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PHASE 2: GROUND INVESTIGATION REPORT

McCARTHY & STONE (RETIREMENT LIFESTYLES) LIMITED

JESSIEFIELD

SPATH ROAD

MANCHESTER

M20 2TZ

Project No: 22-846

Prepared By:

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Date:

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09/12/2022

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09/12/2022

The information and / or advice contained in this Phase 2: Ground Investigation Report is based solely on, and is limited to, the boundaries of the site, the immediate area around the site, and the historical use(s) unless otherwise stated. This 'Report' has been prepared to collate information relating to the physical, environmental and industrial setting of the site, and to highlight, where possible, the likely problems that might be encountered when considering the future development of this site for the proposed end use. All comments, opinions, diagrams, cross sections and / or sketches contained within the report, and / or any configuration of the findings is conjectural and given for guidance only and confirmation of the anticipated ground conditions should be considered before development proceeds. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Arc Environmental Limited (ARC). If a change in the proposed land use is envisaged, then a reassessment of the site should be carried out.

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APPENDICES

Appendix I	Location Plan, Aerial Photograph, Existing Site Layout Plan & Proposed Development Layout Plan
Appendix II	Borehole & Trial Pit Location Plan and Borehole & Trial Pit Record Sheets
Appendix III	Soakaway Calculation Sheets
Appendix IV	Laboratory Results (Geotechnical & Ground Contamination) & Waste Classification Report
Appendix V	Revised Conceptual Site Model (CSM)

EXECUTIVE SUMMARY

As requested by McCarthy & Stone (Retirement Lifestyles) Limited and following the results of Phase 1: Desk Study Report completed by ARC Environmental Ltd (Ref. 20-485, August 2020), Phase 2: Ground Investigation works have been carried out on a parcel of land (Jessiefield) at Spath Road, Didsbury, Manchester.

Ground Investigation Works

The ground investigation works comprised 2 no. cable percussive boreholes (CP01 & CP02), 5 no. windowless sampling boreholes (WS01 to WS05) and 2 no. mechanically excavated trial pits (TP01 & TP02) with soakaway testing. The positions of the investigation locations can be seen on the Borehole and Trial pit Location Plan, a copy of which can be seen in Appendix II.

Ground Conditions

Made ground was recorded to depths of between c.0.40m to c.1.30m below current ground level (bcgl), generally comprising sandy soil and black / dark brown sand with occasional brick fragments. The underlying natural drift deposits (Glaciofluvial Sheet Deposits) comprised medium dense locally dense sand, gravelly sand, sand & gravel and sandy gravel in the upper part with deeper deposits including significant layers of firm, stiff and very stiff, locally laminated, clay below c.5.50m to c.7.00m. Possible sandstone was suspected below c.21.00m to 21.60m where typically dense sand was recorded which could be representative of 'poorly cemented sandstone' (Wilmslow Sandstone Formation).

Groundwater ingress was noted between c.2.00m and c.4.00m with deeper water strikes also noted at c.13.00m, c.16.30m and c.21.00m. As such, it is considered prudent to allow for the introduction of temporary groundwater control techniques (i.e., pumping equipment), to take care of any localised ingresses of surface water or trapped / perched groundwater which may occur, during the construction period, especially if construction takes place during the wetter periods of the year.

Foundations

Conventional shallow strip and pad footings will be acceptable based within the natural sands and gravels at c.0.60m to c.1.30m depth below current ground levels (a minimum depth of c.0.75m below finished ground levels) where a maximum allowable bearing pressure of 175kN/m² will be available whilst ensuring normal and differential settlement remains within acceptable limits. Suspended floors are anticipated to allow service corridors below the building.

When considering the risk to building materials, it is recommended that a concrete design class of DS-1 and ACEC class of AC-2z is used for all foundations and buried concrete based within or in contact with made ground deposits. Recourse to the relevant utility suppliers should be made for their advice / comments regarding any service material precautions necessary.

Contamination

From the results of the contamination screening carried out on the made ground across the area of the proposed apartments no elevated concentrations of metals, PAH's, TPH's or BTEX have been recorded. Similarly, no asbestos has been identified or recorded. Consequently, the made ground is not considered to pose a risk to Human Health where exposure pathways are available, and no remedial measures are required.

Ground Gas

The site is not considered to be at risk from harmful landfill type ground gas or radon gas.

1.0 Introduction

December 2022

As requested by McCarthy & Stone Retirement lifestyles Ltd Phase 2: Ground Investigation works have been carried out at a residential site (Jessiefield) located off Spath Road, Didsbury, Manchester, M20 2TZ. Proposed development details show the construction of residential apartments with associated gardens and areas of car parking on the northern portion of the site. Redevelopment will involve demolition of the existing property on site (i.e., Jessiefield House) – see Proposed Development Layout Plan, a copy of which is attached in Appendix I. A Phase 1: Desk Top Report (Ref. 20-485, August 2020) has been undertaken by Arc Environmental Ltd (ARC) and the information contained within this report was utilised in the design of this ground investigation. The intrusive investigation works undertaken comprised 2 no. cable percussive boreholes (CP01 & CP02), 5 no. windowless sampling boreholes (WS01 to WS05), 2 no. mechanically excavated trial pits (TP01 & TP02) for soakaway testing. The positions of the investigation locations can be seen on the Borehole and Trial Pit Location Plan, a copy of which is attached in Appendix II. It should be noted that this plan is for orientating purposes only, as the positions shown are approximate and the plan is not to a standard scale.

2.0 Site Details

Table 2.1

N = north, E = east, S = south & W = west.

Site Name & Address:	Jessiefield, Spath Road, Manchester, M20 2TZ.
National Grid Reference:	384080, 391290 (representative of the central part of the site).
Description of Location:	The site is situated within a residential setting, located c.6.9km south of Manchester City Centre.
Site Shape & Boundaries:	NE = Spath Road, SE = Lancaster Road, SW & W = Residential houses with gardens.

3.0 Scope of Works

Table 3.1

Client:	McCarthy & Stone (Developments) Ltd.
Consultant:	~
Project type:	Retirement Apartments.
Site Location plan:	See Appendix I.
Layout plan (existing):	See Appendix I.
Layout plan (proposed):	See Appendix I.
Investigation Works:	2 no. cable percussive boreholes (CP01 & CP02) 5 no. windowless sampling boreholes (WS01 to WS05). 2 no. Soakaway Trial Pits (TP01 & TP02).
Laboratory Testing:	Geotechnical and Ground Contamination.
CLEA End-Use Classification:	Level 1 GQRA – Residential without homegrown produce (apartments)

4.0 Investigation Rationale

The information contained in this report is limited to the areas of the site, as indicated on the Existing and Proposed Site Layout Plans shown in Appendix I, and to those areas accessible during the ground investigation. The depths of strata on the record sheets are recorded from current ground levels. When considering the full scope of the development any features and / or issues not specifically mentioned in this report cannot be assumed to have been covered.

This ground investigation has been designed to provide information on the general ground and groundwater conditions where access would allow, within the boundaries of the site. The rationale behind the location of each exploratory hole is summarised in Table 4.1 on the following page.

4.0 Investigation Rationale

Table 4.1

Potential issue	Exploratory hole
Determine the nature of the underlying ground conditions, including shallow groundwater.	All exploratory positions.
Check suitability of shallow soils for the use of SuDS	TP01 & TP02
Determine the levels of contamination present within the initial deposits with a view to determining the risks posed towards the future site end-users and for possible off-site removal.	TP02 & WS01 to WS05.

4.1 Contamination Related Sampling & Site Protocols: -

All works associated with this ground contamination assessment and investigations have generally been completed in accordance with BS10175:2011+A2:2017: Investigation of potentially contaminated sites – Code of practice & Land Contamination Risk Management (LCRM: October 2020), with the following precautions specific to this project.

4.1.1 Ground Contamination Sampling: -

Samples were recovered by a representative of ARC Environmental Ltd. during the intrusive investigation works. All samples were stored at approximately c.2-8°C using cool boxes and ice packs prior to delivery to a UKAS / MCERTS accredited laboratory. Sampling was carried out in accordance with 'Technical Policy Statement 63: UKAS Policy on Deviating Samples'.

4.1.2 Onsite Health & Safety Requirements: -

All site representatives wore relevant and appropriate PPE including (where appropriate) safety footwear, high visibility jacket / vest, hard hat, eye protection and overalls. In addition, disposable latex gloves were used when handling any potentially contaminated materials and when rinsing all sampling tools. Each site vehicle contained a suitable First Aid kit with hand wash station / cleansing products (i.e., sanitary wipes).

4.1.3 Avoiding Cross-Contamination between Sample Locations: -

To avoid cross-contamination of materials between soil horizons, drill casing was used to seal off the made ground. In addition, disposable plastic liners were used to collect samples from the windowless sampling boreholes carried out. With regards to the trial pits, the samples were recovered manually using dedicated disposable plastic gloves, replaced between each sample recovery. The trial pits were backfilled in reverse order.

5.0 Ground Conditions

For an accurate description of the ground conditions encountered at each investigation position, reference should be made to the Borehole & Trial Pit Record Sheets attached in Appendix II. It should be noted that there is always the possibility of variation in the ground conditions around and between the exploratory hole locations.

5.1 Soil Profile: -

A summary of the soil profile for this site can be seen in Table 5.1 on the following page.

5.0 Ground Conditions (Cont'd)

5.1 Soil Profile (Cont'd): -

Table 5.1

Bcgl = Below current ground levels.

Type of Strata	Depths Recorded (BCGL)	Description & General Comments
MADE GROUND:	From GL up to c.0.40m to c.1.30m	Grass overlying sandy soil and black / dark brown sand with occasional brick fragments.
DRIFT DEPOSITS (Glaciofluvial Sheet Deposits):	From c.0.40m to c.1.30m up to c.21.00m to c.21.60m	Medium dense locally dense SAND, gravelly SAND, SAND & GRAVEL and sandy GRAVEL in the upper part with deeper deposits including significant layers of firm, stiff and very stiff, locally laminated, CLAY below c.5.50m to c.7.00m.
SOLID GEOLOGY (Wilmslow Sandstone Formation):	From c.21.00m to c.21.60m up to c.25.45m	Typically, dense SAND considered to be representative of 'poorly cemented sandstone' (?).

There was no evidence of significant contamination such as fuel or waste oil odours or Asbestos Containing Materials (ACM's – cemented sheets, lagging, etc.) noted within the made ground materials.

5.2 Groundwater & Stability: -

Groundwater ingress was noted between c.2.00m and c.4.00m with deeper water strikes also noted at c.13.00m, c.16.30m and c.21.00m. As a result, shallow water ingress is likely to occur within construction related excavations. Therefore, it would be prudent to allow for the introduction of suitable groundwater control measures to take care of ingresses of groundwater, especially during the wetter periods of the year.

6.0 Insitu Testing & Sampling

6.1 Insitu Standard Penetration Tests: -

Standard penetration tests (SPT's) were carried out with the use of a normal split spoon sampler within the windowless sampling and cable percussive boreholes to determine the relative density / strength of the materials tested. The results are shown as 'N' values on the borehole record sheets, adjacent to the appropriate sample level. A summary of the results of the tests undertaken can be seen in Table 6.1 below. Where the full penetration depth, including seating blows (450mm), could not be achieved, the bottom sampling depth is indicated as less than 0.45m from the top (start of test), with the actual depth of penetration and number of blows undertaken also being recorded.

Table 6.1

Type of Strata	Range of SPT 'N' Values	Result details
Sand and gravel	12 to 72	Medium dense, dense and very dense
Clay	22 to 75	Stiff and very stiff
Sandstone(?)	26 to 37	Medium dense and dense

6.2 Insitu Soakaway Tests: -

Insitu soakaway tests (2 no.) were completed at trial pits TP01 and TP02 in accordance with BRE 365: Soakaway Design, to assess the drainage characteristics of the shallow soils. The test pits were excavated to depths of 2.00m below current ground levels and filled to 1.00m below ground level (assumed invert level) on the same day, whilst monitoring water level versus time (at close intervals). The water was poured into the test pits at a rapid rate from a 10,000ltr tractor towed agricultural water bowser to ensure the pits were filled in a short time.

6.0 Insitu Testing & Sampling (Cont'd)

6.2 Insitu Soakaway Tests (Cont'd): -

Infiltration values for the outflow between 75% and 25% effective depth was calculated over three tests per pit and the average values recorded. Infiltration rates of 5.88E-0.5m/s and 8.04E-0.5m/s were calculated indicating good drainage characteristics and a medium permeability classification. The results are contained in Appendix III and can be used when designing a SuDS drainage system.

7.0 Laboratory Testing

All geotechnical testing was carried out in accordance with BS1377-1:2016 by Professional Soils Laboratory (PSL) of Doncaster, UK (UKAS accredited). Ground contamination was undertaken by Chemtech Environmental of Stanley, Co. Durham (UKAS & MCERTS accredited).

7.1 Determination of pH & SO₄: -

Representative samples of the made ground and natural deposits recovered during the investigation, were tested to determine their acidic (pH) and soluble sulphate (SO₄) levels. The results are shown in Table 7.1 below and are also contained within the Chemtech Analytical Report (Ref. 115668), a copy of which can be seen in Appendix IV.

Table 7.1

Position	Depth (m)	Strata	pH	SO₄(mg/l)	Design SO₄ Class	ACEC Class
TP02	0.30	Made ground	7.8	87	DS-1	AC-1
WS01	0.40-0.60	Made ground	7.2	17	DS-1	AC-1
WS02	0.10-0.30	Made ground	6.1	24	DS-1	AC-2z
WS03	0.30-0.50	Made ground	7.0	18	DS-1	AC-1
WS03	0.80-1.00	Natural strata	7.4	<10	DS-1	AC-1
WS04	0.40-0.60	Made ground	7.7	10	DS-1	AC-1
WS04	1.60-1.80	Natural strata	7.7	<10	DS-1	AC-1
WS05	0.30-0.50	Made ground	7.7	11	DS-1	AC-1

ACEC = Aggressive Chemical Environment for Concrete site classification

From these results the pH values for the samples of made ground materials and natural deposits tested range from 6.1 to 7.8 and the amount of soluble sulphate present ranges from <10mg/l to 87mg/l. Therefore, in accordance with the BRE Special Digest 1:2005, the made ground materials and natural Glacial Till across the site should be given a classification of DS-1.

When considering the nature of the made ground materials tested and assuming mobile groundwater the assessment of the Chemical Environment for concrete is AC-2z.

7.2 Determination of Particle Size Distribution (PSD): -

Representative samples of natural upper drift deposits were tested to determine their particle size distribution, so they might be classified. The results of the tests are represented both graphically and numerically on the PSD result sheets attached PSL Report Ref. PSL22/7371 and are also summarised Table 7.2 on the following page.

7.0 Laboratory Testing (Cont'd)

7.2 Determination of Particle Size Distribution (PSD) (Cont'd): -

Table 7.2

Position	Depth (m)	Silt/Clay Fraction (%)	Sand Fraction (%)	Gravel Fraction (%)	Cobble Fraction (%)	Grading Characteristics	Brief Soil Description
WS01	1.80-2.00	6	76	18	0	Poorly graded	Gravelly silty SAND
WS02	1.60-1.80	2	54	44	0	Poorly graded	Slightly silty SAND & GRAVEL
WS05	1.20-1.40	2	94	4	0	Poorly graded	Slightly gravelly slightly silty SAND
CP01	2.00-2.45	2	29	69	0	Well graded	Very sandy slightly silty GRAVEL
CP01	4.00-4.45	3	27	57	13	Well graded	Very sandy slightly silty GRAVEL with cobbles
CP02	1.20-1.65	3	81	16	0	Well graded	Gravelly slightly silty SAND
CP02	3.00-3.45	2	12	86	0	Poorly graded	Sandy slightly silty GRAVEL
CP02	5.00-5.45	2	19	79	0	Well graded	Sandy slightly silty GRAVEL

7.3 Contamination Screening / Screening Strategy: -

Representative samples of the made ground materials recovered from across the site were passed onto Chemtech of Stanley, Durham, so that soil contamination screening could be carried out. In total 6 no. representative samples were screened using a standard generic contamination suite (based on the current CLEA SGV listed analytes with historical additions), which is used to assess typical made ground (disturbed natural strata mixed with anthropogenic debris) of an unknown source. Although no evidence of significant or gross contamination such as ash, fuels oils or Asbestos Containing Materials (ACM's) to aid in an assessment for off-site disposal classification, representative samples were tested for Speciated PAH (Polycyclic Aromatic Hydrocarbons), Speciated TPH (Total Petroleum Hydrocarbons) & Asbestos. The catalogue of testing results can be found in the Chemtech Analytical Report (Ref. 115668), attached in Appendix IV, and the total analysis carried out is summarised below:

- 6 no. soil samples screened for a generic (metals and non-organics) soil suite including Arsenic, Cadmium, Chromium (III & VI), Copper, Lead, Mercury, Nickel, Selenium, Zinc, Cyanide and Total Organic Carbon (TOC).
- 6 no. soil samples screened for Speciated Polycyclic Aromatic Hydrocarbons (PAH's).
- 6 no. soil samples screened for Speciated Total Petroleum Hydrocarbons (based on full Aliphatic / Aromatic Split & BTEX).
- 6 no. samples screened for the presence of asbestos.
- 3 no. WAC tests

8.0 Ground Contamination Risk Assessment

8.1 Methodology: -

Following completion of the contamination screening undertaken on various samples from this site, Level 1 quantitative ground contamination risk assessments have been undertaken, generally in accordance with BS10175: British Standard Code of Practice for the Investigation of Potentially Contaminated Sites (2011+A2:2017) & Land Contamination Risk Management (LCRM: October 2020). This quantitative ground contamination risk assessment uses the current UK practice for assessing the risks from land contamination, which is based on the established *source-pathway-receptor* pollutant linkage methodology and 'suitable for use' approach (Part IIA, EPA 1990 - inserted through Section 57 EA 1995).

