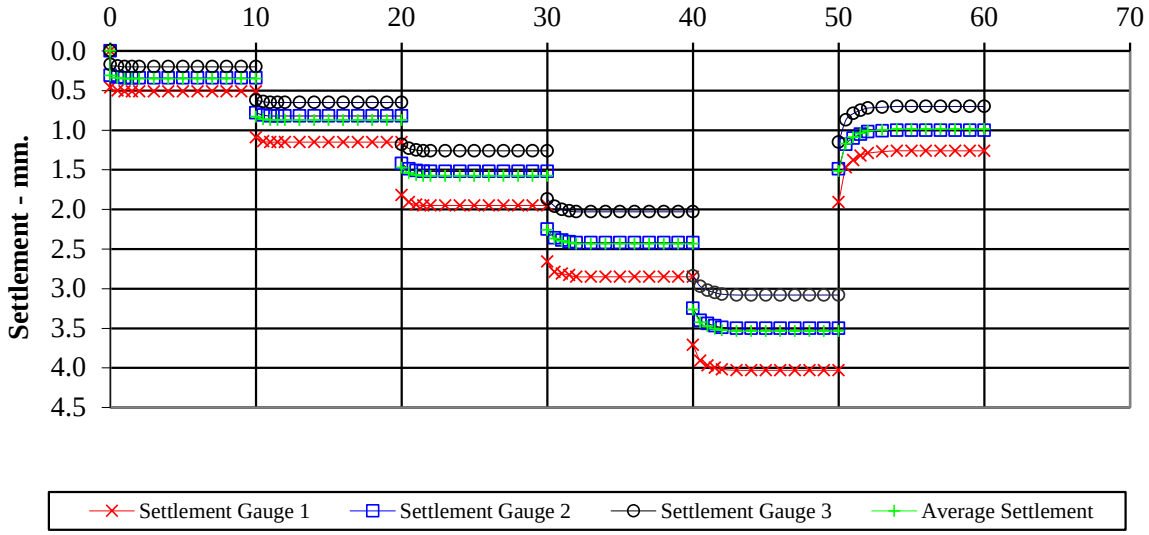
Test Position: 4 **Depth (m):** 0.20

Plate Area (m2): 0.1625971 **Type of Kentledge:** Wheeled

Maximum Applied Pressure (kPa): 196.67
Maximum Deformation (mm): 3.54
Description: Clay



Time - minutes.



Compiled By	Date	Checked By	Date	Approved By	Date	Contract No.
	18/09/17		18/09/17		18/09/17	PSL17/4502
Grimethorpe, Barnsley						Page of

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Calculation of Equivalent CBR Value from Plate Bearing Test

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Date of Test	**15-Sep-17**	
Test Position	**4**	
Depth (m)	**0.20**	
Description	**Clay**	
Maximum Deflection	**3.54**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load(@1.25mm)	**90.0**	**kN/m^2**
Plate diameter	**455**	**mm**
Conversion factor for plate diameter	**0.629**	
K_{762}(modulus of subgrade reaction)	**45.3**	**kN/m^2/mm**
CBR Value	**7.1**	**%**

Checked/Approved	Date
	18/09/17

Grimethorpe, Barnsley	**Contract No.** **PSL17/4502**

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VERTICAL DEFORMATION TESTS.

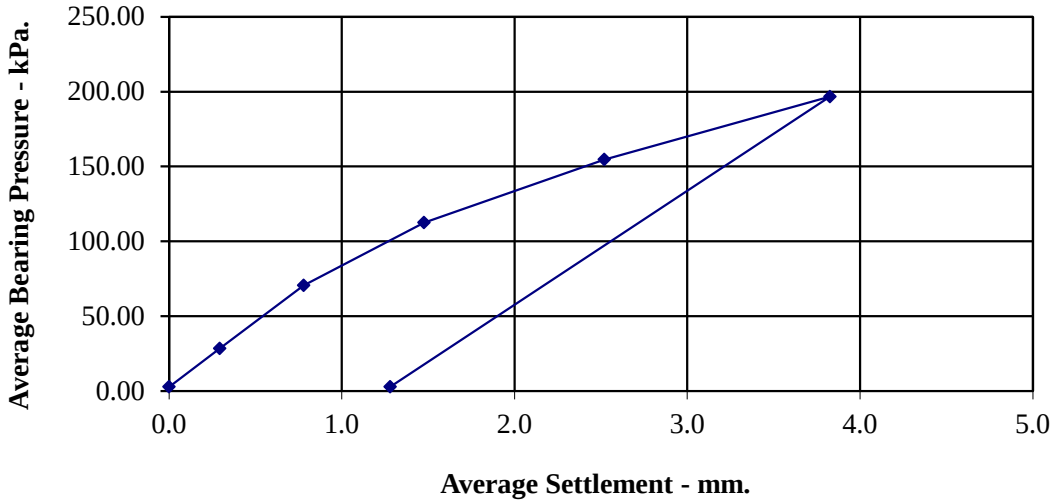
BS 1377 : Part 9 : 1990.

Date of Test: 15-Sep-17

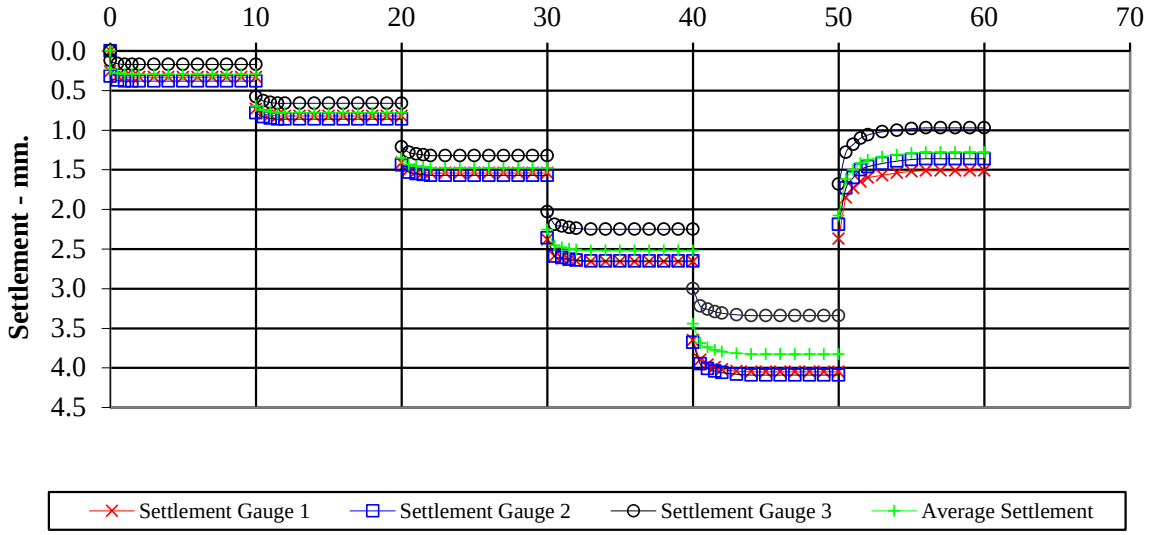
Test Position: 5 **Depth (m):** 0.20

Plate Area (m2): 0.1625971 **Type of Kentledge:** Wheeled

Maximum Applied Pressure (kPa): 196.67
Maximum Deformation (mm): 3.83
Description: Clay



Time - minutes.



Compiled By	Date	Checked By	Date	Approved By	Date	Contract No.
	18/09/17		18/09/17		18/09/17	PSL17/4502
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Calculation of Equivalent CBR Value from Plate Bearing Test

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Incorporating IAN 73/06

Date of Test	**15-Sep-17**	
Test Position	**5**	
Depth (m)	**0.20**	
Description	**Clay**	
Maximum Deflection	**3.83**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load(@1.25mm)	**99.0**	**kN/m^2**
Plate diameter	**455**	**mm**
Conversion factor for plate diameter	**0.629**	
K_{762}(modulus of subgrade reaction)	**49.8**	**kN/m^2/mm**
CBR Value	**8.4**	**%**

Checked/Approved	Date
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Grimethorpe, Barnsley	**Contract No.** **PSL17/4502**

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VERTICAL DEFORMATION TESTS.

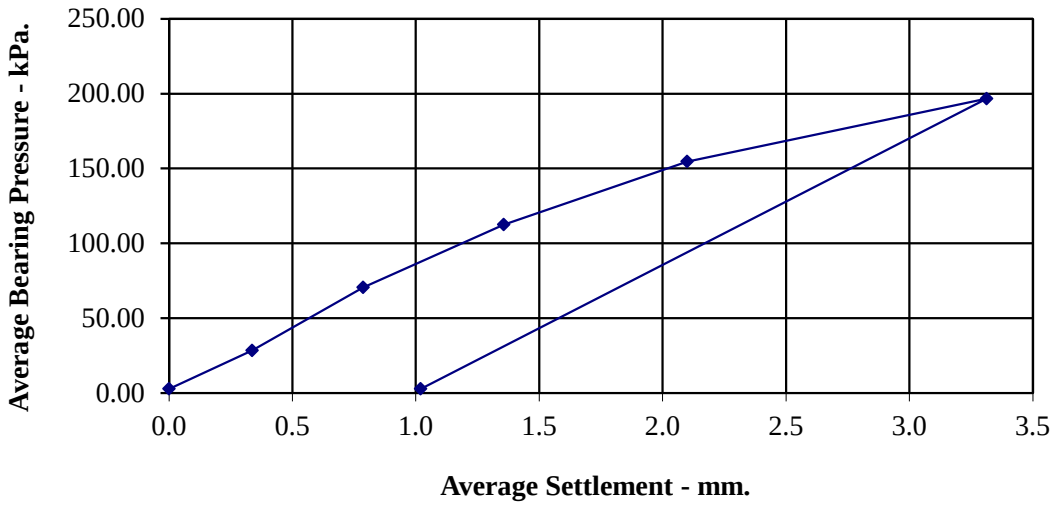
BS 1377 : Part 9 : 1990.