8.0 Ground Contamination Risk Assessment (Cont'd)

8.2 Level 1 Risk Assessment (Human Health): -

Table 8.1

Bold = Elevated concentrations

Analyte	Critical Conc. (C _C) mg/kg	No. of Samples Screened	Max. Conc. (C _M) recorded mg/kg	Does C _M exceed C _C	No. of Samples >C _C
Arsenic	40 ⁽¹⁾	6	19	NO	0
Cadmium	85 ⁽¹⁾	6	<0.2	NO	0
Chromium III	910 ⁽¹⁾	6	24	NO	0
Chromium VI	6 ⁽¹⁾	6	<1	NO	0
Copper	7100 ⁽¹⁾	6	30	NO	0
Lead	310 ⁽²⁾	6	59	NO	0
Mercury	56 ⁽¹⁾	6	<0.5	NO	0
Nickel	180 ⁽¹⁾	6	10	NO	0
Selenium	430 ⁽¹⁾	6	0.6	NO	0
Zinc	40000 ⁽¹⁾	6	32	NO	0
Cyanide	34 ⁽³⁾	6	<1	NO	0
Asbestos	Presence	6	NAD	~	~
Acenaphthene	4700 ⁽¹⁾	6	0.03	NO	0
Acenaphthylene	4600 ⁽¹⁾	6	0.12	NO	0
Anthracene	35000 ⁽¹⁾	6	0.2	NO	0
Benzo(a)anthracene	14 ⁽¹⁾	6	0.16	NO	0
Benzo(a)pyrene	3.2 ⁽¹⁾	6	0.86	NO	0
Benzo(b)fluoranthene	4.0 ⁽¹⁾	6	1.17	NO	0
Benzo(ghi)perylene	360 ⁽¹⁾	6	0.6	NO	0
Benzo(k)fluoranthene	110 ⁽¹⁾	6	0.43	NO	0
Chrysene	31 ⁽¹⁾	6	0.78	NO	0
Dibenz(ah)anthracene	0.32 ⁽¹⁾	6	0.14	NO	0
Fluoranthene	1600 ⁽¹⁾	6	1.64	NO	0
Fluorene	3800 ⁽¹⁾	6	0.04	NO	0
Indeno(123cd)pyrene	46 ⁽¹⁾	6	0.73	NO	0
Naphthalene	5.6 ⁽¹⁾	6	0.02	NO	0
Phenanthrene	1500 ⁽¹⁾	6	0.66	NO	0
Pyrene	3800 ⁽¹⁾	6	1.61	NO	0
Benzene	0.70 ⁽¹⁾	6	<0.01	NO	0
Toluene	1900 ⁽¹⁾	6	<0.01	NO	0
Ethylbenzene	190 ⁽¹⁾	6	<0.01	NO	0
m & p-Xylene	180 ⁽¹⁾	6	<0.02	NO	0
o-Xylene	210 ⁽¹⁾	6	<0.01	NO	0
VPH Aliphatic (>C5-C6)	78 ⁽¹⁾	6	<0.01	NO	0
VPH Aliphatic (>C6-C8)	230 ⁽¹⁾	6	<0.01	NO	0
VPH Aliphatic (>C8-C10)	65 ⁽¹⁾	6	<0.01	NO	0
EPH Aliphatic (>C10-C12)	330 ⁽¹⁾	6	<0.01	NO	0
EPH Aliphatic (>C12-C16)	2400 ⁽¹⁾	6	<6	NO	0
EPH Aliphatic (>C16-C21)	92000 ⁽¹⁾	6	<6	NO	0
EPH Aliphatic (>C21-C35)	92000 ⁽¹⁾	6	<15	NO	0
EPH Aliphatic (>C35-C44)	92000 ⁽¹⁾	6	<10	NO	0
VPH Aromatic (>EC5-EC7)	690 ⁽¹⁾	6	<0.01	NO	0
VPH Aromatic (>EC7-EC8)	1800 ⁽¹⁾	6	<0.01	NO	0
VPH Aromatic (>EC8-EC10)	110 ⁽¹⁾	6	<0.01	NO	0
EPH Aromatic (>EC10-EC12)	590 ⁽¹⁾	6	<10	NO	0
EPH Aromatic (>EC12-EC16)	2300 ⁽¹⁾	6	<10	NO	0
EPH Aromatic (>EC16-EC21)	1900 ⁽¹⁾	6	28	NO	0
EPH Aromatic (>EC21-EC35)	1900 ⁽¹⁾	6	60	NO	0
EPH Aromatic (>EC35-EC44)	1900 ⁽¹⁾	6	10	NO	0

= LQM CIEH Suitable 4 Use Levels (S4UL Nov 2014 (Revised August 2015) – Residential without homegrown produce – 2.5% SOM), ⁽²⁾ = C4SL Values (Residential without homegrown produce), ⁽³⁾ = ATRISK^{SOIL} SSV. * = Site Value (C_M) less than analytical detection limit, NAD = No asbestos detected

8.0 Ground Contamination Risk Assessment (Cont'd)

8.2 Level 1 Risk Assessment (Human Health) (Cont'd): -

The soil screening results from across the site have been assessed by comparing the Maximum Concentration values (C_M) recorded for each analyte to the Critical Concentration (C_C) values chosen for this site. The results are summarised in Table 8.1 on the previous page. The results of the analysis and risk assessment have identified the following: -

- None of the Maximum Concentration (C_M) values for any of the analytes screened for exceed the chosen Critical Concentration (C_C) values for this site and therefore the made ground does not represent a potential risk to Human Health.

8.3 Level 1 Controlled Waters Risk Assessment: -

When considering the risks to Controlled Waters the following site conditions have been taken into account and therefore no leachate / groundwater water screening or further assessment was considered necessary or appropriate.

- Low soils results.
- The superficial drift deposits represent a Secondary A Aquifer and contain significant low permeability clay layers which are considered to afford some protection to the underlying solid geological deposits.
- The solid Geological deposits represent a Principal Aquifer at a depth of c.21m.
- The site is not recorded within a Source Protection Zone (SPZ), and there are no SPZs recorded within c.1km of the site.
- There are no water abstractions recorded within c.500m of the site.
- There are no surface water features recorded within c.250m of the site.

8.4 Revised Conceptual Site Model (CSM): -

Following the results of these intrusive investigation works, a Revised Conceptual Site Model (CSM) has been developed for this site, a graphical representation is included in Appendix V whilst Table 8.4 on the following page summarises the various contaminant *sources*, plausible migration *pathways* and potentially sensitive *receptors* identified for this site, assuming no remediation, additional protection measures and/or removal of the *sources* contamination takes place.

Table 8.4

*= Not included in the Human Health & Controlled Waters Risk Assessment.

	<i>Sources (S)</i>		<i>Pathways (P)</i>		<i>Receptors (R)</i>
S1	Made ground deposits associated with the existing development, comprising sand with fragments of brick and roots. No evidence of ground contamination has been recorded.	P1	Ingestion & Dermal Contact.	R1	Human health – Future end users (Residents).
		P2	Air – Inhalation of vapours (indoor & outdoors) and contact with dust.		
		P3	Consumption of home-grown produce and attached soil.	R2	Controlled Waters – Groundwater within the Secondary A Aquifer within the drift geology and the Principal Aquifer within the solid geology.
		P4	Migration through existing services.	R3	Building materials & protection of water pipes.
		P5	Direct contact with building materials.	R4*	Adjacent sites*.
		P6	Surface run off & Infiltration.	R5*	Flora and fauna*.

8.0 Ground Contamination Risk Assessment (Cont'd)

8.4 Revised Conceptual Site Model (CSM) (Cont'd): -

8.4.1 Sources: -

The site is covered by a layer of made ground (up to c.1.30m bgl) which represents a potential source of ground contamination for this site. The made ground contains very limited anthropogenic debris i.e., occasional brick fragments and these materials have been assessed using a standard generic soil suite, with the insitu made ground within the site considered as a single averaging area for these analytes. There was no evidence of significant or gross contamination such as Asbestos Containing Materials (ACM's), ash or hydrocarbon odours noted within the exploratory positions.

8.4.2 Pathways: -

When considering the proposed end use, and without considering treatment, removal or protection measures, there are some potential plausible pathways available for direct contact, dermal contact, ingestion, inhalation, wind (dust / particulate), volatilization, and vertical and lateral transportation below the site, where there is no hard cover present.

Within the CLEA Risk Assessment Model for Human Health, there are 3 exposure mediums considered for on-site receptors, comprising ingestion of soil containing contaminants, inhalation of contaminated dust / vapours and dermal contact, with up to 10 no. exposure pathways considered, as shown below.

- 1. *Ingestion of soil and indoor dust* 2. *Consumption of homegrown produce and attached soil* 3. *Dermal contact (indoor)* 4. *Dermal contact (outdoor)* 5. *Inhalation of dust (indoor)* 6. *Inhalation of dust (outdoor)* 7. *Inhalation of vapour (indoor)* 8. *Inhalation of vapour (outdoor)* 9. *Oral background intake* 10. *Inhalation background intake.*

Where the future site has hard cover and below new structures, a number of these pathways may not be available. In addition, when considering the potential pathways for leachate migration, where either hard cover and/or future surface water drainage systems are present, the potential effects of surface infiltration or contaminated surface water runoff will be greatly reduced. Similarly, when considering the construction work force, exposure pathways through direct contact, ingestion and dust inhalation will be available during part of the construction process, and therefore adequate PPE should be provided to protect the work force during this period.

8.4.3 Receptors: -

Within the CLEA Risk Assessment Model for Human Health, the potential receptors are assessed initially on-site end use, followed by a delineation of age category (i.e., child or adult), with default settings for *Residential*, *Allotment* and *Public Open Space (Park)* end uses based on a child aged 0 to 6 years, *Public Open Space (Residential)* based on a child aged 3 to 9 and *Commercial* end uses based upon a working exposure period of up to 49 years (i.e., 16 to 65).

Key generic assumptions for *Residential* and *Public Open Space (Residential)* are based upon a typical residential property, consisting of a two-storey small, terraced house, with private garden, and a *Commercial* end use based upon a typical commercial or light industrial property, consisting of a three-storey office building (pre-1970). No buildings are anticipated for *Allotment* or *Public Open Space (Park)* end uses.

8.0 Ground Contamination Risk Assessment (Cont'd)

8.4 Revised Conceptual Site Model (CSM) (Cont'd): -

8.4.3 Receptors (Cont'd): -

Within the CLEA Risk Assessment Model for Human Health there are 6 no. generic end use categories presently in use, as follows:

- 1) *Residential - with home grown produce*, 2) *Residential - without home grown produce*, 3) *Allotments*, 4) *Commercial*
5) *Public Open Space – Residential*, 6) *Public Open Space - Park*

For this Level 1 Risk Assessment when considering the sensitivity of the site, the most appropriate end use category for this site has been taken as:

- 2) *Residential - without home grown produce (Apartments)*

9.0 Conclusions & Recommendations

9.1 Ground Conditions: -

Made ground was recorded to depths of between c.0.40m to c.1.30m below current ground level (bcgl), generally comprising sandy soil and black / dark brown sand with occasional brick fragments.

The underlying natural drift deposits (Glaciofluvial Sheet Deposits) comprised medium dense locally dense sand, gravelly sand, sand & gravel and sandy gravel in the upper part with deeper deposits including significant layers of firm, stiff and very stiff, locally laminated, clay below c.5.50m to c.7.00m.

Possible sandstone was suspected below c.21.00m to 21.60m where typically dense sand was recorded which could be representative of poorly cemented sandstone (Wilmslow Sandstone Formation).

9.2 Groundwater & Stability: -

Groundwater ingress was noted between c.2.00m and c.4.00m with deeper water strikes also noted at c.13.00m, c.16.30m and c.21.00m. As such, it is considered prudent to allow for the introduction of temporary groundwater control techniques (i.e., pumping equipment), to take care of any localised ingresses of surface water or trapped / perched groundwater which may occur, during the construction period, especially if construction takes place during the wetter periods of the year.

9.3 Foundation Options: -

Conventional shallow strip and pad footings will be acceptable based within the natural sands and gravels at c.0.60m to c.1.30m depth below current ground levels (a minimum depth of c.0.75m below finished ground levels) where a maximum allowable bearing pressure of 175kN/m² will be available whilst ensuring normal and differential settlement remains within acceptable limits. Suspended floors are anticipated to allow service corridors below the building.

9.0 Conclusions & Recommendations

9.4 Ground Contamination Assessment: -

From the results of the contamination screening carried out on the made ground across the area of the proposed apartments no elevated concentrations of metals, PAH's, TPH's or BTEX have been recorded. Similarly, no asbestos has been identified or recorded. Consequently, the made ground is not considered to pose a risk to Human Health where exposure pathways are available, and no remedial measures are required.

The results can also be used by the Main Contractor / Project Coordinator, when devising an adequate Site Health & Safety Plan, in accordance with current CDM Regulations. For further guidance reference should be made to the Health and Safety Executive (HSE) document EH40 / 2005 Workplace exposure limits.

9.5 Waste Classification: -

The made ground materials encountered on this site which may have to be discarded as a waste to landfill, have been assessed using Technical Guidance WM3 'Guidance on the classification and Assessment of Waste', in conjunction with the on-line waste classification software tool HazWasteOnline™. Each sample has been assessed separately to determine whether all the made ground can be considered a single waste stream or whether different areas of the made ground represent separate waste streams.

Based on the physical (visual and olfactory) inspection of all the samples, the made ground has been initially assessed as either 17 05 03 (waste soil and stones containing hazardous substances) or 17 05 04 (waste soil and stones other than those mentioned in 17 05 03) from the List of Waste (LoW). To determine which waste code applies to each sample, the results of the laboratory testing have been assessed using the HazWasteOnline™ software, and the full Waste Classification Report can be found in Appendix IV. The results of this assessment have identified that the made ground analysed can be classified as Non-Hazardous (waste code 17 05 04).

In addition to the screening carried out as part of this level 1 Ground Contamination Risk Assessment, representative samples have been subjected to supplementary WAC screening.

From the results of the WAC screening completed, the samples tested meet the BS EN 12457-3 Limit Values for Inert Waste criteria and could be disposed of at an Inert Waste Landfill.

If natural soils generated from the creation of foundation and service (i.e., drainage, etc.) excavations cannot be accommodated on site and require off-site disposal, then it is likely that these types of materials would meet the WAC Inert Waste Criteria for disposal at an Inert Landfill, however prior to the disposal of these materials confirmatory testing (WAC) may be required.

It should be noted that this Waste Classification Report is only applicable to those made ground materials (excluding any relic foundations, sub-surface structures, etc.) which have been sampled and screened as part of the assessment. If materials, other than those covered by this report, are to be discarded from site as a waste to landfill or there is a significant increase in the volume of materials to be discarded, then these additional materials will also need to be assessed using Technical Guidance WM3: Guidance on the Classification and Assessment of Waste.

9.0 Conclusions & Recommendations (Cont'd)

9.6 General Comments: -

Where we have sampled and tested for asbestos this is discussed in the report. Whilst we would target any asbestos sampling and testing in accordance with a Conceptual Site Model and site findings, there is always the possibility, along with other contamination, that undiscovered asbestos exists between sample locations and the possibility of unknown asbestos exists on all sites, particularly brownfield sites where previous buildings have been demolished, there were previous features that were infilled (old hollows, pits, etc.) or where significant quantities of materials such as demolition and brick rubble exist.

It is not uncommon for historical asbestos wastes to be deliberately buried on derelict sites or imported old demolition rubble which could contain asbestos to be imported for use as hardstanding / hardcore. Unless otherwise stated we have not assessed any above or below ground features such as existing buildings, service ducts, basements, culverts, partly demolished or dilapidated structures, spoil heaps, fly tipped materials, security bunds, etc.

For future site works, adequate lateral trench support will be required for excavations, to prevent trench wall collapse or over excavations, as well as to create a safe working environment, and any excavations on this site should remain open for as short a period as possible, since some of these materials may be susceptible to deterioration, if left open to the natural elements for any significant period.

It is also recommended for any new developments, adequate surface drainage should be designed and installed by a competent contractor, to prevent surface water 'ponding' or collection, during and post construction, particularly where the existing surface drainage system is disrupted or damaged.

In addition, for deeper excavations, drainage, service runs or the like that may pass close to or beneath any proposed new foundations, these should be undertaken with care and completed prior to the preparation of any new foundations, so as not to allow any loose or granular material to move or 'flow', thus causing settlement to occur to any new foundations based at a higher level.