Date of Test: 15-Sep-17

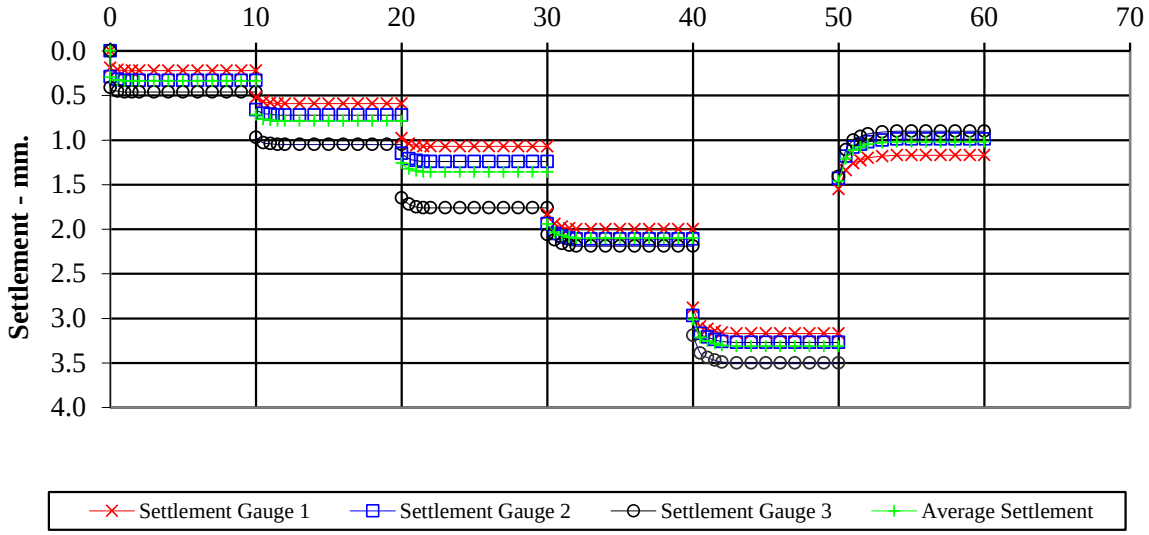
Test Position: 7 **Depth (m):** 0.20

Plate Area (m2): 0.1625971 **Type of Kentledge:** Wheeled

Maximum Applied Pressure (kPa): 196.67
Maximum Deformation (mm): 3.31
Description: Clay



Time - minutes.



Compiled By	Date	Checked By	Date	Approved By	Date	Contract No.
	18/09/17		18/09/17		18/09/17	PSL17/4502
Grimethorpe, Barnsley						Page of

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Calculation of Equivalent CBR Value from Plate Bearing Test

Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	**15-Sep-17**	
Test Position	**7**	
Depth (m)	**0.20**	
Description	**Clay**	
Maximum Deflection	**3.31**	**mm**
Deflection required for CBR value	**1.25**	**mm**
Load(@1.25mm)	**105.0**	**kN/m^2**
Plate diameter	**455**	**mm**
Conversion factor for plate diameter	**0.629**	
K_{762}(modulus of subgrade reaction)	**52.8**	**$kN/m^2/mm$**
CBR Value	**9.3**	**%**

Checked/Approved	Date
	18/09/17

Grimethorpe, Barnsley	**Contract No.** **PSL17/4502**

LABORATORY REPORT

4043

Contract Number: PSL17/4537

Report Date: 02 October 2017

Client's Reference: RCEI54564

Client Name: RPS Health, Safety and Environment
Unit 12 Waters Edge Business Park
Modwen Road
Salford Quays
Manchester
M5 3EZ

For the attention of: Tom Ford

Contract Title: Asos Carpark

Date Received: 19/9/2017
Date Commenced: 19/9/2017
Date Completed: 2/10/2017

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson (Director)
A Watkins (Director)
R Berriman (Quality Manager)

L Knight (Senior Technician)
S Eyre (Senior Technician)
A Fry (Senior Technician)

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e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP01		S	1.00		Grey very gravelly sandy very silty CLAY.
TP02		S	0.50		Grey very gravelly sandy very silty CLAY.
TP03		S	1.00		Grey very gravelly sandy very silty CLAY.
TP04		S	0.50		Brown very gravelly sandy very silty CLAY.
TP05		S	0.80		Grey very gravelly sandy very silty CLAY.
TP06		S	0.80		Brown very gravelly sandy very silty CLAY.
TP07		S	0.50		Grey very gravelly sandy very silty CLAY.
TP08		S	0.50		Brown very gravelly sandy very silty CLAY.

UKAS TESTING
4043

PSL
Professional Soils Laboratory

Asos Car Park

Contract No:
PSL17/4537
Client Ref:
RCEI54564

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP01		S	1.00		10			39	22	17	63	Intermediate plasticity CI.
TP02		S	0.50		15			37	20	17	69	Intermediate plasticity CI.
TP03		S	1.00		12			40	22	18	61	Intermediate plasticity CI.
TP04		S	0.50		17			38	22	16	65	Intermediate plasticity CI.
TP05		S	0.80		7.8			39	21	18	61	Intermediate plasticity CI.
TP06		S	0.80		11			37	22	15	69	Intermediate plasticity CI.
TP07		S	0.50		11			39	21	18	60	Intermediate plasticity CI.
TP08		S	0.50		13			39	21	18	62	Intermediate plasticity CI.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

Asos Car Park

Contract No:

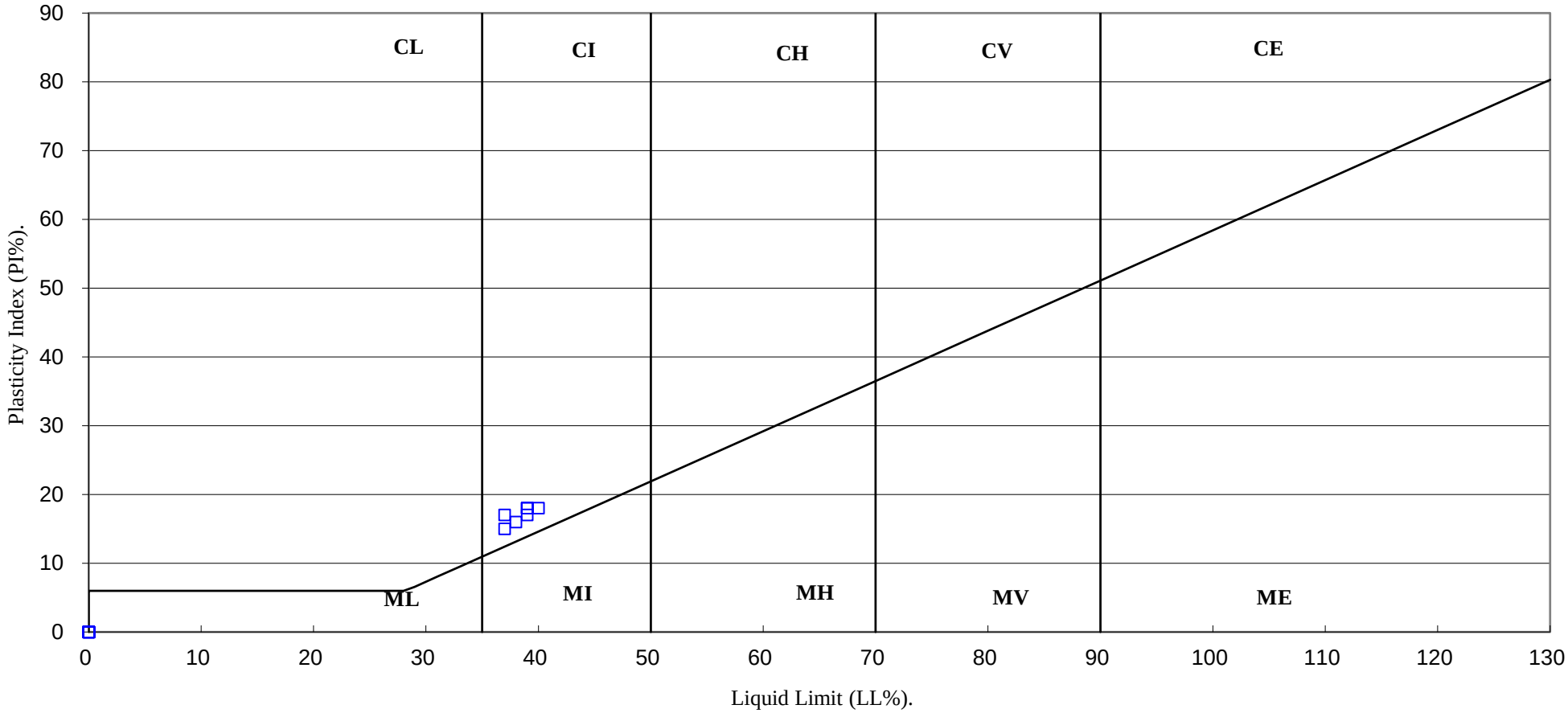
PSL17/4537

Client Ref:

RECI54564

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Asos Car Park**	**Contract No:** PSL17/4537 **Client Ref:** RECI54564

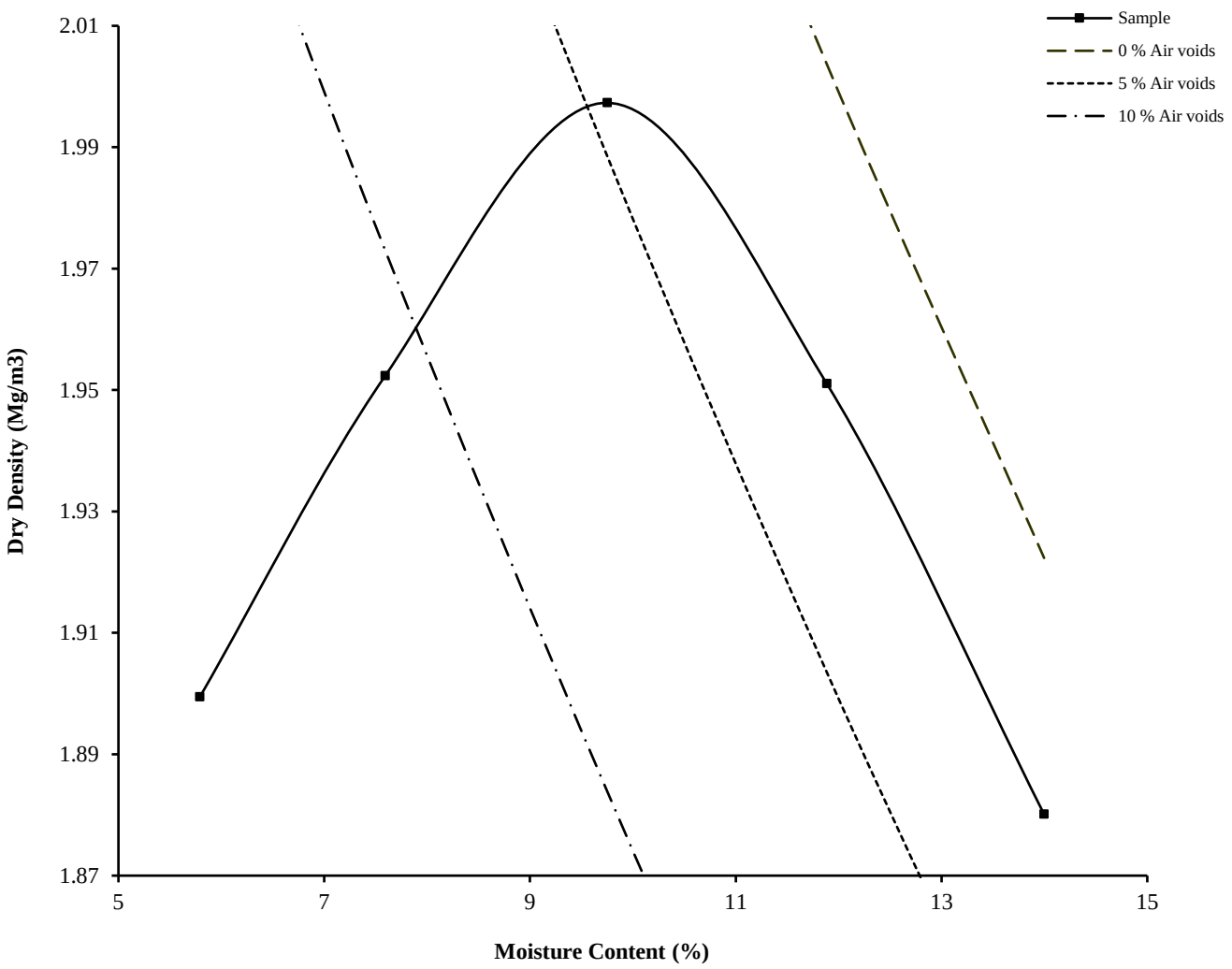
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : 1990

Hole Number: TP01 **Top Depth (m) :** 1.00

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

Sample Type: B



Initial Moisture Content:		10	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.63	Assumed	Material Retained on 37.5 mm Test Sieve (%):		9
Maximum Dry Density (Mg/m3):		2.00	Material Retained on 20.0 mm Test Sieve (%):		6
Optimum Moisture Content (%):		10			
Remarks See summary of soil descriptions.					

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Asos Car Park**	**Contract** **PSL17/4537** **Client Ref** **RCEI 54564**

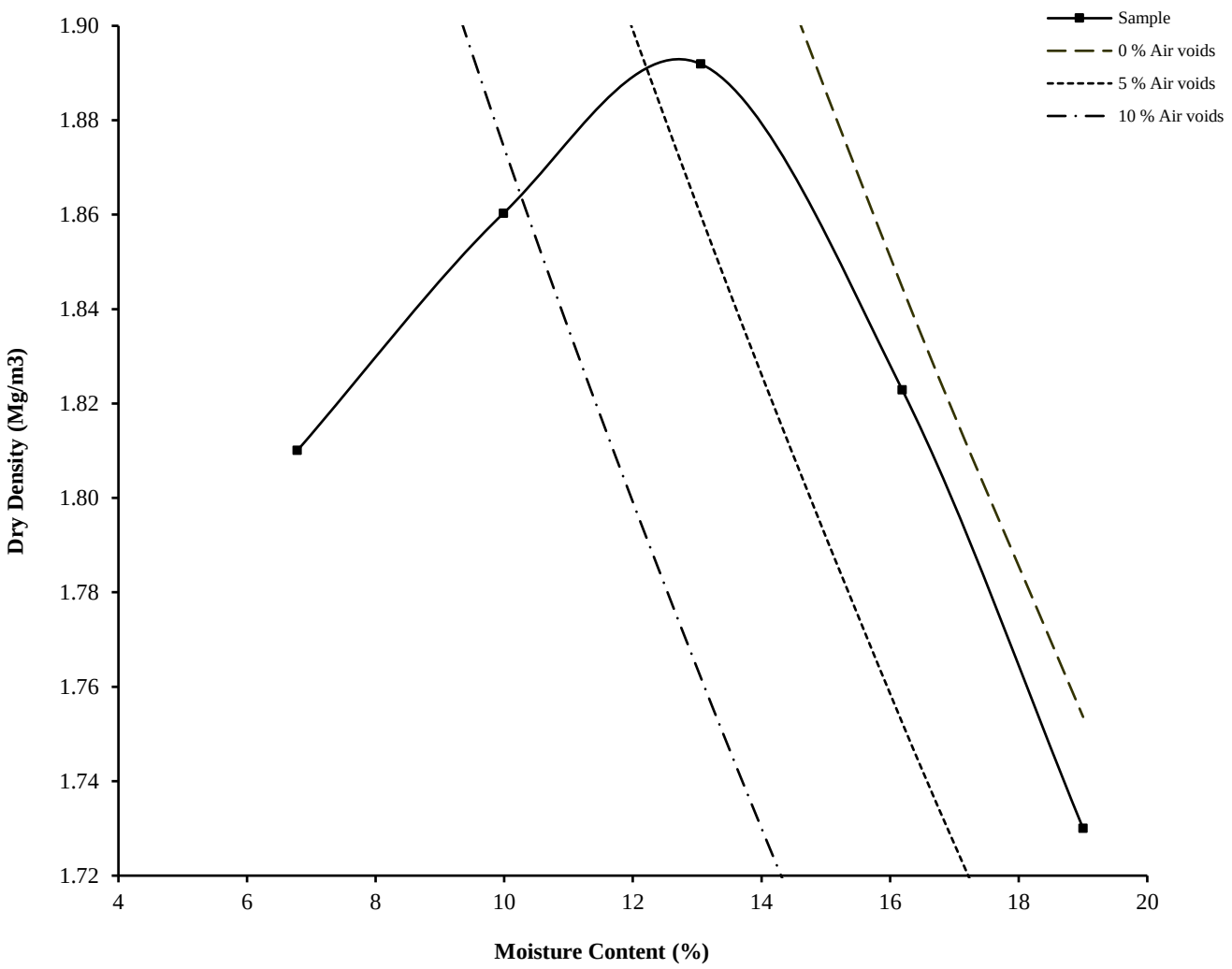
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : 1990

Hole Number: TP8 **Top Depth (m) :** 0.50

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

Sample Type: B



Initial Moisture Content:		13	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.63	Assumed	Material Retained on 37.5 mm Test Sieve (%):		1
Maximum Dry Density (Mg/m3):		1.89	Material Retained on 20.0 mm Test Sieve (%):		6
Optimum Moisture Content (%):		13			
Remarks See summary of soil descriptions.					