The site does not require ground gas or radon gas protection measures.

Remedial and preparatory earthworks may need to be undertaken under a CL:AIRE Definition of Waste: Code of Practice; Materials Management Plan (MMP); the MMP will need to be approved by a Qualified Person (QP) and declared to CL:AIRE prior to 'breaking ground' and commencement of any earthworks.

An "observational technique" can be applied to the design and construction of this site, and where ground conditions seem to vary from that indicated from the conceptual ground model derived from works to date, then advice from a suitably qualified Engineer should be sought.

END OF REPORT

APPENDIX I

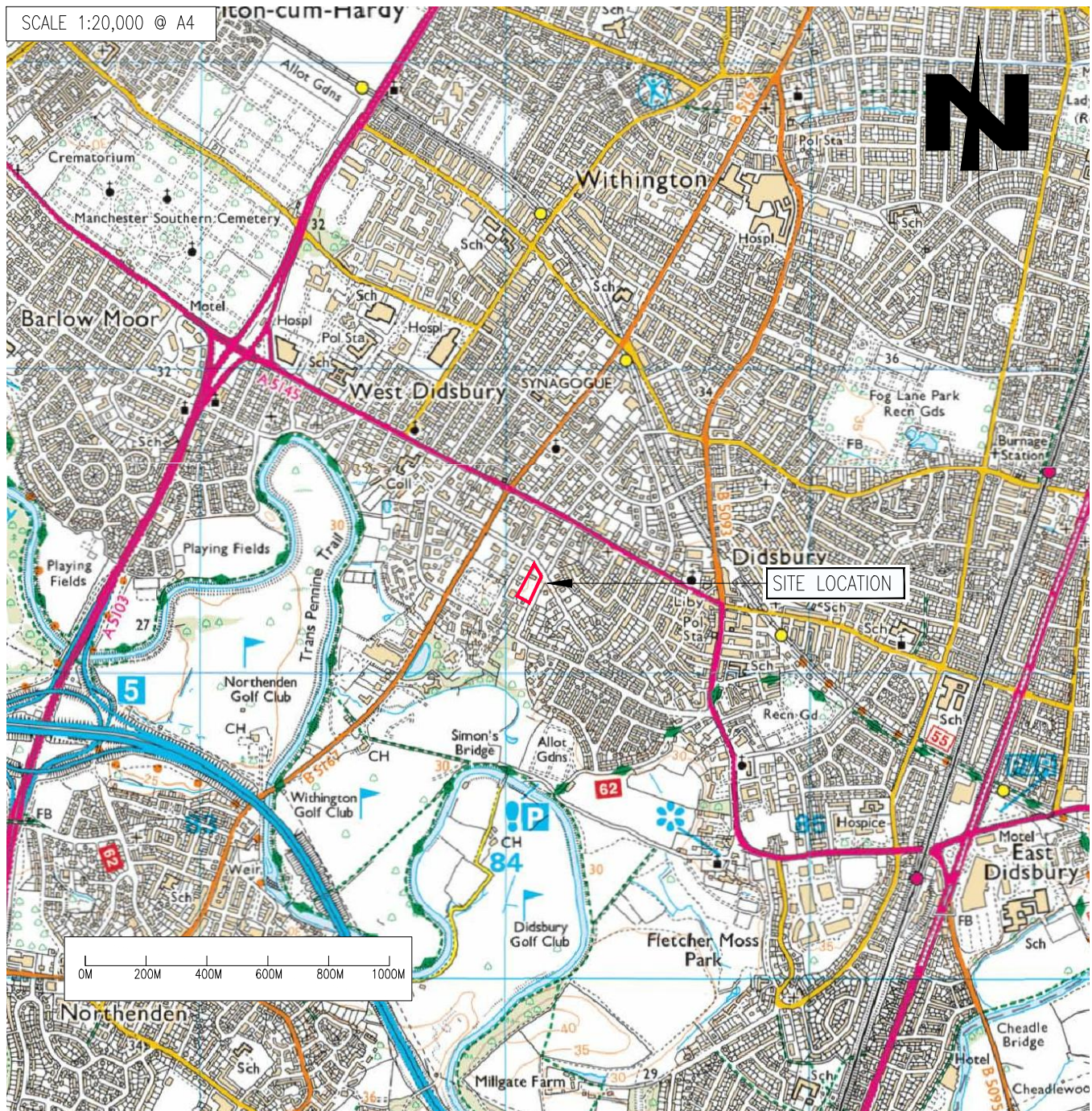
Location Plan

Aerial Photograph

Existing Site Layout Plan

Proposed Development Layout Plan

SCALE 1:20,000 @ A4



Client:

**McCARTHY & STONE
(RETIREMENT LIFESTYLES) LTD**

Project Title:

Jessiefield

Spath Road

Manchester, M20 2TZ

Drawing Title:

Location Plan

Job Reference:

22-846

Drawing Number:

-

Revision:

-

Drawn by:

P.D

Date:

09.12.22

Scale at A4:

As Shown

Checked by:

J.P.D

Approved by:

J.P.D

The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.

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rev.	date	amendments	drawn	chckd

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	APPROXIMATE SITE BOUNDARY
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rev.	date	amendments	drawn	chckd

rev.	date	amendments	drawn	chckd
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Project Title:
Jessiefield
Spath Road
Manchester, M20 2TZ

Drawing Title:

Aerial Photograph

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	09.12.22	P.D	J.P.D

Job Ref:	Drg no:	Rev:
22-846	—	—





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LEGEND	
	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd	

Client:	McCARTHY & STONE (RETIREMENT LIFESTYLES) LTD
---------	---

Project Title:	Jessiefield
	Spath Road
	Manchester, M20 2TZ

Drawing Title:	Existing Site Layout Plan
----------------	---------------------------

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	09.12.22	P.D	J.P.D

Job Ref:	Drg no:	Rev:
22-846	-	-



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LEGEND	
	APPROXIMATE SITE BOUNDARY

rev.	date	amendments	drawn	chckd

Client:	McCARTHY & STONE (RETIREMENT LIFESTYLES) LTD
---------	---

Project Title:	Jessiefield
	Spath Road
	Manchester, M20 2TZ

Drawing Title:	Proposed Development Layout Plan
----------------	----------------------------------

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	09.12.22	P.D	J.P.D

Job Ref:	Drg no:	Rev:
22-486	—	—

APPENDIX II

Borehole & Trial Pit Location Plan Borehole & Trial Pit Records



ARC ENVIRONMENTAL LTD

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LEGEND	
	APPROXIMATE SITE BOUNDARY
	WINDOWLESS SAMPLING BOREHOLE LOCATION
	CABLE PERCUSSIVE BOREHOLE LOCATION
	TRIAL PIT POSITION

rev.	date	amendments		drawn	chckd

Client:	McCARTHY & STONE (RETIREMENT LIFESTYLES) LTD
---------	---

Project Title:	Jessiefield
	Spath Road
	Manchester, M20 2TZ

Drawing Title:	Borehole and Trial Pit Location Plan
----------------	--------------------------------------

Scale at A3:	Date:	Drawn by:	Approved by:
NTS @ A3	29.11.22	P.D	S.T

Job Ref:	Drg no:	Rev:
22-846	-	-



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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No CP01	
Job No 22-846	Date 31-10-22 03-11-22	Ground Level (m) 35.00	Co-Ordinates () E 384,061.0 N 391,277.0		
Contractor Arc Environmental Limited				Sheet 1 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.00-0.50	J/D						Grass overlying topsoil comprised of very soft dark brown clay (TOPSOIL)		
0.50-1.00	J/D			34.50		(0.50) 0.50	Black / dark brown ironstained fine gravelly soily sand (MADE GROUND?)		
1.20-1.65	SPT/B	N=15		33.80		(0.70) 1.20	Medium dense to dense medium grey brown Sandy GRAVEL with small cobbles (GLACIOFLUVIAL SHEET DEPOSITS)		
2.00-2.45	SPT/B	N=20							
3.00-3.45	SPT/B	N=28				(4.30)			
4.00-4.45	SPT/B	N=22							
5.00-5.45	SPT/B	N=13		29.50		5.50	Firm to stiff brown sandy CLAY (GLACIOFLUVIAL SHEET DEPOSITS)		
5.50-6.00	B								
6.00-6.45	U100	45 blows		28.00		(1.50) 7.00	Stiff brown very sandy CLAY with occasional sand bands (GLACIOFLUVIAL SHEET DEPOSITS).		
7.50-7.95	SPT/B	N=28		26.50		(1.50) 8.50	Medium dense medium brown SAND with small amount of gravel (GLACIOFLUVIAL SHEET DEPOSITS)		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
11-02-22	11.30		16.30		16.30						
11-02-22	16.30		21.00		21.00						WATER OBSERVATIONS: Water strike at c.16.30m, Standing Water Level (SWL) at c.14.50m after 20.0 mins. Water Strike at c.21.00m , SWL at c.15.00m after 20 mins.
All dimensions in metres Scale 1:56.25		Client Mccarthy & Stone				Method/ Plant Used		Cable Percussive			Logged By ST

AGS3 UK BH CP LOGS.GPJ AGS3 ALL GDT 12/9/22



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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No CP01	
Job No 22-846	Date 31-10-22 03-11-22	Ground Level (m) 35.00	Co-Ordinates () E 384,061.0 N 391,277.0		
Contractor Arc Environmental Limited				Sheet 2 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
9.00-9.45	SPT/B	N=12				(2.70)	Medium dense medium brown SAND with small amount of gravel (GLACIOFLUVIAL SHEET DEPOSITS) <i>(continued)</i>		
10.50-10.95	SPT/B	N=13		23.80		11.20			
12.00-12.43	SPT/B	N=66					Very stiff brown sandy gravelly CLAY with sand bands and occasional cobbles from c.16.0 to c.19.0m (GLACIOFLUVIAL SHEET DEPOSITS).		
13.50-13.95	SPT/B	N=40							
15.00-15.35	SPT/B	N=75				(7.80)			
16.50-16.70	CPT	N=75							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Water strike at c.16.30m, Standing Water Level (SWL) at c.14.50m after 20.0 mins. Water Strike at c.21.00m, SWL at c.15.00m after 20 mins.
All dimensions in metres Scale 1:56.25			Client McCarthy & Stone			Method/ Plant Used Cable Percussive			Logged By ST		

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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No CP01	
Job No 22-846	Date 31-10-22 03-11-22	Ground Level (m) 35.00	Co-Ordinates () E 384,061.0 N 391,277.0		
Contractor Arc Environmental Limited				Sheet 3 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
19.50-19.95	U100	60 blows		16.00		19.00	Very stiff brown sandy gravelly CLAY with sand bands and occasional cobbles from c.16.0 to c.19.0m (GLACIOFLUVIAL SHEET DEPOSITS). <i>(continued)</i>		
						(2.00)	Firm to stiff brown silty sandy laminated CLAY (GLACIOFLUVIAL SHEET DEPOSITS).		
21.00-21.45	SPT/B	N=32		14.00		21.00	Dense medium brown SAND (POSSIBLE WILMSLOW SANDSTONE FORMATION?)		
22.50-22.45	SPT/B	N=32				(4.45)			
24.00-24.45	SPT/B	N=37							
25.00-25.45	SPT/B	N=36		9.55		25.45	End of borehole at 25.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Water strike at c.16.30m, Standing Water Level (SWL) at c.14.50m after 20.0 mins. Water Strike at c.21.00m, SWL at c.15.00m after 20 mins.
All dimensions in metres Scale 1:56.25			Client Mccarthy & Stone			Method/ Plant Used Cable Percussive			Logged By ST		

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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No CP02	
Job No 22-846	Date 03-11-22 07-11-22	Ground Level (m) 35.00	Co-Ordinates () E 384,107.0 N 391,301.0		
Contractor Arc Environmental Limited				Sheet 1 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.00-0.40	J/D			34.60		0.40	Grass overlying topsoil comprised of very soft dark brown clay (TOPSOIL)		
0.40-1.00	B					(1.10)	Medium dense brown fine gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)		
1.20-1.65	SPT/B	N=12		33.50		1.50			
2.00-2.45	SPT/B	N=22					Medium dense grey brown Sandy GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)		
3.00-3.45	SPT/B	N=25							
4.00-4.45	SPT/B	N=23				(5.50)			
5.00-5.45	SPT/B	N=16							
6.00-6.45	SPT/B	N=17							
				28.00		7.00			
7.50-7.95	SPT/B	N=22				(1.70)	Firm brown sandy CLAY (GLACIOFLUVIAL SHEET DEPOSITS)		
				26.30		8.70			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
11-07-22	08.10		13.00		15.00						
11-07-22	10.55		21.00		21.00						WATER OBSERVATIONS: Water strike at c.21.00m, Standing Water Level (SWL) at c.15.00m after 20.0 mins.
All dimensions in metres Scale 1:56.25		Client Mccarthy & Stone				Method/ Plant Used		Cable Percussive			Logged By ST

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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No CP02
Job No 22-846	Date 03-11-22 07-11-22	Ground Level (m) 35.00	Co-Ordinates () E 384,107.0 N 391,301.0	
Contractor Arc Environmental Limited				Sheet 2 of 3

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
9.00-9.45	SPT/B	N=14				(2.80)	Loose medium brown SAND with gravel (GLACIOFLUVIAL SHEET DEPOSITS) <i>(continued)</i>		
10.50-10.95	SPT/B	N=17							
				23.50		11.50			
12.00-12.45	SPT/B	N=31					Stiff brown silty CLAY (GLACIOFLUVIAL SHEET DEPOSITS)		
13.50-13.95	U100	60 blows							
						(6.40)			
15.00-15.45	SPT/B	N=35							
16.50-16.95	SPT/B	N=39							
				17.10		17.90			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Water strike at c.21.00m, Standing Water Level (SWL) at c.15.00m after 20.0 mins.
All dimensions in metres Scale 1:56.25		Client Mccarthy & Stone				Method/ Plant Used		Cable Percussive			Logged By ST

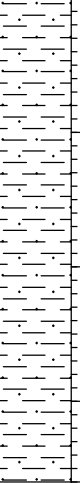
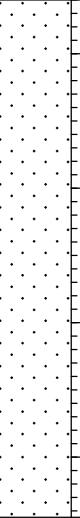
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Telephone: 0191 3786380

BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No CP02	
Job No 22-846	Date 03-11-22 07-11-22	Ground Level (m) 35.00	Co-Ordinates () E 384,107.0 N 391,301.0		
Contractor Arc Environmental Limited				Sheet 3 of 3	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
18.00-18.45	U100	59 blows					Very Stiff brown silty CLAY (GLACIOFLUVIAL SHEET DEPOSITS) (continued)		
19.50-19.95	SPT/B	N=33				(3.70)			
21.00-21.45	SPT/B	N=24							
				13.40		21.60			
22.50-22.95	SPT/B	N=34					Dense locally medium dense medium brown SAND (POSSIBLE WILMSLOW SANDSTONE FORMATION?)		
						(3.85)			
24.00-24.45	SPT/B	N=37							
25.00-25.45	SPT/B	N=26		9.55		25.45			
							End of borehole at 25.50m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Water strike at c.21.00m, Standing Water Level (SWL) at c.15.00m after 20.0 mins.
All dimensions in metres Scale 1:56.25			Client Mccarthy & Stone			Method/ Plant Used Cable Percussive			Logged By ST		

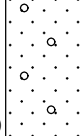
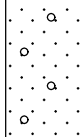
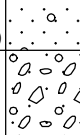
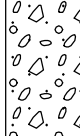
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Telephone: 0191 3786380

BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No WS01	
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 35.00	Co-Ordinates () E 384,071.0 N 391,300.0		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill	
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION			
0.10-0.30	J/D	N=15		34.60		(0.40) 0.40	Grass overlying black sandy topsoil with numerous fine rootlets (MADE GROUND)			
0.40-0.60	J/D			34.30		(0.30) 0.70	Black / dark brown ironstained fine sand, appears to be compacted (MADE GROUND?)			
0.70-0.90	J/D					(0.70)	Medium dense to medium orangey brown fine to coarse ocassionally gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)			
1.00-1.45	SPT	N=24		33.60		1.40	Medium dense light grey fine SAND (GLACIOFLUVIAL SHEET DEPOSITS)			
1.40-1.60	B			33.20		(0.40) 1.80	Medium dense becoming dense dark grey silty gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)			
1.80-2.00	B					(1.40)				
2.00-2.45	SPT	N=32								
2.60-2.80	B			31.80		3.20	Dense medium brown coarse sandy GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)			
3.00-3.45	SPT					(1.18)				
3.40-3.60	B	N=72								
4.00-4.38	SPT			30.62		4.38				
							Borehole terminated at c.4.38m due to higher number of SPT blows.			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Borehole stable, Damp at c.2.0m
All dimensions in metres Scale 1:37.5			Client McCarthy & Stone			Method/ Plant Used Windowless Sampling			Logged By ST		

AGS3 UK BH GINT WS LOGS.GPJ AGS3 ALL GPT 12/9/22



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St Johns Road, Meadowfield
Durham, DH7 8PN
Telephone: 0191 3786380

BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No WS02	
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 35.00	Co-Ordinates () E 384,063.0 N 391,287.0		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill	
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)			DESCRIPTION
0.10-0.30	J/D	N=21		34.60		(0.40) 0.40	Grass overlying black sandy topsoil with brick fragments (MADE GROUND)		
0.60-0.80	J/D					(0.90)	Black / dark brown ironstained fine sand, appears to be compacted (MADE GROUND?)		
1.00-1.20 1.00-1.45	J/D SPT			33.70		1.30			
1.60-1.80	B	N=33				(1.10)	Medium dense becoming dense light brown fine to coarse SAND & GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)		
2.00-2.45	SPT			32.60		2.40			
2.40-2.60	B						Initially dense becoming medium dense medium brown coarse sandy GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)		
3.00-3.45	SPT	N=30							
3.60-3.80	B								
4.00-4.45	SPT					(3.05)			
4.40-4.60	B	N=18							
5.00-5.45	SPT			29.55		5.45			
							Borehole terminated at c.5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Borehole stable, Damp at c.4.0m
All dimensions in metres Scale 1:37.5			Client McCarthy & Stone			Method/ Plant Used Windowless Sampling			Logged By ST		

AGS3 UK BH GINT WS LOGS.GPJ AGS3 ALL GDT 12/9/22



Solum House, Unit 1 Elliott Court
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Durham, DH7 8PN
Telephone: 0191 3786380

BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No WS03	
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 35.00	Co-Ordinates () E 384,053.0 N 391,259.0		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill			
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick- ness)			DESCRIPTION		
0.10-0.30	J/D	N=17		34.70		(0.30) 0.30	Grass overlying black sandy topsoil with rootlets (MADE GROUND)				
0.30-0.50	J/D			34.40		(0.30) 0.60	Black / dark brown ironstained fine sand with rootlets, appears to be compacted (MADE GROUND?)				
0.80-1.00	B			33.40		(1.00)	Medium dense light brown fine to coarse gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)				
1.00-1.45	SPT										
1.20-1.40	B										
1.80-2.00	B	N=19		32.30		(1.10)	Medium dense light grey fine to coarse gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)				
2.00-2.45	SPT										
2.80-3.00	B	N=35			(2.75)	Initially dense becoming medium dense medium brown coarse sandy GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)					
3.00-3.45	SPT										
3.40-3.60	B										
4.00-4.45	SPT	N=17									
4.60-4.80	B	N=16									
5.00-5.45	SPT										
		29.55						5.45	Borehole terminated at c.5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS: Water strike at c.4.20m
All dimensions in metres Scale 1:37.5			Client McCarthy & Stone			Method/ Plant Used Windowless Sampling			Logged By ST		

AGS3 UK BH GINT WS LOGS.GPJ AGS3 ALL GPT 12/9/22



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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No WS04	
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 35.00	Co-Ordinates () E 384,081.0 N 391,297.0		
Contractor Arc Environmental Ltd				Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.10-0.30	J/D			34.70		(0.30) 0.30	Grass overlying black sandy topsoil with rootlets and ash fragments (MADE GROUND)		
0.40-0.60	J/D			34.30		(0.40) 0.70	Black / dark brown ironstained fine sand with rootlets, appears to be compacted (MADE GROUND?)		
0.80-1.00	B						Medium dense light brown fine to coarse gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)		
1.00-1.45	SPT	N=30		33.50		(0.80) 1.50			
1.60-1.80	B						Medium dense locally dense medium brown coarse sandy GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)		
2.00-2.45	SPT	N=28							
2.40-2.60	B								
3.00-3.45	SPT	N=30							
3.60-3.80	B					(3.95)			
4.00-4.45	SPT	N=13							
4.40-4.60	B								
5.00-5.45	SPT	N=18							
				29.55		5.45			
							Borehole terminated at c.5.45m		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Dia. mm	Water Dpt	From	To	Hours	From	To	
											WATER OBSERVATIONS : Borehole stable, Damp at c.3.80m
All dimensions in metres Scale 1:37.5			Client McCarthy & Stone			Method/ Plant Used Windowless Sampling			Logged By ST		

AGS3 UK BH GINT WS LOGS.GPJ AGS3 ALL GDT 12/9/22



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BOREHOLE LOG

Project Jessiefield, Spath Road, Didsbury				BOREHOLE No WS05
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 35.00	Co-Ordinates () E 384,086.0 N 391,271.0	
Contractor Arc Environmental Ltd				Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA			Geology	Instrument/ Backfill	
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)			DESCRIPTION
0.00-0.20	J/D	N=19		34.80		0.20	Grass overlying black sandy topsoil with rootlets and ash fragments (MADE GROUND)		
0.30-0.50	J/D			34.50		(0.30) 0.50	Orange brown fine sand, appears to be compacted (MADE GROUND?)		
0.80-1.00	B				(1.20)	Medium dense light brown fine to coarse slightly gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)			
1.00-1.45	SPT								
1.20-1.40	B								
				33.30		1.70	Medium dense locally dense medium brown coarse sandy GRAVEL (GLACIOFLUVIAL SHEET DEPOSITS)		
1.70-1.90	B	N=22		(3.75)					
2.00-2.45	SPT								
2.60-2.80	B								
3.00-3.45	SPT								
3.40-3.60	B								
4.00-4.45	SPT	N=46							
4.60-4.80	B								
5.00-5.45	SPT	N=19							
				29.55	5.45				
						Borehole terminated at c.5.45m			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS	
Date	Time	Depth	Casing Depth	Dia. mm	Water Dpt	From	To	Hours	From	To		
											WATER OBSERVATIONS: Borehole stable, Damp at c.3.70m	
All dimensions in metres Scale 1:37.5		Client McCarthy & Stone				Method/ Plant Used Windowless Sampling					Logged By ST	

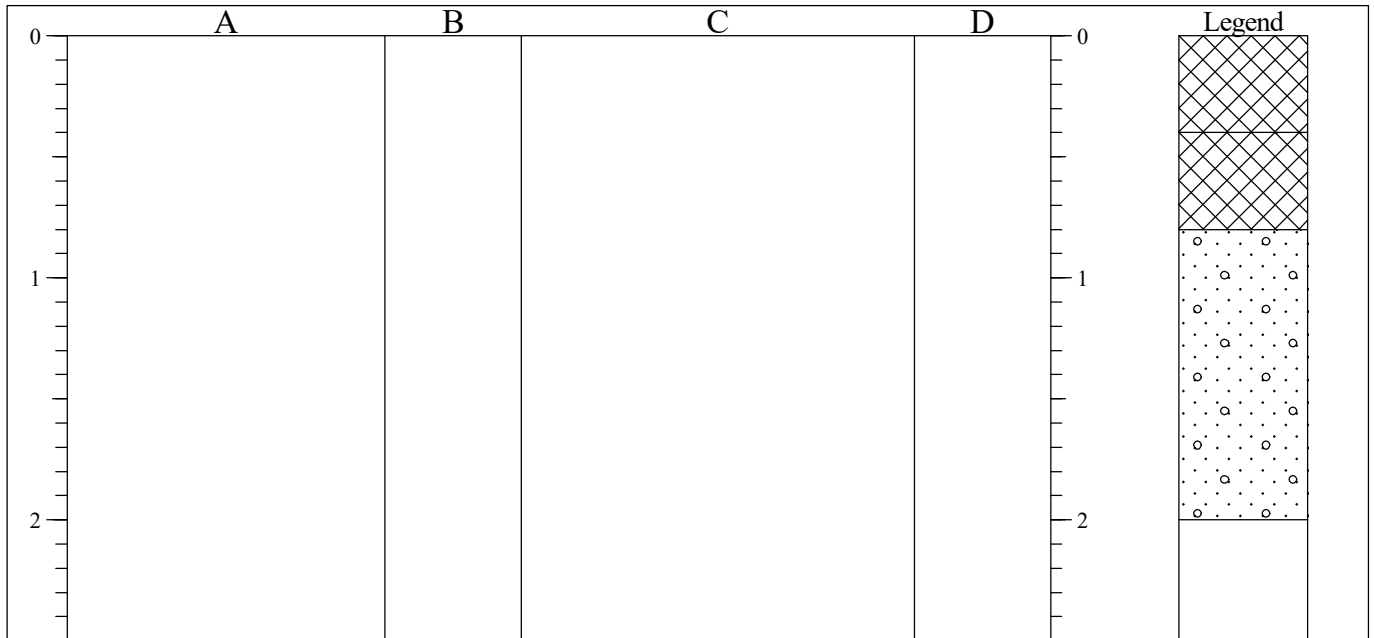
AGS3 UK BH GINT WS LOGS.GPJ AGS3 ALL GPT 12/9/22



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St Johns Road, Meadowfield
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Telephone: 0191 3786380

TRIAL PIT LOG

Project Jessiefield, Spath Road, Didsbury				TRIAL PIT No TP01
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 34.00	Co-Ordinates () E 384,110.0 N 391,322.0	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		Grass overlying black sandy topsoil with numerous fine rootlets (MADE GROUND)	0.30	J/D	
0.40-0.80		Black / dark brown ironstained fine sand with brick fragments (MADE GROUND)			
0.80-2.00		Light brown silty gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)	1.20	B	
			1.80	B	
2.00		Trail pit terminated at c.2.00m. BRE 365 Soakaway test completed.			

Shoring/Support: Stability:		
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All dimensions in metres Scale 1:31.25	Client McCarthy & Stone	Method/ Plant Used Excavator	Logged By ST
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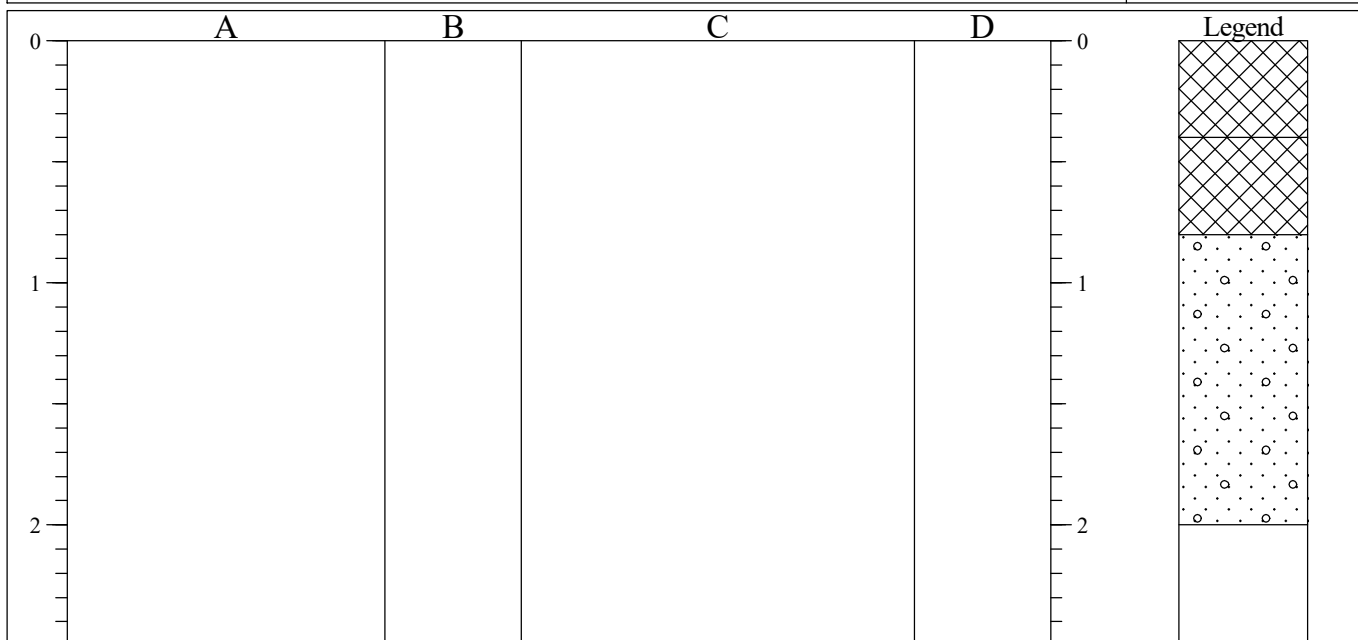
AGS3 UK TP GINT WS LOGS.GPJ AGS3_ALL.GDT 12/9/22



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St Johns Road, Meadowfield
Durham, DH7 8PN
Telephone: 0191 3786380

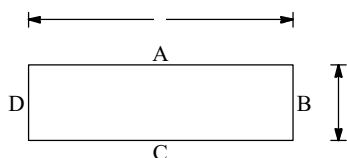
TRIAL PIT LOG

Project Jessiefield, Spath Road, Didsbury				TRIAL PIT No TP02
Job No 22-846	Date 31-10-22 31-10-22	Ground Level (m) 34.00	Co-Ordinates () E 384,092.0 N 391,343.0	
Contractor Arc Environmental Ltd				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		Grass overlying black sandy topsoil with numerous fine rootlets (MADE GROUND)	0.30	J/D	
0.40-0.80		Black / dark brown ironstained fine sand, appears to be compacted (MADE GROUND)			
0.80-2.00		Light brown silty gravelly SAND (GLACIOFLUVIAL SHEET DEPOSITS)	1.00	B	
2.00		Trail pit terminated at c.2.00m. BRE 365 Soakaway test completed.			

Shoring/Support:
Stability:



GENERAL REMARKS

WATER
OBSERVATIONS: Trail pit
remained dry and stable
upon completion

All dimensions in metres
Scale 1:31.25

Client **McCarthy & Stone**

Method/
Plant Used

Excavator

Logged By
ST

AGS3 UK TP GINT WS LOGS.GPJ AGS3_ALL.GDT 12/9/22

APPENDIX III

Soakaway Calculation Sheets

DATE: 31/10/22

Test pit dimesions	L	W	D
	2.20	0.80	2.00

Effective depth (D) from 1.00m to 2.00m = 1.00 m

75% effective depth =	1.25	m bg
50% effective depth =	1.5	m bg
25% effective depth =	1.75	m bg

V_{p75-25} = outflow volume between 75% & 25% effective depth	V_{p75-25} = 0.8800 m ³
a_{p50} = 50% internal surface area of effective depth including base	a_{p50} = 4.760 m ²

OBSERVATIONS:

At the end of each test the trial trench became only part flooded due to the uneven nature of it's base following some side collapse.

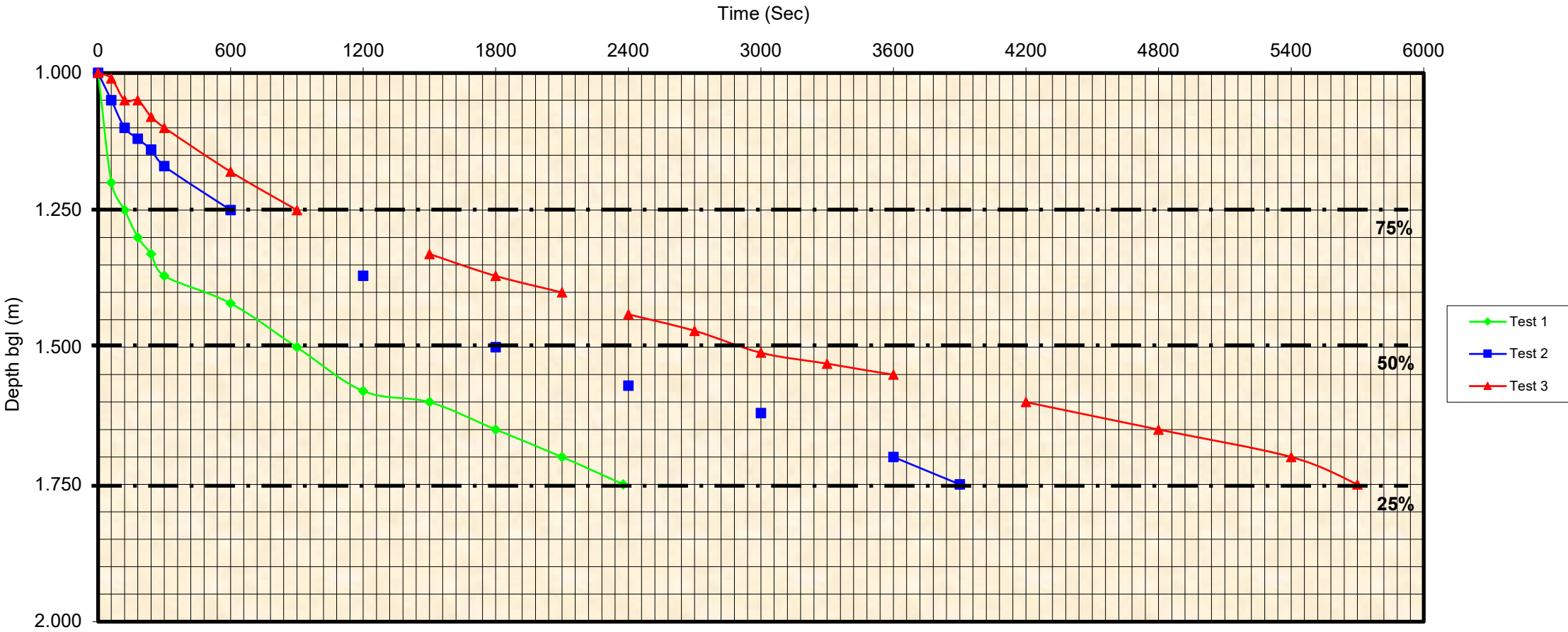
Inflow rate estimated at c.0.50m³/min (i.e. c.7.50m³ entering test pit in 15mins)

Test pit difficult to fill any higher than c.1.30m below current ground levels following c.<22mins of inflow.