UKAS TESTING 4043	PSL Professional Soils Laboratory	**Asos Car Park**	**Contract** **PSL17/4537** **Client Ref** **RCEI 54564**

Appendix E

Field Monitoring Data

Client: ASOS
Project: ASOS Car Park
Job ref.: RECI54564
Site Classific: Situation A

Monitored by:
21/09/2017 Tom Ford
29/09/2017 Tom Ford
02/10/2017 Tom Ford

Weather conditions:
21/09/2017 cold, wet and windy
29/09/2017
02/10/2017

Situation A
GSV (L/hr)
CS1: <0.07
CS2: 0.07 to <0.7
CS3: 0.7 to <3.5
CS4: 3.5 to <15
CS5: 15 to <70
CS6: >70

Situation I Low rise housing with ventilated underfloor void only

	methane		carbon dioxide	
Green	<1%	<0.16l/hr	<5%	<0.78l/hr
Amber1	<5%	<0.63l/hr	<10%	<1.56l/hr
Amber 2	<20%	<1.56l/hr	<30%	<3.13l/hr
Red	>20%	>1.56l/hr	>30%	>3.13l/hr

BH	Monitoring Round	Date	Gas monitor serial no.	Gas monitor calibration date	PID ppm		Response zone stratum	Response zone (m)	Depth (m)			Response zone flooded?	Atmospheric Pressure (mbar)			Flow Rate (q l/h)		Methane $C_{hg}CH_4$ (% v/v)		Methane LEL (%)		Carbon dioxide $C_{hg}CO_2$ (% v/v)		Oxygen % v/v (Low)	Carbon monoxide CO ppm (Peak)	Hydrogen sulphide H_2Sppm (Peak)	Gas Flow Rate Q_{hg} l/h				Borehole Gas Flow Rate Qhg l/h		Site Gas Flow Rate Qhg l/h		Comments
					Air	BH			Hydro-Cs	Water	Base		Start	End	Trend	Initial	Steady	Peak	Steady	Peak	Steady	Peak	Steady				$Q_{hg}CH_4$ Peak	$Q_{hg}CH_4$ Steady	$Q_{hg}C0_2$ Peak	$Q_{hg}CH_4$ Steady	$Q_{hg}CH_4$	$Q_{hg}CO_2$	$Q_{hg}CH_4$	$Q_{hg}CO_2$	
BH01	1	21/09/2017	12164	25/04/2017	NR	NR	Made Ground		ND	DRY	2.07		1013	1010	Falling	ND	ND	ND	ND	ND	ND	5.5	5.5	8.3	ND	ND	0.0001	0.0001	0.0055	0.0055					
BH01	2	29/09/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	2.06	-	1015	1013	Falling	ND	ND	ND	ND	ND	ND	7.9	7.9	4.5	ND	ND	0.0001	0.0001	0.0079	0.0079					
BH01	3	02/10/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	2.06	-	1010	1008	Falling	ND	ND	ND	ND	ND	ND	9.0	9.0	5.1	ND	ND	0.0001	0.0001	0.0090	0.0090					
																											0	0	0	0	0.0001	0.0090			
BH02	1	21/09/2017	12164	25/04/2017	NR	NR	Made Ground		ND	DRY	3.08		1013	1010	Falling	ND	ND	ND	ND	ND	ND	8.4	8.4	11.2	ND	ND	0.0001	0.0001	0.0084	0.0084					
BH02	2	29/09/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	3.10	-	1015	1013	Falling	ND	ND	ND	ND	ND	ND	0.8	0.8	19.2	ND	ND	0.0001	0.0001	0.0008	0.0008					
BH02	3	02/10/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	3.10	-	1010	1008	Falling	ND	ND	ND	ND	ND	ND	0.6	0.6	19.9	ND	ND	0.0001	0.0001	0.0006	0.0006					
																											0	0	0	0	0.0001	0.0084			
BH03	1	21/09/2017	12164	25/04/2017	NR	NR	Made Ground		ND	DRY	2.05		1013	1010	Falling	ND	ND	ND	ND	ND	ND	9.4	9.4	6.8	ND	ND	0.0001	0.0001	0.0094	0.0094					
BH03	2	29/09/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	2.06	-	1015	1013	Falling	ND	ND	ND	ND	ND	ND	7.4	7.4	3.7	ND	ND	0.0001	0.0001	0.0074	0.0074					
BH03	3	02/10/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	2.06	-	1010	1008	Falling	ND	ND	ND	ND	ND	ND	1.3	1.3	17.9	ND	ND	0.0001	0.0001	0.0013	0.0013					
																											0	0	0	0	0.0001	0.0094			
BH04	1	21/09/2017	12164	25/04/2017	NR	NR	Made Ground		ND	DRY	1.91		1013	1010	Falling	ND	ND	ND	ND	ND	ND	7.2	7.2	10.6	ND	ND	0.0001	0.0001	0.0072	0.0072					
BH04	2	29/09/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	1.90	-	1015	1013	Falling	ND	ND	ND	ND	ND	ND	9.0	9.0	8.2	ND	ND	0.0001	0.0001	0.0090	0.0090					
BH04	3	02/10/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	1.91	-	1010	1008	Falling	ND	ND	ND	ND	ND	ND	11.0	11.0	6.5	ND	ND	0.0001	0.0001	0.0110	0.0110					
																											0	0	0	0	0.0001	0.0110			
BH05	1	21/09/2017	12164	25/04/2017	NR	NR	Made Ground		ND	DRY	2.00		1013	1010	Falling	ND	ND	ND	ND	ND	ND	7.3	7.3	5.7	ND	ND	0.0001	0.0001	0.0073	0.0073					
BH05	2	29/09/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	DRY	2.00	-	1015	1013	Falling	ND	ND	ND	ND	ND	ND	0.6	0.6	10.7	ND	ND	0.0001	0.0001	0.0006	0.0006					
BH05	3	02/10/2017	12164	25/04/2017	NR	NR	Made Ground	0.00	ND	1.97	2.03	-	1010	1008	Falling	ND	ND	ND	ND	ND	ND	0.5	0.5	18.8	ND	ND	0.0001	0.0001	0.0005	0.0005					
																											0	0	0	0	0.0001	0.0073			
																																0.0001	0.0110	

ND - Not detected
NR - Not recoded
Negative flow rates converted to positive for GSV assessment

Appendix F

Comparison of Analytical Data to Assessment Criteria

Project Name ASOS Car Park Extension
Project Number RCEI54564
Data Type All Data
Assessment Criteria Commerical End Use

Chemcial Of Concern	Units	Limit of detection	Number of samples	min	max	mean	95%tile	GAC	Max exceed GAC	Suitable for use	Soil type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
											Sample Reference	BH01	BH02	BH03	BH04	BH04	BH05	TP05	TP06	TP07	TP08
											Depth (m)	0.3	0.3	0.3	0.3	1.3	0.3	0.8	0.8	0.5	0.5
											Date Sampled	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	14/09/2017	14/09/2017	14/09/2017	14/09/2017
Asbestos in Soil Screen / Identification Name	Type	N/A																			
Asbestos in Soil	Type	N/A							n/a			none detected	none detected	none detecte	none detected	none detecte	none detected	none detected	none detecte	none detected	none detecte
pH - Automated	pH Units	N/A	10	6.08	7.87	7.40			n/a			7.26	6.08	7.52	7.49	7.64	7.13	7.53	7.83	7.87	7.6
Total Cyanide	mg/kg	1.00	10	0.50	0.50	0.50		-	n/a			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total sulphate as SO_4	mg/kg	50.00	10	19.70	178.70	88.49		-	n/a			19.70	94.90	93.60	91.60	103.70	92.80	77.80	26.40	105.70	178.70
Sulphide	mg/kg	1.00	10	10.00	10.00	10.00		-	n/a			10	10	10	10	10	10	10	10	10	10
Organic Matter	%	0.10	10	0.50	3.30	1.80		-	n/a			0.5	1.2	2.7	1.8	1.6	2.4	1.6	0.7	3.3	2.2
Total Phenols (monohydric)	mg/kg	1.00	10	0.15	0.15	0.15		690		Potentially Suitable		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Naphthalene	mg/kg	0.05	10	0.04	0.04	0.04		460		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Acenaphthylene	mg/kg	0.05	10	0.03	0.03	0.03		97000		Potentially Suitable		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Acenaphthene	mg/kg	0.05	10	0.05	0.05	0.05		97000		Potentially Suitable		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Fluorene	mg/kg	0.05	10	0.04	0.04	0.04		68000		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Phenanthrene	mg/kg	0.05	10	0.03	0.13	0.05		22000		Potentially Suitable		0.03	0.03	0.06	0.06	0.13	0.03	0.07	0.03	0.03	0.03
Anthracene	mg/kg	0.05	10	0.04	0.04	0.04		540000		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Fluoranthene	mg/kg	0.05	10	0.03	0.03	0.03		23000		Potentially Suitable		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Pyrene	mg/kg	0.05	10	0.03	0.03	0.03		54000		Potentially Suitable		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Benzo(a)anthracene	mg/kg	0.05	10	0.06	0.06	0.06		170		Potentially Suitable		0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Chrysene	mg/kg	0.05	10	0.02	0.02	0.02		350		Potentially Suitable		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(b)fluoranthene	mg/kg	0.05	10	0.05	0.05	0.05		44		Potentially Suitable		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Benzo(k)fluoranthene	mg/kg	0.05	10	0.02	0.02	0.02		1200		Potentially Suitable		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Benzo(a)pyrene	mg/kg	0.05	10	0.04	0.04	0.04		35		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	10	0.04	0.04	0.04		510		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Dibenz(a,h)anthracene	mg/kg	0.05	10	0.04	0.04	0.04		3.6		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Benzo(ghi)perylene	mg/kg	0.05	10	0.04	0.04	0.04		4000		Potentially Suitable		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Arsenic (aqua regia extractable)	mg/kg	1.00	10	1.40	12.10	4.69		640		Potentially Suitable		4.2	2.2	5.7	5.7	1.4	1.9	3.8	2.7	12.1	7.2
Cadmium (aqua regia extractable)	mg/kg	0.20	10	0.10	0.20	0.11		190		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Chromium (hexavalent)	mg/kg	4.00	10	0.30	0.30	0.30		33		Potentially Suitable		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Chromium (aqua regia extractable)	mg/kg	1.00	10	30.60	45.00	36.64		8600		Potentially Suitable		37.8	45	36.2	37.3	30.6	39.1	36.9	31.7	35.7	36.1
Copper (aqua regia extractable)	mg/kg	1.00	10	12.00	36.00	26.20		68000		Potentially Suitable		12	22	36	29	25	33	32	20	27	26
Lead (aqua regia extractable)	mg/kg	1.00	10	6.00	20.00	11.20		2300		Potentially Suitable		10	15	6	12	6	20	7	10	16	10
Mercury (aqua regia extractable)	mg/kg	0.30	10	0.10	0.10	0.10		58		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Nickel (aqua regia extractable)	mg/kg	1.00	10	23.50	46.20	38.44		980		Potentially Suitable		23.5	46.2	41.9	40	39	45.6	43	32.3	38.5	34.4
Selenium (aqua regia extractable)	mg/kg	1.00	10	1.00	2.00	1.60		12000		Potentially Suitable		1	2	1	1	2	2	1	2	2	2
Zinc (aqua regia extractable)	mg/kg	1.00	10	49.00	143.00	89.50		730000		Potentially Suitable		49	102	98	90	82	143	99	67	82	83
Benzene	µg/kg	1.00	10	5.00	5.00	5.00		47		Potentially Suitable		5	5	5	5	5	5	5	5	5	5
Toluene	µg/kg	1.00	10	5.00	5.00	5.00		110000		Potentially Suitable		5	5	5	5	5	5	5	5	5	5
Ethylbenzene	µg/kg	1.00	10	5.00	5.00	5.00		13000		Potentially Suitable		5	5	5	5	5	5	5	5	5	5
p & m-xylene	µg/kg	1.00	10	5.00	5.00	5.00		14000		Potentially Suitable		5	5	5	5	5	5	5	5	5	5
o-xylene	µg/kg	1.00	10	5.00	5.00	5.00		15000		Potentially Suitable		5	5	5	5	5	5	5	5	5	5
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.00	10	0.10	0.10	0.10		5900		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.00	10	0.10	0.10	0.10		17000		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.00	10	0.10	0.10	0.10		4800		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1.00	10	0.20	0.20	0.20		23000		Potentially Suitable		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2.00	10	4.00	4.00	4.00		82000		Potentially Suitable		4	4	4	4	4	4	4	4	4	4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8.00	10	7.00	7.00	7.00		-		Potentially Suitable		7	7	7	7	7	7	7	7	7	7
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8.00	10	7.00	7.00	7.00		-		Potentially Suitable		7	7	7	7	7	7	7	7	7	7
Aliphatic EC >16-35	mg/kg		0	0.00	0.00			1700000		Potentially Suitable											
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.00	10	0.10	0.10	0.10		46000		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.00	10	0.10	0.10	0.10		110000		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.00	10	0.10	0.10	0.10		8100		Potentially Suitable		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1.00	10	0.20	0.20	0.20		28000		Potentially Suitable		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2.00	10	4.00	4.00	4.00		37000		Potentially Suitable		4	4	4	4	4	4	4	4	4	4
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10.00	10	7.00	7.00	7.00		28000		Potentially Suitable		7	7	7	7	7	7	7	7	7	7
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10.00	10	7.00	7.00	7.00		28000		Potentially Suitable		7	7	7	7	7	7	7	7	7	7
total TPH																					

Project Name	ASOS Car Park Extension
Project Number	RCEI54564
Data Type	Leachates
Receiving Water Receptor	Surface Water (Freshwater)

Analytical Parameter (Water Analysis)	Units	Limit of detection	number of samples	Min	Max	EQS	DWS	WHO DWS	Comments	Sample Reference				
										Depth (m)				
										Date Sampled				
										BH02	BH03	BH05		
Arsenic (dissolved)	µg/l	2.5	3	2.5	2.5	50	-	-		2.5	2.5	2.5		
Cadmium (dissolved)	µg/l	0.5	3	0.5	0.5	5	-	-		0.5	0.5	0.5		
Chromium (dissolved)	µg/l	1.5	3	1.5	1.5	4.7	-	-		1.5	1.5	1.5		
Chromium (hexavalent)	µg/l	6	3	6	6	3.4	-	-	Lod >EQS	6	6	6		
Copper (dissolved)	µg/l	7	3	7	7	40	-	-		7	7	7		
Lead (dissolved)	µg/l	5	3	5	5	7.2	-	-		5	5	5		
Mercury (dissolved)	µg/l	1	3	1	1	0.05	-	-	Lod >EQS	1	1	1		
Nickel (dissolved)	µg/l	2	3	2	2	20	-	-		2	2	2		
Selenium (dissolved)	µg/l	3	3	3	3	-	10	-		3	3	3		
Zinc (dissolved)	µg/l	3	3	3	3	300	-	-		3	3	3		
pH (min)	pH Units	0.01	3	5.89	8.01	6	-	-		5.89	8.01	7.12		
pH (max)	pH Units	0.01	3	5.89	8.01	9	-	-		5.89	8.01	7.12		
Total Phenols (monohydric)	µg/l	10	3	10	10	-	-	-		10	10	10		
Total Cyanide	µg/l	10	3	10	10	1	-	-	Lod >EQS	10	10	10		
Sulphate as SO_4	mg/l	50	3	2450	22610	-	250000	-		18450	2450	22610		
Sulphide	µg/l	10	3	10	10	-	-	-		10	10	10		

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

Appendix G

Laboratory Analytical Certificates

Exova Jones Environmental

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

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

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

RPS
Unit 12 Watersedge Business Park
Modwen Rd
Salford
M5 3EZ

Attention :	Tom Ford
Date :	9th October, 2017
Your reference :	RCE154564
Our reference :	Test Report 17/15634 Batch 1
Location :	ASOS Carpark
Date samples received :	19th September, 2017
Status :	Final report
Issue :	3

Fourteen samples were received for analysis on 19th September, 2017 of which thirteen were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc
Project Manager

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : Solid

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

J E Sample No.	1-2	3-4	5-6	7-8	9-10	13-14	15-16	17-18	19-20	21-22	LOD/LOR	Units	Method No.
Sample ID	BH01	BH01	BH02	BH02	BH03	BH04	BH04	BH05	BH05	TP05			
Depth	0.30	1.30	0.30	1.30	0.30	0.30	1.30	0.30	1.30	0.80			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	14/09/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017			
Arsenic #	4.2	-	2.2	-	5.7	5.7	1.4	1.9	-	3.8	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	TM30/PM15
Chromium #	37.8	-	45.0	-	36.2	37.3	30.6	39.1	-	36.9	<0.5	mg/kg	TM30/PM15
Copper #	12	-	22	-	36	29	25	33	-	32	<1	mg/kg	TM30/PM15
Lead #	10	-	15	-	6	12	6	20	-	7	<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	23.5	-	46.2	-	41.9	40.0	39.0	45.6	-	43.0	<0.7	mg/kg	TM30/PM15
Selenium #	1	-	2	-	1	1	2	2	-	1	<1	mg/kg	TM30/PM15
Sulphur as S	-	0.07	-	0.07	-	-	-	-	0.07	0.03	<0.01	%	TM30/PM15
Total Sulphate as SO4 BRE	-	0.02	-	0.02	-	-	-	-	0.05	0.02	<0.01	%	TM50/PM29
Zinc #	49	-	102	-	98	90	82	143	-	99	<5	mg/kg	TM30/PM15
Magnesium	-	0.0128	-	0.0127	-	-	-	-	0.0299	0.0134	<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	-	<0.03	-	0.06	0.06	0.13	<0.03	-	0.07	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	-	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	-	<0.03	-	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	<0.06	-	<0.06	<0.06	<0.06	<0.06	-	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-	<0.07	-	<0.07	<0.07	<0.07	<0.07	-	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-	<0.6	-	<0.6	<0.6	<0.6	<0.6	-	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	93	-	93	-	93	90	91	90	-	93	<0	%	TM4/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : Solid