Time (sec) dt ₀	Depth bgl (m)		
	Test No.		
	1	2	3
0	1.000	1.000	1.000
60	1.200	1.050	1.010
120	1.250	1.100	1.050
180	1.300	1.120	1.050
240	1.330	1.140	1.080
300	1.370	1.170	1.100
600	1.420	1.250	1.180
900	1.500		1.250
1200	1.580	1.370	
1500	1.600		1.330
1800	1.650	1.500	1.370
2100	1.700		1.400
2377	1.750		
2400		1.570	1.440
2700			1.470
3000		1.620	1.510
3300			1.530
3600		1.700	1.550
3900		1.750	
4200			1.600
4800			1.650
5400			1.700
5700			1.75

Fig 1: Depth v's Time - Infiltration Rates



Soil Infiltration Calculations			
	Test 1	Test 2	Test 3
t_{p75-25} = time for infiltration (from fig 1)	t_{p75-25} = 2257	3300	4800 secs
Soil infiltration rate (f) = $\frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$	f = 8.19E-05	5.60E-05	3.85E-05 ms ⁻¹
Average f =	5.88E-05 ms ⁻¹		

Test pit dimesions	L	W	D
	2.10	0.80	2.00

Effective depth (D) from 1.00m to 2.00m = 1.00 m

75% effective depth =	1.25	m bg
50% effective depth =	1.5	m bg
25% effective depth =	1.75	m bg

V_{p75-25} = outflow volume between 75% & 25% effective depth	V_{p75-25} = 0.8400 m ³
a_{p50} = 50% internal surface area of effective depth including base	a_{p50} = 4.580 m ²

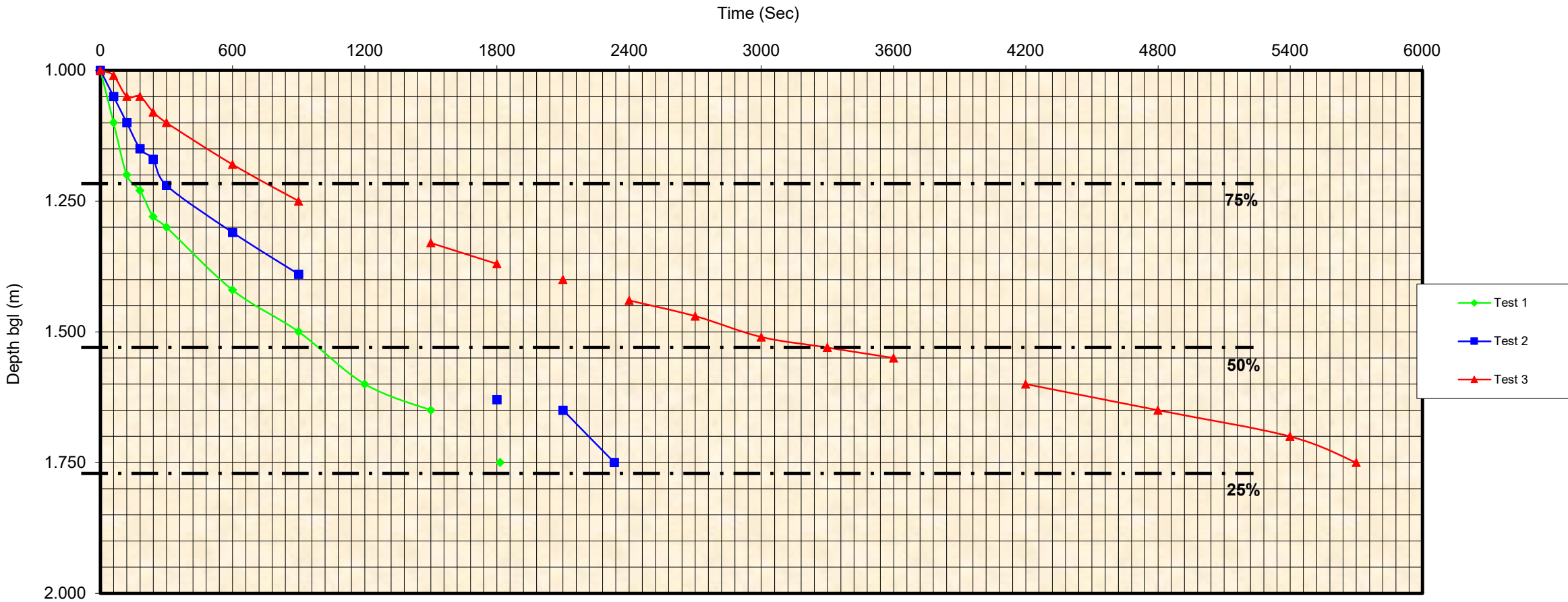
OBSERVATIONS:

At the end of each test the trial trench became only part flooded due to the uneven nature of it's base following some side collapse.



Time (sec) dt ₀	Depth bgl (m)		
	Test No.		
	1	2	3
0	1.000	1.000	1.000
60	1.100	1.050	1.010
120	1.200	1.100	1.050
180	1.230	1.150	1.050
240	1.280	1.170	1.080
300	1.300	1.220	1.100
600	1.420	1.310	1.180
900	1.500	1.390	1.250
1200	1.600		
1500	1.650		1.330
1800		1.630	1.370
1815	1.750		
2100		1.650	1.400
2333		1.750	
2377			
2400			1.440
2700			1.470
3000			1.510
3300			1.530
3600			1.550
3900			
4200			1.600
4800			1.650
5400			1.700
5700			1.750

Fig 1: Depth v's Time - Infiltration Rates



Soil Infiltration Calculations				
	Test 1	Test 2	Test 3	
t_{p75-25} = time for infiltration (from fig 1)	t_{p75-25} = 1632	2023	4800	secs
Soil infiltration rate (f) =	$\frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$			
	f= 1.12E-04	9.07E-05	3.82E-05	ms ⁻¹
	Average f= 8.04E-05 ms ⁻¹			

APPENDIX IV

Laboratory Results Waste Classification Report



LABORATORY REPORT



4043

Contract Number: PSL22/7371

Report Date: 22 November 2022
Client's Reference: 22-846
Client Name: Arc Environmental
Solum House
Unit 1 Elliott Court
St Johns Road, Meadowfield
Durham
DH7 8PN

For the attention of: Sai Turlapati

Contract Title: Jessfield, Spath Road, Didsbury
Date Received: 16/11/2022
Date Commenced: 16/11/2022
Date Completed: 22/11/2022

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:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:

PSL22/7371

Client Ref:

22-846

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

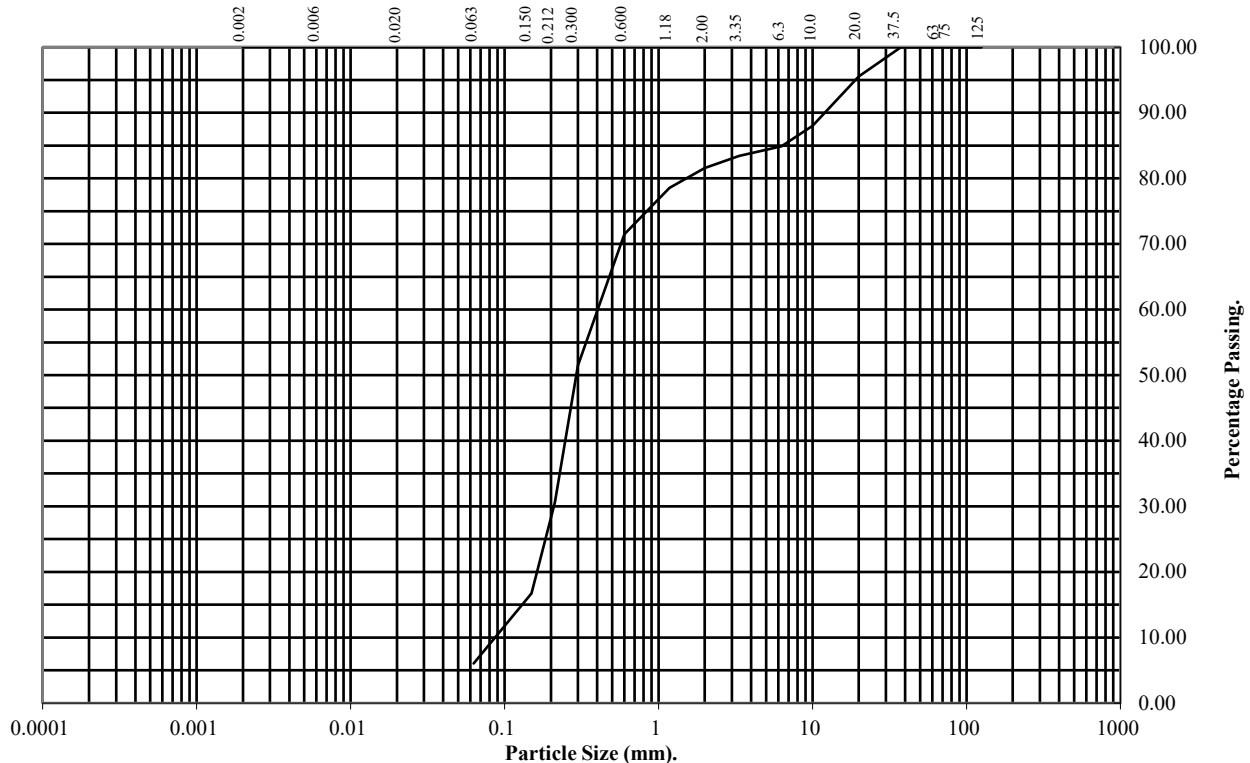
Hole Number: WS01

Top Depth (m): 1.80

Sample Number:

Base Depth(m): 2.00

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	88
6.3	85
3.35	83
2	82
1.18	79
0.6	71
0.3	51
0.212	31
0.15	17
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	18
Sand	76
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

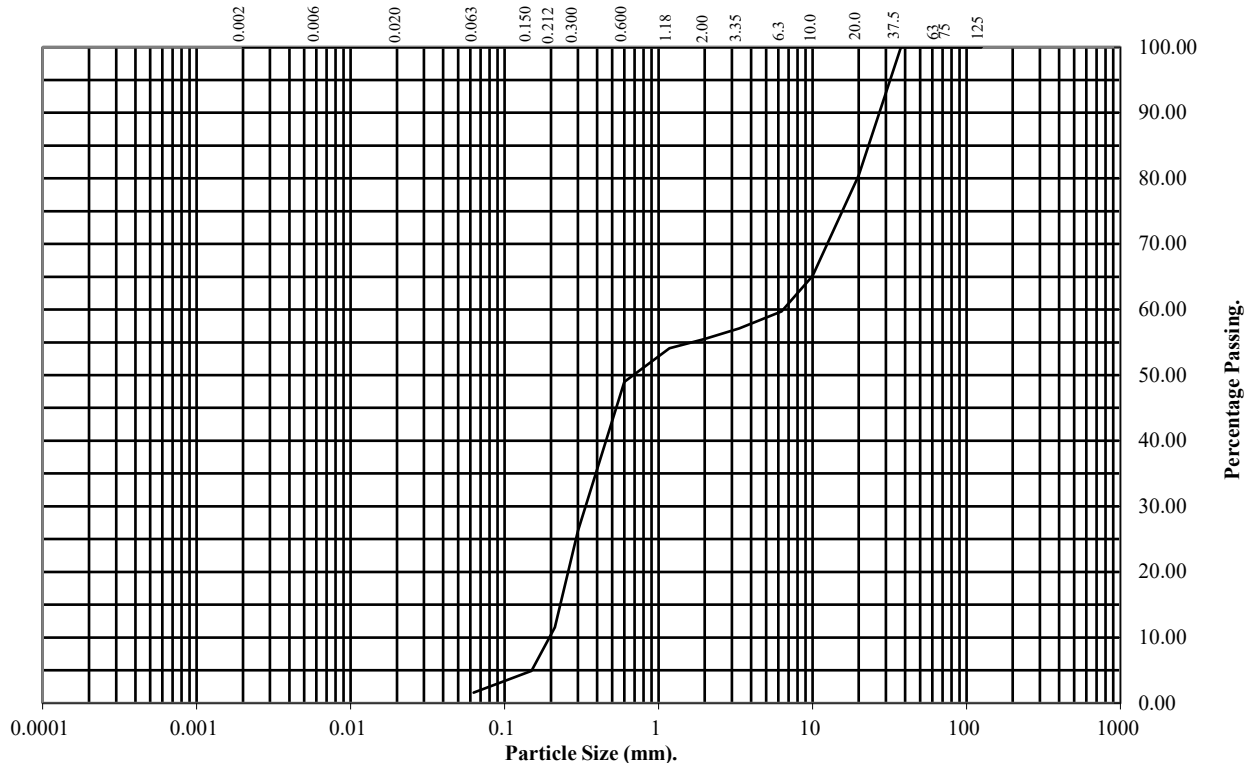
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: WS02 Top Depth (m): 1.60

Sample Number: Base Depth(m): 1.80

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	80
10	65
6.3	60
3.35	57
2	56
1.18	54
0.6	49
0.3	26
0.212	12
0.15	5
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	44
Sand	54
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

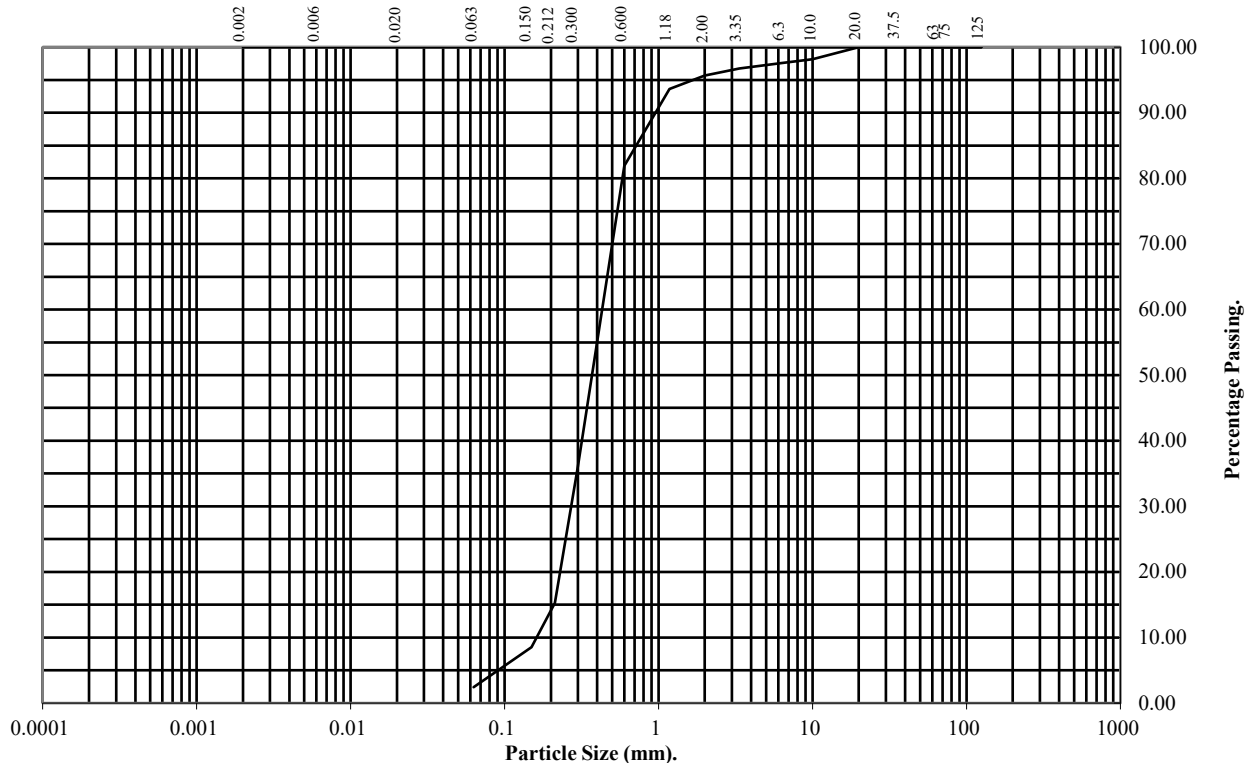
Hole Number: WS05

Top Depth (m): 1.20

Sample Number:

Base Depth(m): 1.40

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	98
3.35	97
2	96
1.18	94
0.6	82
0.3	36
0.212	15
0.15	9
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	94
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