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

J E Sample No.	1-2	3-4	5-6	7-8	9-10	13-14	15-16	17-18	19-20	21-22	LOD/LOR	Units	Method No.
Sample ID	BH01	BH01	BH02	BH02	BH03	BH04	BH04	BH05	BH05	TP05			
Depth	0.30	1.30	0.30	1.30	0.30	0.30	1.30	0.30	1.30	0.80			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	14/09/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1 SV	<0.1	-	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1 SV	<0.1	-	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	-	<0.1	-	<0.1	<0.1	<0.1 SV	<0.1	-	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	-	<4	-	<4	<4	<4	<4	-	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	<7	-	<7	-	<7	<7	<7	<7	-	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	<7	-	<7	-	<7	<7	<7	<7	-	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	-	<19	-	<19	<19	<19	<19	-	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7 #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1 SV	<0.1	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1 SV	<0.1	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	-	<0.1	-	<0.1	<0.1	<0.1 SV	<0.1	-	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	-	<0.2	-	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	<4	-	<4	-	<4	<4	<4	<4	-	<4	<4	mg/kg	TM5/PM16
>EC16-EC21 #	<7	-	<7	-	<7	<7	<7	<7	-	<7	<7	mg/kg	TM5/PM16
>EC21-EC35 #	<7	-	<7	-	<7	<7	<7	<7	-	<7	<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	<19	-	<19	-	<19	<19	<19	<19	-	<19	<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	-	<38	-	<38	<38	<38	<38	-	<38	<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	-	<5	-	<5	<5	<5 SV	<5	-	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	-	<5	-	<5	<5	<5 SV	<5	-	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	-	<5	-	<5	<5	<5 SV	<5	-	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	-	<5	-	<5	<5	<5 SV	<5	-	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	-	<5	-	<5	<5	<5 SV	<5	-	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	-	<5	-	<5	<5	<5 SV	<5	-	<5	<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	-	<0.15	-	<0.15	<0.15	<0.15	<0.15	-	<0.15	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	11.4	9.1	13.7	13.6	11.6	10.1	9.6	12.2	7.9	11.3	<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4	-	<0.6	-	<0.6	-	-	-	-	0.8	<0.6	<0.6	mg/kg	TM38/PM20
Chloride (2:1 Ext BRE) #	-	0.006	-	0.005	-	-	-	-	0.011	0.007	<0.002	g/l	TM38/PM20
Hexavalent Chromium #	<0.3	-	<0.3	-	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	mg/kg	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE) #	-	<0.0025	-	<0.0025	-	-	-	-	<0.0025	<0.0025	<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0197	0.0866	0.0949	0.0642	0.0936	0.0916	0.1037	0.0928	0.1994	0.0778	<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	mg/kg	TM89/PM45
Organic Matter	0.5	-	1.2	-	2.7	1.8	1.6	2.4	-	1.6	<0.2	%	TM21/PM24
Sulphide	<10	-	<10	-	<10	<10	<10	<10	-	<10	<10	mg/kg	TM106/PM119

Please see attached notes for all abbreviations and acronyms

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : Solid

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

J E Sample No.	1-2	3-4	5-6	7-8	9-10	13-14	15-16	17-18	19-20	21-22	LOD/LOR	Units	Method No.
Sample ID	BH01	BH01	BH02	BH02	BH03	BH04	BH04	BH05	BH05	TP05			
Depth	0.30	1.30	0.30	1.30	0.30	0.30	1.30	0.30	1.30	0.80			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017	14/09/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017	19/09/2017			
pH #	7.26	8.08	6.08	8.36	7.52	7.49	7.64	7.13	8.01	7.53	<0.01	pH units	TM73/PM11

Please see attached notes for all abbreviations and acronyms

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : Solid

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

J E Sample No.	23-24	25-26	27-28								LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP08										
Depth	0.80	0.50	0.50										
COC No / misc													
Containers	V J	V J	V J										
Sample Date	14/09/2017	14/09/2017	14/09/2017										
Sample Type	Soil	Soil	Soil										
Batch Number	1	1	1										
Date of Receipt	19/09/2017	19/09/2017	19/09/2017										
Arsenic #	2.7	12.1	7.2								<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	<0.1	0.2								<0.1	mg/kg	TM30/PM15
Chromium #	31.7	35.7	36.1								<0.5	mg/kg	TM30/PM15
Copper #	20	27	26								<1	mg/kg	TM30/PM15
Lead #	10	16	10								<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM30/PM15
Nickel #	32.3	38.5	34.4								<0.7	mg/kg	TM30/PM15
Selenium #	2	2	2								<1	mg/kg	TM30/PM15
Sulphur as S	-	0.23	0.06								<0.01	%	TM30/PM15
Total Sulphate as SO4 BRE	-	0.03	0.06								<0.01	%	TM50/PM29
Zinc #	67	82	83								<5	mg/kg	TM30/PM15
Magnesium	-	0.0161	0.0338								<0.0001	g/l	TM30/PM20
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05								<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06								<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02								<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07								<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	<0.6	<0.6								<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05								<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02								<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	91	92	95								<0	%	TM4/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : Solid

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	23-24	25-26	27-28								LOD/LOR	Units	Method No.
Sample ID	TP06	TP07	TP08										
Depth	0.80	0.50	0.50										
COC No / misc													
Containers	V J	V J	V J										
Sample Date	14/09/2017	14/09/2017	14/09/2017										
Sample Type	Soil	Soil	Soil										
Batch Number	1	1	1										
Date of Receipt	19/09/2017	19/09/2017	19/09/2017										
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2								<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4								<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7								<7	mg/kg	TM5/PM16
>C21-C35 #	<7	<7	<7								<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	<19	<19								<19	mg/kg	TM5/TM36/PM12/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2								<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	<4	<4	<4								<4	mg/kg	TM5/PM16
>EC16-EC21 #	<7	<7	<7								<7	mg/kg	TM5/PM16
>EC21-EC35 #	<7	<7	<7								<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	<19	<19	<19								<19	mg/kg	TM5/TM36/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38								<38	mg/kg	TM5/TM36/PM12/PM16
MTBE #	<5	<5	<5								<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5								<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5								<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5								<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5								<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5								<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15								<0.15	mg/kg	TM26/PM21
Natural Moisture Content	8.6	8.0	11.0								<0.1	%	PM4/PM0
Ammoniacal Nitrogen as NH4	-	1.1	<0.6								<0.6	mg/kg	TM38/PM20
Chloride (2:1 Ext BRE) #	-	0.013	0.008								<0.002	g/l	TM38/PM20
Hexavalent Chromium #	<0.3	<0.3	<0.3								<0.3	mg/kg	TM38/PM20
Nitrate as NO3 (2:1 Ext BRE) #	-	<0.0025	<0.0025								<0.0025	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0264	0.1057	0.1787								<0.0015	g/l	TM38/PM20
Total Cyanide #	<0.5	<0.5	<0.5								<0.5	mg/kg	TM89/PM45
Organic Matter	0.7	3.3	2.2								<0.2	%	TM21/PM24
Sulphide	<10	<10	<10								<10	mg/kg	TM106/PM119

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : Solid

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

J E Sample No.	23-24	25-26	27-28									
Sample ID	TP06	TP07	TP08									
Depth	0.80	0.50	0.50									
COC No / misc												
Containers	V J	V J	V J									
Sample Date	14/09/2017	14/09/2017	14/09/2017									
Sample Type	Soil	Soil	Soil									
Batch Number	1	1	1									
Date of Receipt	19/09/2017	19/09/2017	19/09/2017									
pH #	7.83	7.87	7.60									

Please see attached notes for all abbreviations and acronyms

LOD/LOR	Units	Method No.
<0.01	pH units	TM73/PM11

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford
JE Job No.: 17/15634

Report : CEN 10:1 1 Batch

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

J E Sample No.	5-6	9-10	17-18								LOD/LOR	Units	Method No.
Sample ID	BH02	BH03	BH05										
Depth	0.30	0.30	0.30										
COC No / misc													
Containers	V J	V J	V J										
Sample Date	15/09/2017	15/09/2017	15/09/2017										
Sample Type	Soil	Soil	Soil										
Batch Number	1	1	1										
Date of Receipt	19/09/2017	19/09/2017	19/09/2017										
Dissolved Arsenic #	<2.5	<2.5	<2.5								<2.5	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5								<0.5	ug/l	TM30/PM14
Dissolved Chromium #	<1.5	<1.5	<1.5								<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7								<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5								<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1								<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	<2	<2								<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3								<3	ug/l	TM30/PM14
Dissolved Zinc #	<3	<3	<3								<3	ug/l	TM30/PM14
MTBE	<5	<5	<5								<5	ug/l	TM36/PM69
Benzene	<5	<5	<5								<5	ug/l	TM36/PM69
Toluene	<5	<5	<5								<5	ug/l	TM36/PM69
Ethylbenzene	<5	<5	<5								<5	ug/l	TM36/PM69
m/p-Xylene	<5	<5	<5								<5	ug/l	TM36/PM69
o-Xylene	<5	<5	<5								<5	ug/l	TM36/PM69
Phenol	<0.01	<0.01	<0.01								<0.01	mg/l	TM26/PM0
Sulphate as SO4 #	18.45	2.45	22.61								<0.05	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01								<0.01	mg/l	TM89/PM0
Sulphide	<0.01	<0.01	<0.01								<0.01	mg/l	TM106/PM0
Dissolved Organic Carbon	2	5	4								<2	mg/l	TM60/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006								<0.006	mg/l	TM38/PM0
pH	5.89	8.01	7.12								<0.01	pH units	TM73/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford

Note:

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

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

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

Signed on behalf of Jones Environmental Laboratory:



Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/15634	1	BH01	0.30	2	21/09/2017	**General Description (Bulk Analysis)**	soil/stones
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	BH02	0.30	6	21/09/2017	**General Description (Bulk Analysis)**	soil/stones
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	BH03	0.30	10	21/09/2017	**General Description (Bulk Analysis)**	Soil/Stones
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	BH04	0.30	14	21/09/2017	**General Description (Bulk Analysis)**	Soil/Stone
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	BH04	1.30	16	21/09/2017	**General Description (Bulk Analysis)**	Soil/Stone
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/15634	1	BH04	1.30	16	21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	BH05	0.30	18	22/09/2017	**General Description (Bulk Analysis)**	Soil/Stones
					22/09/2017	**Asbestos Fibres**	NAD
					22/09/2017	**Asbestos Fibres (2)**	NAD
					22/09/2017	**Asbestos ACM**	NAD
					22/09/2017	**Asbestos ACM (2)**	NAD
					22/09/2017	**Asbestos Type**	NAD
					22/09/2017	**Asbestos Type (2)**	NAD
					22/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	TP05	0.80	22	21/09/2017	**General Description (Bulk Analysis)**	soil/stones
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	TP06	0.80	24	21/09/2017	**General Description (Bulk Analysis)**	Soil/Stone
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	TP07	0.50	26	21/09/2017	**General Description (Bulk Analysis)**	Soil/Stones
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD
17/15634	1	TP08	0.50	28	21/09/2017	**General Description (Bulk Analysis)**	Soil/Stones
					21/09/2017	**Asbestos Fibres**	NAD
					21/09/2017	**Asbestos Fibres (2)**	NAD
					21/09/2017	**Asbestos ACM**	NAD
					21/09/2017	**Asbestos ACM (2)**	NAD
					21/09/2017	**Asbestos Type**	NAD
					21/09/2017	**Asbestos Type (2)**	NAD
					21/09/2017	**Asbestos Level Screen**	NAD

Client Name: RPS
Reference: RCE154564
Location: ASOS Carpark
Contact: Tom Ford

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 17/15634						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/15634

SOILS

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

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

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

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

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

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

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

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

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

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

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

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

WATERS

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

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

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

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

DEVIATING SAMPLES

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

SURROGATES

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

DILUTIONS

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

BLANKS

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

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

ABBREVIATIONS and ACRONYMS USED

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

Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

JE Job No: 17/15634

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B: Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5/TM36	TM005: Modified USEPA 8015B: Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes

JE Job No: 17/15634

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions	PM30/PM69	PM030: Eluate samples are extracted with solvent using a magnetic stirrer to create a vortex.PM069: One part soil is mixed with 10 parts water in a vial leaving no headspace. The mixture is shaken and then left to leach for 24 hours before VOC analysis.			AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes		AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

JE Job No: 17/15634

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM69	Modified BS EN 12457 method.One part soil is mixed with 10 parts water in a vial leaving no headspace. The mixture is shaken and then left to leach for 24 hours before VOC analysis.			AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.			AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.			AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	Dried and ground solid sample is boiled with dilute hydrochloric acid, the resulting liquor is then analysed.			AD	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	

JE Job No: 17/15634

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes		AR	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM0	No preparation is required.			AR	Yes
TM106	Determination of Sulphide by Skalar Continuous Flow Analyser	PM119	As received solid samples are extracted with 1M NaOH by orbital shaker for Sulphide and Thiocyanate analysis.			AR	Yes
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

Appendix H

HazWaste Online Output

HazWasteOnline™

Waste Classification Report

M6GTT-MA2RV-Q4XBJ

Job name

RCEI546564

Description/Comments

Project

ASOS Car Park Extension

Site

Waste Stream Template

RPS Suite 2017

Classified by

Name:
Karen Dale
Date:
03/10/2017 07:29:28 UTC
Telephone:
0 161 874 3737

Company:
RPS Group
Unit 12, Waters Edge Business Park, Modwen Road
Salford Quays
Manchester
M5 3EZ

Report

Created by: Karen Dale
Created date: 03/10/2017 07:29 UTC

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	BH01	0.3	Non Hazardous		2
2	BH02	0.3	Non Hazardous		5
3	BH03	0.3	Non Hazardous		8
4	BH04	0.3	Non Hazardous		11
5	BH04[1]	1.3	Non Hazardous		14
6	BH05	0.3	Non Hazardous		17
7	TP05	0.8	Non Hazardous		20
8	TP06	0.8	Non Hazardous		23
9	TP07	0.5	Non Hazardous		26
10	TP08	0.5	Non Hazardous		29

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	32
Appendix B: Rationale for selection of metal species	34
Appendix C: Version	34

Classification of sample: BH01

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

Sample details

Sample Name:
BH01
Sample Depth:
0.3 m
Moisture content:
11.4%
(no 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: 11.4% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		4.2 mg/kg	1.32	5.545 mg/kg	0.000555 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
	048-002-00-0 / 231-152-8 [1] 215-146-2 [2] / 7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }		37.8 mg/kg	1.462	55.247 mg/kg	0.00552 %		
	/ 215-160-9 / 1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }		12 mg/kg	1.126	13.511 mg/kg	0.00135 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead chromate }	1	10 mg/kg	1.56	15.598 mg/kg	0.001 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
7	mercury { mercury dichloride }		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		23.5 mg/kg	2.976	69.942 mg/kg	0.00699 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8							
10	zinc { zinc chromate }		49 mg/kg	2.774	135.933 mg/kg	0.0136 %		
	024-007-00-3							
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5							
12	TPH (C6 to C40) petroleum group		<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
	TPH							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.26	pH		7.26	pH	7.26 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0358 %		

Key

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

Classification of sample: BH02

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

Sample details

Sample Name:
BH02
Sample Depth:
0.3 m
Moisture content:
13.7%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 13.7% No 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		2.2 mg/kg	1.32	2.905 mg/kg	0.00029 %		
2	cadmium { cadmium oxide }	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		45 mg/kg	1.462	65.77 mg/kg	0.00658 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	15 mg/kg	1.56	23.397 mg/kg	0.0015 %		
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		46.2 mg/kg	2.976	137.503 mg/kg	0.0138 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				2 mg/kg	2.554	5.107 mg/kg	0.000511 %		
10	zinc { zinc chromate }	024-007-00-3				102 mg/kg	2.774	282.963 mg/kg	0.0283 %		
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<38 mg/kg		<38 mg/kg	<0.0038 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				6.08	pH		6.08	pH	6.08 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.06 %		

Key

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

Classification of sample: BH03

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

Sample details

Sample Name:
BH03
Sample Depth:
0.3 m
Moisture content:
11.6%
(no 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: 11.6% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		5.7 mg/kg	1.32	7.526 mg/kg	0.000753 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
	048-002-00-0 / 231-152-8 [1] 215-146-2 [2] / 7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }		36.2 mg/kg	1.462	52.908 mg/kg	0.00529 %		
	/ 215-160-9 / 1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }		36 mg/kg	1.126	40.532 mg/kg	0.00405 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead chromate }	1	6 mg/kg	1.56	9.359 mg/kg	0.0006 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
7	mercury { mercury dichloride }		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		41.9 mg/kg	2.976	124.705 mg/kg	0.0125 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8 / /							
10	zinc { zinc chromate }		98 mg/kg	2.774	271.866 mg/kg	0.0272 %		
	024-007-00-3 / /							
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5 / /							
12	TPH (C6 to C40) petroleum group		<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
	/ / TPH							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.52	pH		7.52	pH	7.52 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0572 %		

Key

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

Classification of sample: BH04

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

Sample details

Sample Name:
BH04
Sample Depth:
0.3 m
Moisture content:
10.1%
(no 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: 10.1% No 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		5.7 mg/kg	1.32	7.526 mg/kg	0.000753 %		
2	cadmium { cadmium oxide }	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		37.3 mg/kg	1.462	54.516 mg/kg	0.00545 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29 mg/kg	1.126	32.651 mg/kg	0.00327 %		
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	12 mg/kg	1.56	18.718 mg/kg	0.0012 %		
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		40 mg/kg	2.976	119.051 mg/kg	0.0119 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
10	zinc { zinc chromate }	024-007-00-3				90 mg/kg	2.774	249.673 mg/kg	0.025 %		
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<38 mg/kg		<38 mg/kg	<0.0038 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.49	pH		7.49	pH	7.49 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.06	mg/kg		0.06	mg/kg	0.000006 %		
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0544 %		

Key

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

Classification of sample: BH04[1]

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

Sample details

Sample Name:
BH04[1]
Sample Depth:
1.3 m
Moisture content:
9.6%
(no 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: 9.6% No 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		1.4	mg/kg	1.32	1.848	mg/kg	0.000185 %		
2	cadmium { cadmium oxide }	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]		<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		30.6	mg/kg	1.462	44.724	mg/kg	0.00447 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25	mg/kg	1.126	28.147	mg/kg	0.00281 %		
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	6	mg/kg	1.56	9.359	mg/kg	0.0006 %		
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		39	mg/kg	2.976	116.074	mg/kg	0.0116 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				2	mg/kg	2.554	5.107	mg/kg	0.000511 %		
10	zinc { zinc chromate }	024-007-00-3				82	mg/kg	2.774	227.48	mg/kg	0.0227 %		
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<38	mg/kg		<38	mg/kg	<0.0038 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.64	pH		7.64	pH	7.64 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.13	mg/kg		0.13	mg/kg	0.000013 %		
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0495 %		