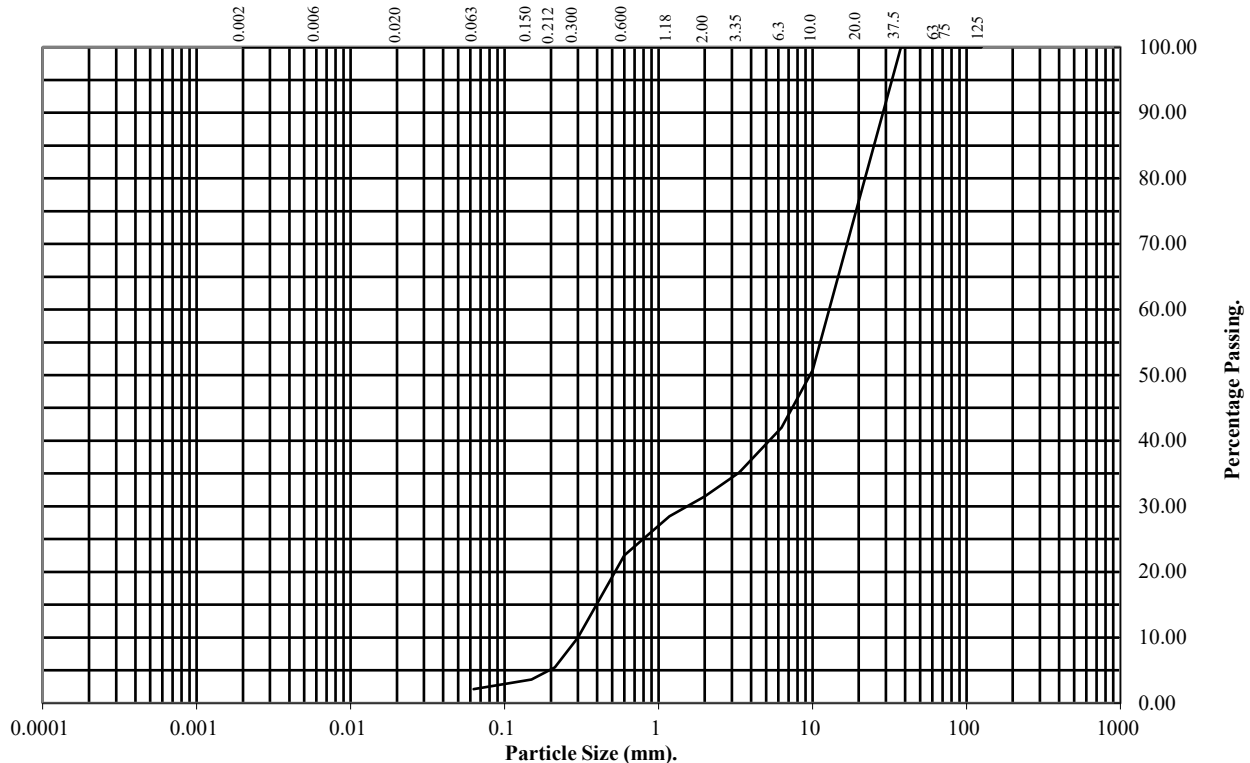
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: CP01 Top Depth (m): 2.00

Sample Number: Base Depth(m): 2.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	77
10	51
6.3	42
3.35	35
2	31
1.18	28
0.6	23
0.3	10
0.212	5
0.15	4
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	69
Sand	29
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

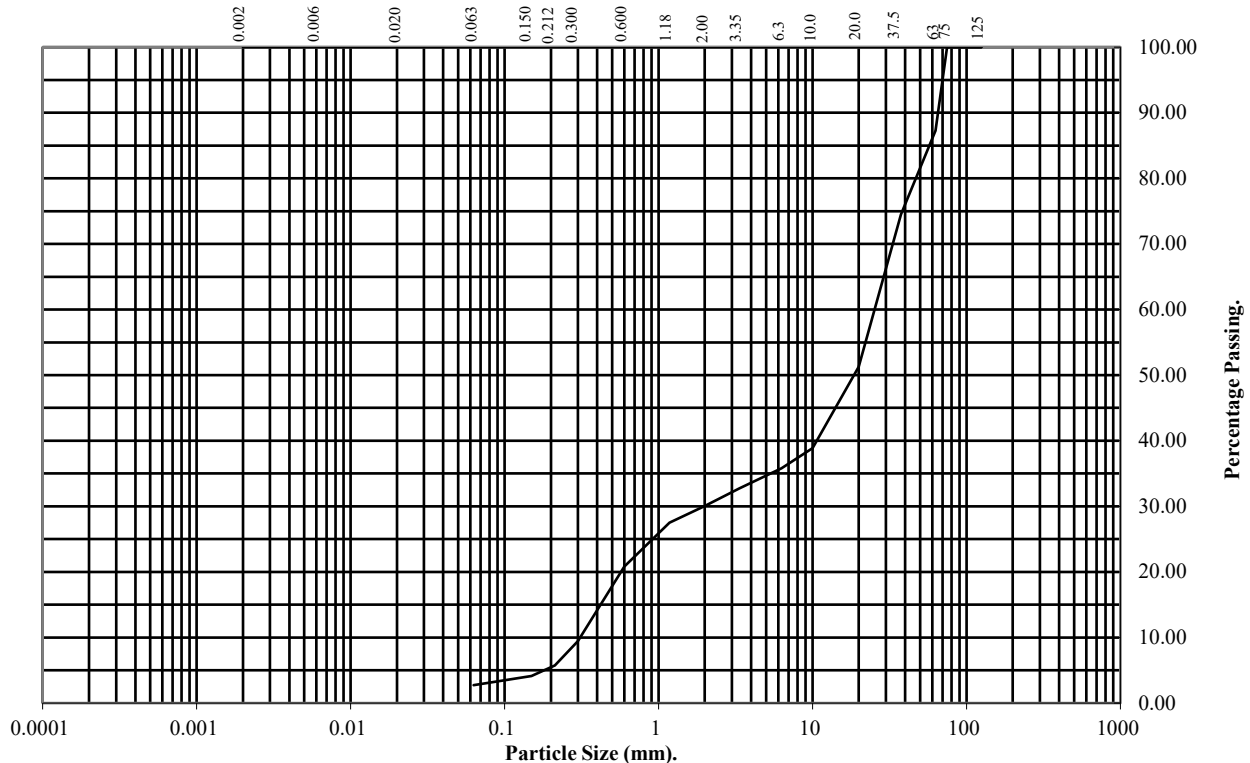
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: CP01 Top Depth (m): 4.00

Sample Number: Base Depth(m): 4.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	87
37.5	74
20	51
10	39
6.3	36
3.35	33
2	30
1.18	28
0.6	21
0.3	9
0.212	6
0.15	4
0.063	3

Soil Fraction	Total Percentage
Cobbles	13
Gravel	57
Sand	27
Silt/Clay	3

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

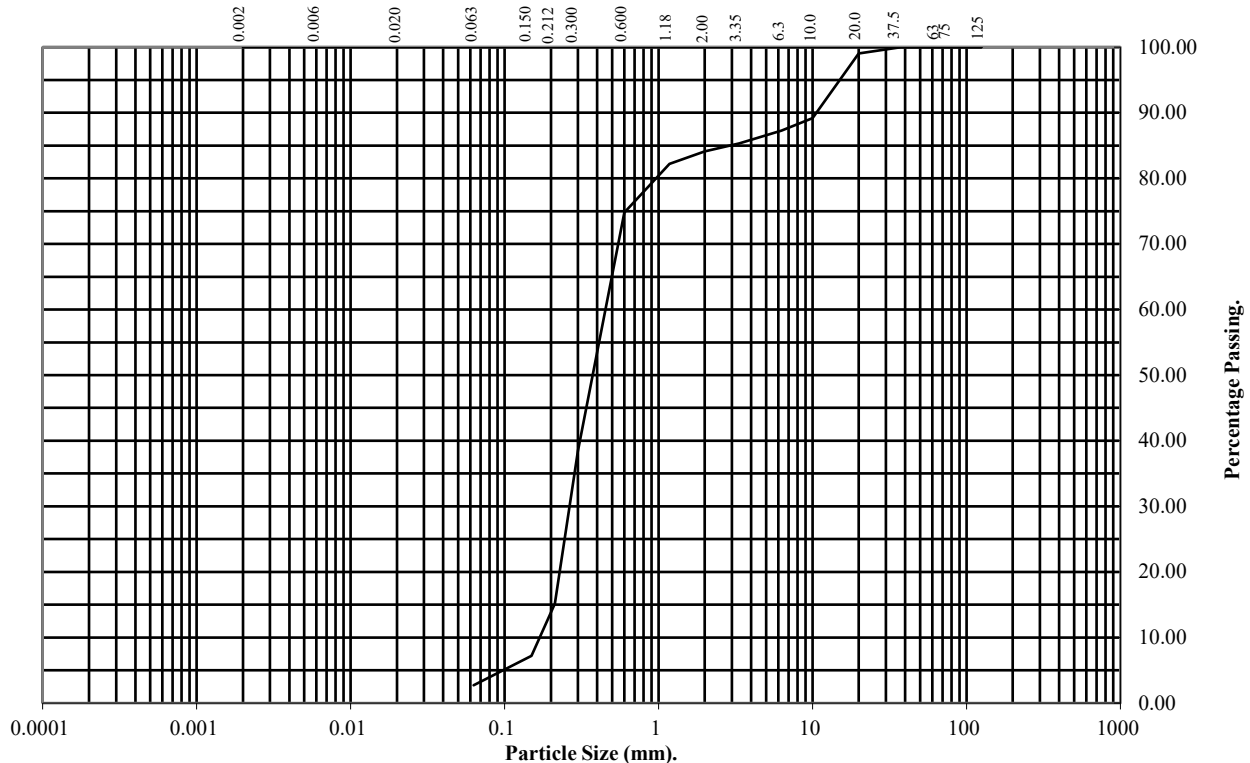
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: CP02 Top Depth (m): 1.20

Sample Number: Base Depth(m): 1.65

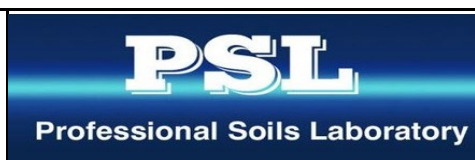
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	89
6.3	87
3.35	85
2	84
1.18	82
0.6	75
0.3	38
0.212	15
0.15	7
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	16
Sand	81
Silt/Clay	3

Remarks:
See Summary of Soil Descriptions



Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

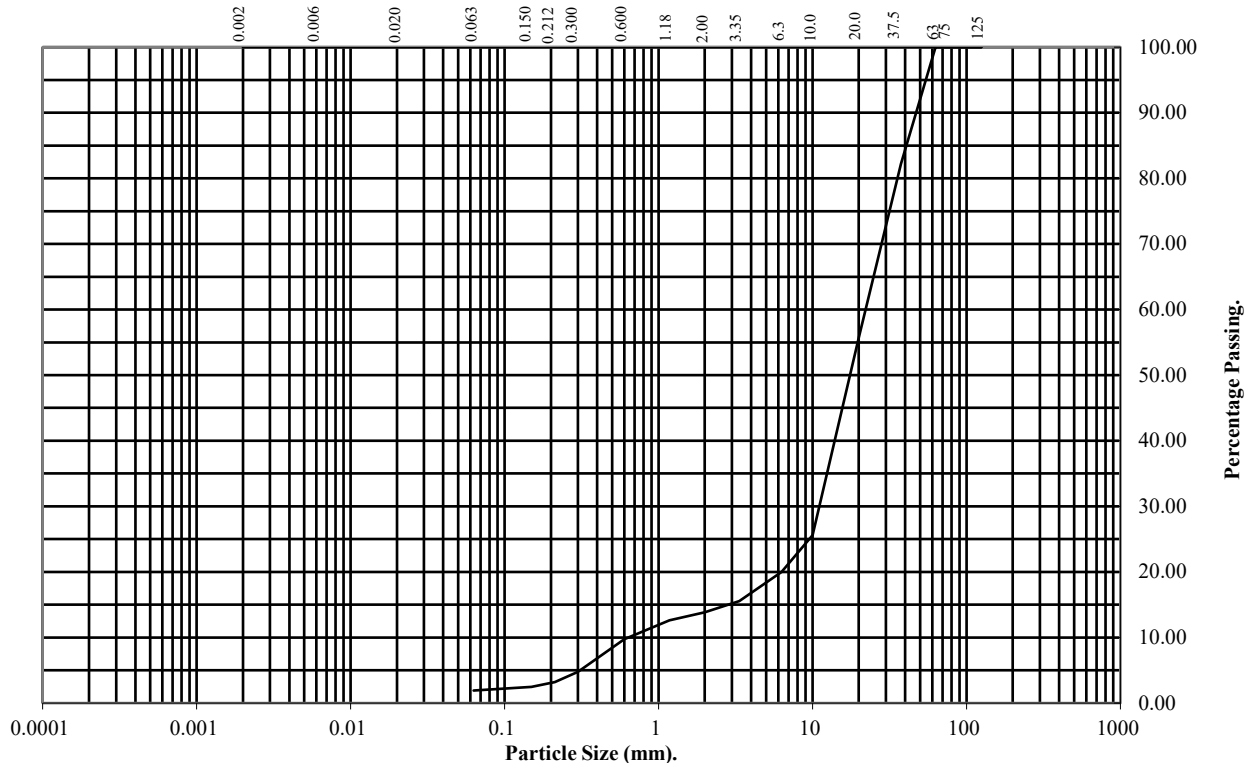
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: CP02 Top Depth (m): 3.00

Sample Number: Base Depth(m): 3.45

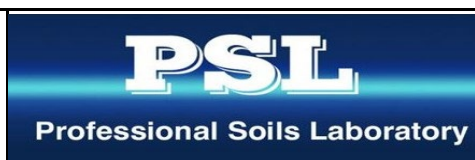
Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	82
20	56
10	26
6.3	20
3.35	16
2	14
1.18	13
0.6	10
0.3	5
0.212	3
0.15	2
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	86
Sand	12
Silt/Clay	2

Remarks:
See Summary of Soil Descriptions



Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846

PARTICLE SIZE DISTRIBUTION TEST

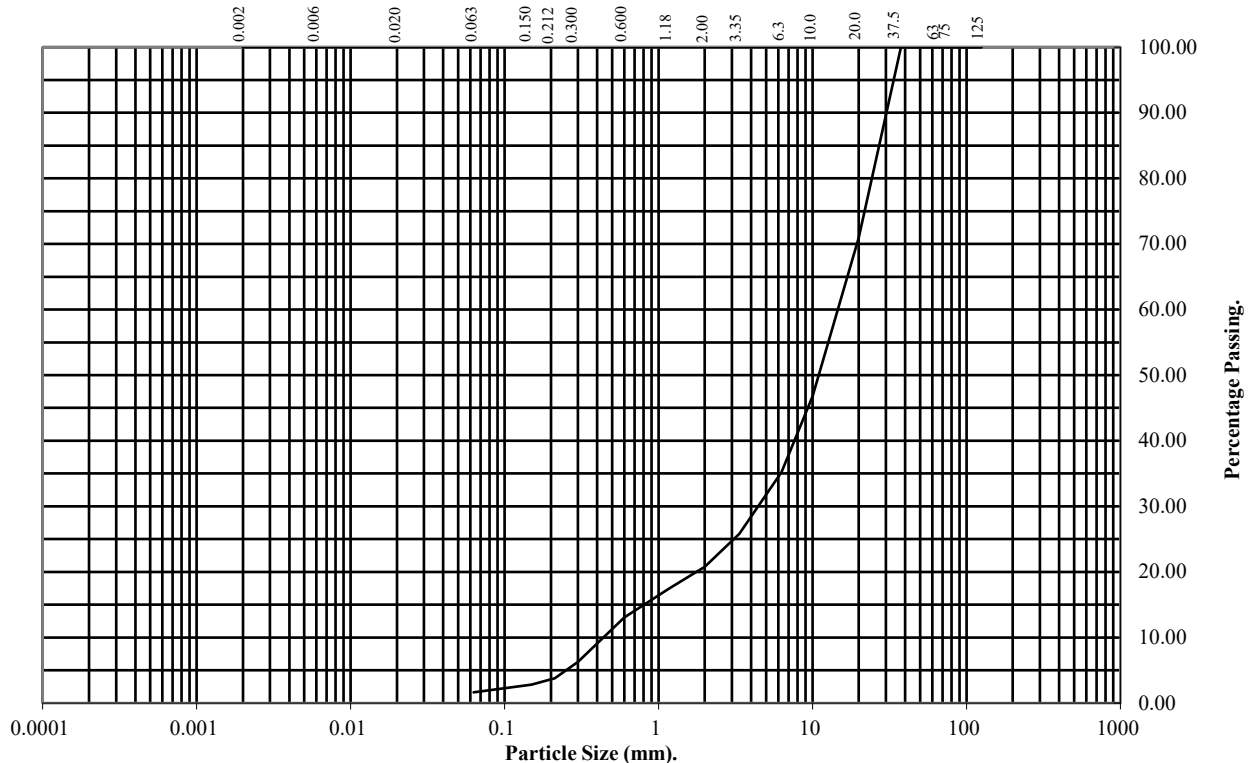
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: CP02 Top Depth (m): 5.00