Key

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

Classification of sample: BH05

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

Sample details

Sample Name:
BH05
Sample Depth:
0.3 m
Moisture content:
12.2%
(no 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: 12.2% No 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		1.9 mg/kg	1.32	2.509 mg/kg	0.000251 %		
2	cadmium { cadmium oxide }	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<**LOD**
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		39.1 mg/kg	1.462	57.147 mg/kg	0.00571 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		33 mg/kg	1.126	37.154 mg/kg	0.00372 %		
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	20 mg/kg	1.56	31.196 mg/kg	0.002 %		
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		45.6 mg/kg	2.976	135.718 mg/kg	0.0136 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				2 mg/kg	2.554	5.107 mg/kg	0.000511 %		
10	zinc { zinc chromate }	024-007-00-3				143 mg/kg	2.774	396.703 mg/kg	0.0397 %		
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<38 mg/kg		<38 mg/kg	<0.0038 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.13	pH		7.13	pH	7.13 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.072 %		

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

Classification of sample: TP05

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

Sample details

Sample Name:
TP05
Sample Depth:
0.8 m
Moisture content:
11.3%
(no 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: 11.3% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		3.8 mg/kg	1.32	5.017 mg/kg	0.000502 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
	048-002-00-0 / 231-152-8 [1] 215-146-2 [2] / 7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }		36.9 mg/kg	1.462	53.931 mg/kg	0.00539 %		
	/ 215-160-9 / 1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }		32 mg/kg	1.126	36.028 mg/kg	0.0036 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead chromate }	1	7 mg/kg	1.56	10.919 mg/kg	0.0007 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
7	mercury { mercury dichloride }		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		43 mg/kg	2.976	127.979 mg/kg	0.0128 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		1 mg/kg	2.554	2.554 mg/kg	0.000255 %		
	034-002-00-8 / /							
10	zinc { zinc chromate }		99 mg/kg	2.774	274.641 mg/kg	0.0275 %		
	024-007-00-3 / /							
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5 / /							
12	TPH (C6 to C40) petroleum group		<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
	/ / TPH							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.53	pH		7.53	pH	7.53 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				0.07	mg/kg		0.07	mg/kg	0.000007 %		
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0573 %		

Key

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

Classification of sample: TP06

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

Sample details

Sample Name:
TP06
Sample Depth:
0.8 m
Moisture content:
8.6%
(no correction)

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

Hazard properties

None identified

Determinands

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

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		2.7 mg/kg	1.32	3.565 mg/kg	0.000356 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
	048-002-00-0 / 231-152-8 [1] 215-146-2 [2] / 7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }		31.7 mg/kg	1.462	46.331 mg/kg	0.00463 %		
	/ 215-160-9 / 1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }		20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead chromate }	1	10 mg/kg	1.56	15.598 mg/kg	0.001 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
7	mercury { mercury dichloride }		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		32.3 mg/kg	2.976	96.133 mg/kg	0.00961 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		2 mg/kg	2.554	5.107 mg/kg	0.000511 %		
	034-002-00-8							
10	zinc { zinc chromate }		67 mg/kg	2.774	185.868 mg/kg	0.0186 %		
	024-007-00-3							
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5							
12	TPH (C6 to C40) petroleum group		<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
	/ / TPH							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.83	pH		7.83	pH	7.83 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0435 %		

Key

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

Classification of sample: TP07

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

Sample details

Sample Name:
TP07
Sample Depth:
0.5 m
Moisture content:
8%
(no correction)

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

Hazard properties

None identified

Determinands

Moisture content: 8% No Moisture Correction applied (MC)

#	Determinand	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number / EC Number / CAS Number							
1	arsenic { arsenic trioxide }		12.1 mg/kg	1.32	15.976 mg/kg	0.0016 %		
	033-003-00-0 / 215-481-4 / 1327-53-3							
2	cadmium { cadmium oxide }		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
	048-002-00-0 / 231-152-8 [1] 215-146-2 [2] / 7440-43-9 [1] 1306-19-0 [2]							
3	chromium in chromium(III) compounds { chromium(III) oxide }		35.7 mg/kg	1.462	52.178 mg/kg	0.00522 %		
	/ 215-160-9 / 1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<LOD
	024-001-00-0 / 215-607-8 / 1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }		27 mg/kg	1.126	30.399 mg/kg	0.00304 %		
	029-002-00-X / 215-270-7 / 1317-39-1							
6	lead { lead chromate }	1	16 mg/kg	1.56	24.957 mg/kg	0.0016 %		
	082-004-00-2 / 231-846-0 / 7758-97-6							
7	mercury { mercury dichloride }		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
	080-010-00-X / 231-299-8 / 7487-94-7							
8	nickel { nickel chromate }		38.5 mg/kg	2.976	114.586 mg/kg	0.0115 %		
	028-035-00-7 / 238-766-5 / 14721-18-7							
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }		2 mg/kg	2.554	5.107 mg/kg	0.000511 %		
	034-002-00-8 / /							
10	zinc { zinc chromate }		82 mg/kg	2.774	227.48 mg/kg	0.0227 %		
	024-007-00-3 / /							
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }		<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
	006-007-00-5 / /							
12	TPH (C6 to C40) petroleum group		<38 mg/kg		<38 mg/kg	<0.0038 %		<LOD
	/ / TPH							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.87	pH		7.87	pH	7.87 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0527 %		

Key

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

Classification of sample: TP08

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

Sample details

Sample Name:
TP08
Sample Depth:
0.5 m
Moisture content:
11%
(no 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: 11% No 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		7.2 mg/kg	1.32	9.506 mg/kg	0.000951 %		
2	cadmium { cadmium oxide }	048-002-00-0	231-152-8 [1] 215-146-2 [2]	7440-43-9 [1] 1306-19-0 [2]		0.2 mg/kg	1.142	0.228 mg/kg	0.0000228 %		
3	chromium in chromium(III) compounds { chromium(III) oxide }		215-160-9	1308-38-9		36.1 mg/kg	1.462	52.762 mg/kg	0.00528 %		
4	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %		<**LOD**
5	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
6	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	10 mg/kg	1.56	15.598 mg/kg	0.001 %		
7	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<**LOD**
8	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		34.4 mg/kg	2.976	102.384 mg/kg	0.0102 %		
9	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				2 mg/kg	2.554	5.107 mg/kg	0.000511 %		
10	zinc { zinc chromate }	024-007-00-3				83 mg/kg	2.774	230.254 mg/kg	0.023 %		
11	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<**LOD**
12	TPH (C6 to C40) petroleum group			TPH		<38 mg/kg		<38 mg/kg	<0.0038 %		<**LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
13		confirm TPH has NOT arisen from diesel or petrol				☑							
14		benzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
15		toluene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
16		ethylbenzene				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<5	mg/kg		<5	mg/kg	<0.0005 %		<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]									
18		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5	mg/kg		<5	mg/kg	<0.0005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
19		pH				7.6	pH		7.6	pH	7.6 pH		
				PH									
20		naphthalene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.06	mg/kg		<0.06	mg/kg	<0.000006 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
			205-883-8	191-24-2									
36		phenol				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
										Total:	0.0505 %		

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

Appendix A: Classifier defined and non 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: 17/07/2015
Risk Phrases: R20 , R22 , R36 , R37 , R38 , R42 , R43 , R50/53 , R60 , R61
Hazard Statements: Acute Tox. 4 H332 , Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Resp. Sens. 1 H334 , Skin Sens. 1 H317 , Repr. 1B H360FD , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

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

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

CLP index number: 006-007-00-5
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Risk Phrases: None.
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s)/Risk Phrase(s):
14/12/2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: R10 , R45 , R46 , R51/53 , R63 , R65
Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

- **confirm TPH has NOT arisen from diesel or petrol**

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: None.
Hazard Statements: None.

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

CLP index number: 601-023-00-4
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Risk Phrases: None.
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s)/Risk Phrase(s):
03/06/2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25/05/2015
Risk Phrases: None.
Hazard Statements: None.

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R22 , R26 , R27 , R36 , R37 , R38
Hazard Statements: Acute Tox. 4 H302 , Acute Tox. 1 H330 , Acute Tox. 1 H310 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36 , R37 , R38 , N R50/53 , N R51/53
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Aquatic Chronic 2 H411

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R22 , R36 , R37 , R38 , R40 , R43 , N R50/53
Hazard Statements: Acute Tox. 4 H302 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Carc. 2 H351 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410 , Skin Irrit. 2 H315

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17/07/2015
Risk Phrases: R36 , R37 , R38 , R43 , N R50/53
Hazard Statements: Eye Irrit. 2 H319 , STOT SE 3 H335 , Skin Irrit. 2 H315 , Skin Sens. 1 H317 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xn R22 , N R50/53
Hazard Statements: Acute Tox. 4 H302 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21/08/2015
Risk Phrases: Xi R36/37/38 , N R50/53
Hazard Statements: Skin Irrit. 2 H315 , Eye Irrit. 2 H319 , STOT SE 3 H335 , Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

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

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06/08/2015
Risk Phrases: R40
Hazard Statements: Carc. 2 H351

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23/07/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Acute 1 H400 , Aquatic Chronic 1 H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

cadmium {cadmium oxide}

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

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

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

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.

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

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

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

zinc {zinc chromate}

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

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]

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition, May 2015
HazWasteOnline Classification Engine Version: 2017.269.3405.6897 (26 Sep 2017)
HazWasteOnline Database: 2017.270.3406.6898 (28 Sep 2017)

This classification utilises the following guidance and legislation:
WM3 - Waste Classification - May 2015
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010