Sample Number: Base Depth(m): 5.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	71
10	47
6.3	35
3.35	26
2	21
1.18	18
0.6	13
0.3	6
0.212	4
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	79
Sand	19
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Jessfield, Spath Road, Didsbury

Contract No:
PSL22/7371
Client Ref:
22-846



ANALYTICAL TEST REPORT

Contract no: 115668

Contract name: Jessifield, Spath Road, Didsbury

Client reference: 22-846

Clients name: ARC Environmental

Clients address: Solum House, Unit 1 Elliott Court
St Johns Road
Meadowfield
DH7 8PN

Samples received: 11 November 2022

Analysis started: 11 November 2022

Analysis completed: 21 November 2022

Report issued: 21 November 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by:

Abbie Neasham-Bourn
Senior Reporting Administrator

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
115668-1	TP02	0.30	Loamy Clay with Roots	-	-	9.3
115668-2	WS01	0.40-0.60	Loamy Clay with Roots	-	-	12.6
115668-3	WS02	0.10-0.30	Loamy Clay with Roots	-	-	11.6
115668-4	WS03	0.30-0.50	Loamy Clay with Roots	-	-	10.1
115668-5	WS03	0.80-1.00	Sandy Clay	-	-	5.4
115668-6	WS04	0.40-0.60	Loamy Clay	-	-	9.6
115668-7	WS04	1.60-1.80	Sandy Clay with Gravel	-	-	6.1
115668-8	WS05	0.30-0.50	Sandy Clay with Roots	-	-	6.6

Chemtech Environmental Limited

SOILS

Lab number Sample id Depth (m) Date sampled			115668-1 TP02 0.30 31/10/2022	115668-2 WS01 0.40-0.60 31/10/2022	115668-3 WS02 0.10-0.30 31/10/2022	115668-4 WS03 0.30-0.50 31/10/2022	115668-5 WS03 0.80-1.00 31/10/2022	115668-6 WS04 0.40-0.60 31/10/2022
Test	Method	Units						
Moisture Content	CE001	% w/w	9.3	12.6	11.6	10.1	-	9.6
Arsenic (total)	CE127 ^M	mg/kg As	10	4.3	8.4	<1	-	19
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2	<0.2	<0.2	<0.2	-	<0.2
Chromium (total)	CE127 ^M	mg/kg Cr	24	21	22	6.3	-	22
Chromium (III)	CE208	mg/kg CrIII	24	21	22	6.3	-	22
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1	-	<1
Copper (total)	CE127 ^M	mg/kg Cu	17	7.5	30	2.9	-	3.4
Lead (total)	CE127 ^M	mg/kg Pb	44	20	59	7.5	-	5.2
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5	-	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	9.7	4.3	8.1	3.2	-	3.8
Selenium (total)	CE127 ^M	mg/kg Se	0.6	<0.3	0.5	<0.3	-	<0.3
Zinc (total)	CE127 ^M	mg/kg Zn	28	11	32	6.4	-	5.6
pH	CE004 ^M	units	7.8	7.2	6.1	7.0	7.4	7.7
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	87	17	24	18	<10	10
Cyanide (free)	CE077	mg/kg CN	<1	<1	<1	<1	-	<1
Total Organic Carbon (TOC)	CE197	% w/w C	2.5	1.6	2.4	1.4	-	0.7
PAH								
Acenaphthene	CE087 ^M	mg/kg	<0.02	<0.02	0.03	<0.02	-	<0.02
Acenaphthylene	CE087 ^M	mg/kg	0.12	<0.02	<0.02	<0.02	-	<0.02
Anthracene	CE087 ^U	mg/kg	0.20	0.04	0.10	0.02	-	0.03
Benzo(a)anthracene	CE087 ^U	mg/kg	0.90	0.16	0.46	0.14	-	0.10
Benzo(a)pyrene	CE087 ^U	mg/kg	0.86	0.15	0.48	0.15	-	0.09
Benzo(b)fluoranthene	CE087 ^M	mg/kg	1.17	0.19	0.63	0.19	-	0.11
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.60	0.09	0.36	0.09	-	0.05
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.43	0.07	0.21	0.07	-	0.04
Chrysene	CE087 ^M	mg/kg	0.78	0.14	0.37	0.12	-	0.08
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.14	0.02	0.09	<0.02	-	<0.02
Fluoranthene	CE087 ^M	mg/kg	1.64	0.27	0.82	0.24	-	0.15
Fluorene	CE087 ^U	mg/kg	0.04	<0.02	<0.02	<0.02	-	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.73	0.12	0.44	0.12	-	0.06
Naphthalene	CE087 ^M	mg/kg	0.02	<0.02	0.02	<0.02	-	<0.02
Phenanthrene	CE087 ^M	mg/kg	0.66	0.14	0.35	0.11	-	0.10
Pyrene	CE087 ^M	mg/kg	1.61	0.26	0.78	0.23	-	0.15
PAH (total of USEPA 16)	CE087	mg/kg	9.92	1.64	5.15	1.50	-	0.94

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SOILS

Lab number			115668-1	115668-2	115668-3	115668-4	115668-5	115668-6
Sample id			TP02	WS01	WS02	WS03	WS03	WS04
Depth (m)			0.30	0.40-0.60	0.10-0.30	0.30-0.50	0.80-1.00	0.40-0.60
Date sampled			31/10/2022	31/10/2022	31/10/2022	31/10/2022	31/10/2022	31/10/2022
Test	Method	Units						
BTEX & TPH								
Benzene	CE192 ^u	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
Toluene	CE192 ^u	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
Ethylbenzene	CE192 ^u	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
m & p-Xylene	CE192 ^u	mg/kg	<0.02	<0.02	<0.02	<0.02	-	<0.02
o-Xylene	CE192 ^u	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
EPH Aliphatic (>C10-C12)	CE250	mg/kg	<6	<6	<6	<6	-	<6
EPH Aliphatic (>C12-C16)	CE250	mg/kg	<6	<6	<6	<6	-	<6
EPH Aliphatic (>C16-C35)	CE250	mg/kg	<15	<15	<15	<15	-	<15
EPH Aliphatic (>C35-C44)	CE250	mg/kg	<10	<10	<10	<10	-	<10
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	-	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	<10	<10	<10	<10	-	<10
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	<10	<10	<10	<10	-	<10
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	<1	<1	<1	28	-	<1
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	<1	<1	<1	60	-	<1
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	<1	10	<1	<1	-	<1
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	-	NAD

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SOILS

Lab number			115668-7	115668-8
Sample id			WS04	WS05
Depth (m)			1.60-1.80	0.30-0.50
Date sampled			31/10/2022	03/11/2022
Test	Method	Units		
Moisture Content	CE001	% w/w	-	6.6
Arsenic (total)	CE127 ^M	mg/kg As	-	3.1
Cadmium (total)	CE127 ^M	mg/kg Cd	-	<0.2
Chromium (total)	CE127 ^M	mg/kg Cr	-	25
Chromium (III)	CE208	mg/kg CrIII	-	<1
Chromium (VI)	CE146	mg/kg CrVI	-	<1
Copper (total)	CE127 ^M	mg/kg Cu	-	7.0
Lead (total)	CE127 ^M	mg/kg Pb	-	8.2
Mercury (total)	CE127 ^M	mg/kg Hg	-	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	-	10
Selenium (total)	CE127 ^M	mg/kg Se	-	0.4
Zinc (total)	CE127 ^M	mg/kg Zn	-	20
pH	CE004 ^M	units	7.7	7.7
Sulphate (2:1 water soluble)	CE061 ^U	mg/l SO ₄	<10	11
Cyanide (free)	CE077	mg/kg CN	-	<1
Total Organic Carbon (TOC)	CE197	% w/w C	-	0.5
PAH				
Acenaphthene	CE087 ^M	mg/kg	-	<0.02
Acenaphthylene	CE087 ^M	mg/kg	-	<0.02
Anthracene	CE087 ^U	mg/kg	-	<0.02
Benzo(a)anthracene	CE087 ^U	mg/kg	-	<0.02
Benzo(a)pyrene	CE087 ^U	mg/kg	-	<0.02
Benzo(b)fluoranthene	CE087 ^M	mg/kg	-	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	-	<0.02
Benzo(k)fluoranthene	CE087 ^M	mg/kg	-	<0.03
Chrysene	CE087 ^M	mg/kg	-	<0.03
Dibenz(ah)anthracene	CE087 ^M	mg/kg	-	<0.02
Fluoranthene	CE087 ^M	mg/kg	-	<0.02
Fluorene	CE087 ^U	mg/kg	-	<0.02
Indeno(123cd)pyrene	CE087 ^M	mg/kg	-	<0.02
Naphthalene	CE087 ^M	mg/kg	-	<0.02
Phenanthrene	CE087 ^M	mg/kg	-	<0.02
Pyrene	CE087 ^M	mg/kg	-	<0.02
PAH (total of USEPA 16)	CE087	mg/kg	-	<0.34

Chemtech Environmental Limited

SOILS

Lab number			115668-7	115668-8
Sample id			WS04	WS05
Depth (m)			1.60-1.80	0.30-0.50
Date sampled			31/10/2022	03/11/2022
Test	Method	Units		
BTEX & TPH				
Benzene	CE192 ^u	mg/kg	-	<0.01
Toluene	CE192 ^u	mg/kg	-	<0.01
Ethylbenzene	CE192 ^u	mg/kg	-	<0.01
m & p-Xylene	CE192 ^u	mg/kg	-	<0.02
o-Xylene	CE192 ^u	mg/kg	-	<0.01
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	<0.1
EPH Aliphatic (>C10-C12)	CE250	mg/kg	-	<6
EPH Aliphatic (>C12-C16)	CE250	mg/kg	-	<6
EPH Aliphatic (>C16-C35)	CE250	mg/kg	-	<15
EPH Aliphatic (>C35-C44)	CE250	mg/kg	-	<10
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	-	<10
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	-	<10
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	-	<1
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	-	<1
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	-	<1
Subcontracted analysis				
Asbestos (qualitative)	\$	-	-	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE001	Moisture Content	Gravimetry	As received		0.1	% w/w
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE208	Chromium (III)	Calculation: Cr (total) - Cr (VI)	Dry		1	mg/kg CrIII
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO ₄
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE250	EPH Aliphatic (>C10-C12)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C12-C16)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C16-C35)	Solvent extraction, GCxGC-FID	As received		15	mg/kg

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE250	EPH Aliphatic (>C35-C44)	Solvent extraction, GCxGC-FID	As received		10	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE250	EPH Aromatic (>EC10-EC12)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC12-EC16)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC16-EC21)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC21-EC35)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC35-EC44)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
115668-1	TP02	0.30	N	
115668-2	WS01	0.40-0.60	N	
115668-3	WS02	0.10-0.30	N	
115668-4	WS03	0.30-0.50	N	
115668-5	WS03	0.80-1.00	N	
115668-6	WS04	0.40-0.60	N	
115668-7	WS04	1.60-1.80	N	
115668-8	WS05	0.30-0.50	N	

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

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

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones, where applicable.

Waste Acceptance Criteria Testing BS EN 12457-Part 3, 2 Stage Process

Sample Details

Contract Name Jessifield, Spath Road, Didsbury
Lab Number 115668(1)-2
Sample ID WS01 0.40-0.60m
Date Sampled 31 October 2022
Date Received 11 November 2022
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.200
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 14.42
Dry Matter Content Ratio (DR) % 87.39
Leachant Volume (1) (L2) Litre 0.325
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.205
Eluate Volume (2) (VE2) Litre 1.240

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.8	7.5
Temperature (°C)	20	20
Conductivity (µS/cm)	104	36
Antimony (µg/l Sb)	1.98	0.99
Arsenic (µg/l As)	3.50	2.96
Barium (µg/l Ba)	6.3	3.9
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	2.6	2.1
Copper (µg/l Cu)	10.3	7.8
Lead (µg/l Pb)	6.2	5.5
Mercury (µg/l Hg)	0.043	0.024
Molybdenum (µg/l Mo)	2.4	1.2
Nickel (µg/l Ni)	1.7	0.8
Selenium (µg/l Se)	1.82	0.87
Zinc (µg/l Zn)	7	4
Chloride (mg/l Cl)	0.8	0.6
Fluoride (mg/l F)	0.5	0.4
Sulphate (mg/l SO ₄)	7.2	<1.7
Total Dissolved Solids (mg/l TDS)	80	25
Phenol Index (µg/l PhOH)	18	<10
Dissolved Organic Carbon (mg/l C)	17	9.1

Amount Leached		Council Decision 2003/33/EC Limit Values mg/kg at L:S 10:1		
2:1	10:1	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
mg/kg	mg/kg			
0.004	0.011	0.06	0.7	5
0.007	0.030	0.5	2	25
0.013	0.042	20	100	300
<0.0002	<0.0007	0.04	1	5
0.005	0.022	0.5	10	70
0.021	0.081	2	50	100
0.012	0.056	0.5	10	50
0.00009	0.00026	0.01	0.2	2
0.005	0.014	0.5	10	30
0.003	0.009	0.4	10	40
0.004	0.010	0.1	0.5	7
0.015	0.042	4	50	200
1.6	6	800	15000	25000
1.0	4.2	10	150	500
14	<23	1000	20000	50000
160	314	4000	60000	100000
0.04	<0.11	1		
34	100	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	1.6	3%	5%	6%
Loss on Ignition	% w/w	3.6			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
Mineral Oil (C10 - C40)	mg/kg	48	500		
PAH (total)	mg/kg	1.64	100		
pH	pH units	7.2		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.50		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.14		To be evaluated	

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Comments

Authorised by:

R Burton

Name:

Rachael Burton

Report date:

9 December 2022

Position:

Reporting Team Lead

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Waste Acceptance Criteria Testing

BS EN 12457-Part 3, 2 Stage Process

Sample Details

Contract Name Jessifield, Spath Road, Didsbury
Lab Number 115668(1)-3
Sample ID WS02 0.10-0.30m
Date Sampled 31 October 2022
Date Received 11 November 2022
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.198
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 13.10
Dry Matter Content Ratio (DR) % 88.42
Leachant Volume (1) (L2) Litre 0.327
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.195
Eluate Volume (2) (VE2) Litre 1.200

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.5	7.5
Temperature (°C)	20	20
Conductivity (µS/cm)	45	20
Antimony (µg/l Sb)	1.82	1.02
Arsenic (µg/l As)	5.24	2.79
Barium (µg/l Ba)	8.0	2.4
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	2.2	1.0
Copper (µg/l Cu)	14.5	7.8
Lead (µg/l Pb)	22.5	8.5
Mercury (µg/l Hg)	0.165	0.062
Molybdenum (µg/l Mo)	1.2	0.9
Nickel (µg/l Ni)	2.6	1.1
Selenium (µg/l Se)	1.53	0.84
Zinc (µg/l Zn)	13	5
Chloride (mg/l Cl)	0.9	0.6
Fluoride (mg/l F)	0.2	0.2
Sulphate (mg/l SO ₄)	3.5	<1.7
Total Dissolved Solids (mg/l TDS)	35	15
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	8.1	<5

Amount Leached		Council Decision 2003/33/EC Limit Values mg/kg at L:S 10:1		
2:1	10:1	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
mg/kg	mg/kg			
0.004	0.011	0.06	0.7	5
0.010	0.031	0.5	2	25
0.016	0.030	20	100	300
<0.0002	<0.0007	0.04	1	5
0.004	0.011	0.5	10	70
0.029	0.085	2	50	100
0.045	0.101	0.5	10	50
0.00033	0.00073	0.01	0.2	2
0.002	0.009	0.5	10	30
0.005	0.013	0.4	10	40
0.003	0.009	0.1	0.5	7
0.026	0.060	4	50	200
1.7	6	800	15000	25000
0.4	2.1	10	150	500
7	<19	1000	20000	50000
70	172	4000	60000	100000
<0.02	<0.1	1		
16	<53	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	2.4	3%	5%	6%
Loss on Ignition	% w/w	4.2			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
Mineral Oil (C10 - C40)	mg/kg	39	500		
PAH (total)	mg/kg	5.22	100		
pH	pH units	6.1		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.28		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	0.02		To be evaluated	

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Comments

Authorised by:

R. Burton

Name:

Rachael Burton

Report date:

9 December 2022

Position:

Reporting Team Lead

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Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Waste Acceptance Criteria Testing

BS EN 12457-Part 3, 2 Stage Process

Sample Details

Contract Name Jessifield, Spath Road, Didsbury
Lab Number 115668(1)-8
Sample ID WS05 0.30-0.50m
Date Sampled 3 November 2022
Date Received 11 November 2022
Particle Size (<4mm) -
Method of size reduction N/A
Non-crushable matter N/A

Test Values

Mass of Raw Test Portion (MW) kg 0.187
Mass of Dried Test Portion (MD) kg 0.175
Moisture Content Ratio (MC) % 7.10
Dry Matter Content Ratio (DR) % 93.37
Leachant Volume (1) (L2) Litre 0.338
Leachant Volume (2) (L8) Litre 1.400
Eluate Volume (1) (VE1) Litre 0.190
Eluate Volume (2) (VE2) Litre 1.260

Eluate Analysis	Conc in Eluate	
Liquid : Waste Ratio	2:1	8:1
pH (units)	7.5	7.4
Temperature (°C)	20	20
Conductivity (µS/cm)	45	23
Antimony (µg/l Sb)	1.73	1.02
Arsenic (µg/l As)	3.32	2.05
Barium (µg/l Ba)	3.5	2.4
Cadmium (µg/l Cd)	<0.07	<0.07
Chromium (µg/l Cr)	4.8	2.7
Copper (µg/l Cu)	8.5	6.2
Lead (µg/l Pb)	7.2	6.4
Mercury (µg/l Hg)	0.037	0.019
Molybdenum (µg/l Mo)	2.2	1.0
Nickel (µg/l Ni)	1.7	1.3
Selenium (µg/l Se)	1.43	0.69
Zinc (µg/l Zn)	8	8
Chloride (mg/l Cl)	1.1	0.5
Fluoride (mg/l F)	0.1	<0.1
Sulphate (mg/l SO ₄)	4.5	<1.7
Total Dissolved Solids (mg/l TDS)	35	15
Phenol Index (µg/l PhOH)	<10	<10
Dissolved Organic Carbon (mg/l C)	11	<5

Amount Leached		Council Decision 2003/33/EC Limit Values mg/kg at L:S 10:1		
2:1 mg/kg	10:1 mg/kg	Inert Waste	Non-reactive Hazardous Waste	Hazardous Waste
0.003	0.011	0.06	0.7	5
0.007	0.022	0.5	2	25
0.007	0.025	20	100	300
<0.0002	<0.0007	0.04	1	5
0.010	0.029	0.5	10	70
0.017	0.065	2	50	100
0.014	0.065	0.5	10	50
0.00007	0.00021	0.01	0.2	2
0.004	0.012	0.5	10	30
0.003	0.013	0.4	10	40
0.003	0.008	0.1	0.5	7
0.017	0.079	4	50	200
2.2	6	800	15000	25000
0.2	<1.0	10	150	500
9	<20	1000	20000	50000
70	172	4000	60000	100000
<0.02	<0.1	1		
23	<57	500	800	1000

Waste Analysis	Units	Result			
Total Organic Carbon	% w/w	0.5	3%	5%	6%
Loss on Ignition	% w/w	1.4			10%
BTEX	mg/kg	<0.06	6		
PCBs (7 congeners)	mg/kg	<0.045	1		
Mineral Oil (C10 - C40)	mg/kg	<10	500		
PAH (total)	mg/kg	<0.36	100		
pH	pH units	7.7		>6	
Acid Neutralisation Capacity (pH4)	mol/kg	0.04		To be evaluated	
Acid Neutralisation Capacity (pH7)	mol/kg	<0.02		To be evaluated	

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Comments

Authorised by:

R Burton

Name:

Rachael Burton

Report date:

9 December 2022

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Tel 01207 528578 Email customerservices@chemtech-env.co.uk
Vat Reg No. 772 5703 18 Registered in England number 4284013

Statement of Conformity

Statement of Conformity

Where Chemtech reports a statement of conformity to a specification, the decision rules applied are derived from the Ilac document ILAC G8:09/2019.

Acceptance limits (AL), applied are derived from the tolerance limits (TL) by you the client or applicable standard (e.g. 2003.33.EC Council Decision, BS3882, BS8601)

Agreed and reported Decision Rule:

"PASS" if the result < TL, and the bias / precision values for the process meet the targets defined within the methodology and/or applied accreditation.

Reported Decisions:

Result < TL for determinands: PASS

Result > TL for determinands: FAIL

Definitions Used:

Acceptance limit (AL) Specified upper or lower bounds of permissible measured quantity values.

Tolerance limit (TL) Specified upper or lower bound of permissible values of a property.

APPENDIX V

Revised Conceptual Site Model



Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



I1HBC-BVOEO-KVV8J

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

Job name

22-846

Description/Comments

Classification of MG for off site disposal

Project

22-846

Site

Jessiefield, Spath Road, Didsbury

Classified by

Name: **John Ditchburn**
Date: **29 Nov 2022 10:56 GMT**
Telephone: **0191 378 6380**

Company: **Arc Environmental Ltd**
Solum House, Unit 1, Elliott Court, St.
Johns Road
Meadowfield
DH7 8PN

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

HazWasteOnline™ Certification:

CERTIFIED

Course
Hazardous Waste Classification

Date
03 Dec 2020

Next 3 year Refresher due by Dec 2023

Purpose of classification

2 - Material Characterisation

Address of the waste

Spath Road, Didsbury

Post Code M20 2TZ

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

N/A

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

N/A

Description of the waste

Dark brown sand with occasional brick fragments



Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP02	0.30	Non Hazardous		3
2	WS01	0.40-0.60	Non Hazardous		6
3	WS02	0.10-0.30	Non Hazardous		9
4	WS03	0.30-0.50	Non Hazardous		12
5	WS04	0.40-0.60	Non Hazardous		15
6	WS05	0.30-0.50	Non Hazardous		18

Related documents

#	Name	Description
1	Arc 2021 with acid alkali reserve	waste stream template used to create this Job

Report

Created by: John Ditchburn

Created date: 29 Nov 2022 10:56 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	21
Appendix B: Rationale for selection of metal species	22
Appendix C: Version	23

Classification of sample: TP02

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

Sample details

Sample name:	LoW Code:
TP02	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.3% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.3% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		arsenic { arsenic trioxide }				10.2	mg/kg	1.32	12.321	mg/kg	0.00123 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
2		cadmium { cadmium oxide }				<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
		048-002-00-0	215-146-2	1306-19-0									
3		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				23.6	mg/kg	1.462	31.558	mg/kg	0.00316 %	✓	
			215-160-9	1308-38-9									
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
5		copper { dicopper oxide; copper (I) oxide }				17.2	mg/kg	1.126	17.718	mg/kg	0.00177 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
6		lead { lead chromate }			1	43.7	mg/kg	1.56	62.364	mg/kg	0.004 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
7		mercury { mercury dichloride }				<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
8		nickel { nickel chromate }				9.7	mg/kg	2.976	26.413	mg/kg	0.00264 %	✓	
		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 }				0.6	mg/kg	1.405	0.771	mg/kg	0.0000771 %	✓	
		034-002-00-8											
10		zinc { zinc chromate }				27.5	mg/kg	2.774	69.798	mg/kg	0.00698 %	✓	
		024-007-00-3	236-878-9	13530-65-9									
11		pH				7.8	pH		7.8	pH	7.8 pH		
				PH									
12		cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
		006-007-00-5											
13		acenaphthene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
			201-469-6	83-32-9									
14		acenaphthylene				0.12	mg/kg		0.11	mg/kg	0.000011 %	✓	
			205-917-1	208-96-8									



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	anthracene	204-371-1	120-12-7		0.2 mg/kg		0.183 mg/kg	0.0000183 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.9 mg/kg		0.823 mg/kg	0.0000823 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.86 mg/kg		0.787 mg/kg	0.0000787 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	1.17 mg/kg		1.07 mg/kg	0.000107 %	✓	
19	benzo[ghi]perylene	205-883-8	191-24-2		0.6 mg/kg		0.549 mg/kg	0.0000549 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.43 mg/kg		0.393 mg/kg	0.0000393 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.78 mg/kg		0.714 mg/kg	0.0000714 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.14 mg/kg		0.128 mg/kg	0.0000128 %	✓	
23	fluoranthene	205-912-4	206-44-0		1.64 mg/kg		1.5 mg/kg	0.00015 %	✓	
24	fluorene	201-695-5	86-73-7		0.04 mg/kg		0.0366 mg/kg	0.00000366 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.73 mg/kg		0.668 mg/kg	0.0000668 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	0.02 mg/kg		0.0183 mg/kg	0.00000183 %	✓	
27	phenanthrene	201-581-5	85-01-8		0.66 mg/kg		0.604 mg/kg	0.0000604 %	✓	
28	pyrene	204-927-3	129-00-0		1.61 mg/kg		1.473 mg/kg	0.000147 %	✓	
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
33	TPH (C6 to C40) petroleum group		TPH		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
34	confirm TPH has NOT arisen from diesel or petrol				☒					
35	asbestos	650-013-00-6	----- 12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
Total:								0.0223 %		



Key

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

Classification of sample: WS01

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

Sample details

Sample name:	LoW Code:
WS01	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40-0.60 m	
Moisture content:	
12.6%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 12.6% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				4.3 mg/kg	1.32	5.042 mg/kg	0.000504 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				20.5 mg/kg	1.462	26.609 mg/kg	0.00266 %	✓	
		215-160-9	1308-38-9							
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
5	copper { dicopper oxide; copper (I) oxide }				7.5 mg/kg	1.126	7.499 mg/kg	0.00075 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
6	lead { lead chromate }			1	20.1 mg/kg	1.56	27.844 mg/kg	0.00179 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
7	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
8	nickel { nickel chromate }				4.3 mg/kg	2.976	11.366 mg/kg	0.00114 %	✓	
	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 }				<0.3 mg/kg	1.405	<0.422 mg/kg	<0.0000422 %		<LOD
	034-002-00-8									
10	zinc { zinc chromate }				11.2 mg/kg	2.774	27.594 mg/kg	0.00276 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
11	pH		PH		7.2 pH		7.2 pH	7.2 pH		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
13	acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		201-469-6	83-32-9							
14	acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	anthracene	204-371-1	120-12-7		0.04 mg/kg		0.0355 mg/kg	0.00000355 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.16 mg/kg		0.142 mg/kg	0.0000142 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.15 mg/kg		0.133 mg/kg	0.0000133 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.19 mg/kg		0.169 mg/kg	0.0000169 %	✓	
19	benzo[ghi]perylene		205-883-8	191-24-2	0.09 mg/kg		0.0799 mg/kg	0.00000799 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.07 mg/kg		0.0622 mg/kg	0.00000622 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.14 mg/kg		0.124 mg/kg	0.0000124 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.02 mg/kg		0.0178 mg/kg	0.00000178 %	✓	
23	fluoranthene		205-912-4	206-44-0	0.27 mg/kg		0.24 mg/kg	0.000024 %	✓	
24	fluorene		201-695-5	86-73-7	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene		205-893-2	193-39-5	0.12 mg/kg		0.107 mg/kg	0.0000107 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
27	phenanthrene		201-581-5	85-01-8	0.14 mg/kg		0.124 mg/kg	0.0000124 %	✓	
28	pyrene		204-927-3	129-00-0	0.26 mg/kg		0.231 mg/kg	0.0000231 %	✓	
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
33	TPH (C6 to C40) petroleum group			TPH	10.5 mg/kg		9.325 mg/kg	0.000933 %	✓	
34	confirm TPH has NOT arisen from diesel or petrol				☒					
35	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
Total:								0.0122 %		



Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase: too low to be flammable

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00093%)

Classification of sample: WS02

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

Sample details

Sample name:	LoW Code:
WS02	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10-0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
11.6%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 11.6% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		arsenic { arsenic trioxide }				8.4	mg/kg	1.32	9.938	mg/kg	0.000994 %	✓	
	033-003-00-0	215-481-4	1327-53-3										
2		cadmium { cadmium oxide }				<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0										
3		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				22	mg/kg	1.462	28.812	mg/kg	0.00288 %	✓	
		215-160-9	1308-38-9										
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1	mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0										
5		copper { dicopper oxide ; copper (I) oxide }				29.6	mg/kg	1.126	29.862	mg/kg	0.00299 %	✓	
	029-002-00-X	215-270-7	1317-39-1										
6		lead { lead chromate }			1	59	mg/kg	1.56	82.463	mg/kg	0.00529 %	✓	
		082-004-00-2	231-846-0	7758-97-6									
7		mercury { mercury dichloride }				<0.5	mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7										
8		nickel { nickel chromate }				8.1	mg/kg	2.976	21.602	mg/kg	0.00216 %	✓	
	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 }				0.5	mg/kg	1.405	0.629	mg/kg	0.0000629 %	✓	
	034-002-00-8												
10		zinc { zinc chromate }				32.2	mg/kg	2.774	80.043	mg/kg	0.008 %	✓	
	024-007-00-3	236-878-9	13530-65-9										
11		pH				6.1	pH		6.1	pH	6.1 pH		
				PH									
12		cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5												
13		acenaphthene				0.03	mg/kg		0.0269	mg/kg	0.00000269 %	✓	
		201-469-6	83-32-9										
14		acenaphthylene				<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8										



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	anthracene	204-371-1	120-12-7		0.1 mg/kg		0.0896 mg/kg	0.00000896 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.46 mg/kg		0.412 mg/kg	0.0000412 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.48 mg/kg		0.43 mg/kg	0.000043 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.63 mg/kg		0.565 mg/kg	0.0000565 %	✓	
19	benzo[ghi]perylene	205-883-8	191-24-2		0.36 mg/kg		0.323 mg/kg	0.0000323 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.21 mg/kg		0.188 mg/kg	0.0000188 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.37 mg/kg		0.332 mg/kg	0.0000332 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.09 mg/kg		0.0806 mg/kg	0.00000806 %	✓	
23	fluoranthene	205-912-4	206-44-0		0.82 mg/kg		0.735 mg/kg	0.0000735 %	✓	
24	fluorene	201-695-5	86-73-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.44 mg/kg		0.394 mg/kg	0.0000394 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	0.02 mg/kg		0.0179 mg/kg	0.00000179 %	✓	
27	phenanthrene	201-581-5	85-01-8		0.35 mg/kg		0.314 mg/kg	0.0000314 %	✓	
28	pyrene	204-927-3	129-00-0		0.78 mg/kg		0.699 mg/kg	0.0000699 %	✓	
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
33	TPH (C6 to C40) petroleum group		TPH		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
34	confirm TPH has NOT arisen from diesel or petrol				☒					
35	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
Total:								0.0244 %		



Key

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

Classification of sample: WS03

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

Sample details

Sample name:	LoW Code:
WS03	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30-0.50 m	
Moisture content:	
10.1%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 10.1% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				<1 mg/kg	1.32	<1.32	mg/kg	<0.000132 %		<LOD
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				6.3 mg/kg	1.462	8.363	mg/kg	0.000836 %	✓	
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				2.9 mg/kg	1.126	2.966	mg/kg	0.000297 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	7.5 mg/kg	1.56	10.625	mg/kg	0.000681 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				3.2 mg/kg	2.976	8.65	mg/kg	0.000865 %	✓	
	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 }				<0.3 mg/kg	1.405	<0.422	mg/kg	<0.0000422 %		<LOD
	034-002-00-8										
10	zinc { zinc chromate }				6.4 mg/kg	2.774	16.126	mg/kg	0.00161 %	✓	
	024-007-00-3	236-878-9	13530-65-9								
11	pH		PH		7 pH		7	pH	7pH		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5										
13	acenaphthene				<0.02 mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		201-469-6	83-32-9								
14	acenaphthylene				<0.02 mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	anthracene	204-371-1	120-12-7		0.02 mg/kg		0.0182 mg/kg	0.00000182 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.14 mg/kg		0.127 mg/kg	0.0000127 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.15 mg/kg		0.136 mg/kg	0.0000136 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.19 mg/kg		0.173 mg/kg	0.0000173 %	✓	
19	benzo[ghi]perylene		205-883-8	191-24-2	0.09 mg/kg		0.0817 mg/kg	0.00000817 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.07 mg/kg		0.0636 mg/kg	0.00000636 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.12 mg/kg		0.109 mg/kg	0.0000109 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
23	fluoranthene		205-912-4	206-44-0	0.24 mg/kg		0.218 mg/kg	0.0000218 %	✓	
24	fluorene		201-695-5	86-73-7	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene		205-893-2	193-39-5	0.12 mg/kg		0.109 mg/kg	0.0000109 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
27	phenanthrene		201-581-5	85-01-8	0.11 mg/kg		0.0999 mg/kg	0.00000999 %	✓	
28	pyrene		204-927-3	129-00-0	0.23 mg/kg		0.209 mg/kg	0.0000209 %	✓	
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
33	TPH (C6 to C40) petroleum group			TPH	87.8 mg/kg		79.746 mg/kg	0.00797 %	✓	
34	confirm TPH has NOT arisen from diesel or petrol				☒					
35	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
Total:								0.0141 %		



Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No liquid phase: too low to be flammable

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00797%)

Classification of sample: WS04

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

Sample details

Sample name:	LoW Code:
WS04	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40-0.60 m	
Moisture content:	
9.6%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.6% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				19 mg/kg	1.32	22.889	mg/kg	0.00229 %	✓	
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
	048-002-00-0	215-146-2	1306-19-0								
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				22.3 mg/kg	1.462	29.738	mg/kg	0.00297 %	✓	
		215-160-9	1308-38-9								
4	chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923	mg/kg	<0.000192 %		<LOD
	024-001-00-0	215-607-8	1333-82-0								
5	copper { dicopper oxide; copper (I) oxide }				3.4 mg/kg	1.126	3.493	mg/kg	0.000349 %	✓	
	029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	5.2 mg/kg	1.56	7.401	mg/kg	0.000474 %	✓	
	082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677	mg/kg	<0.0000677 %		<LOD
	080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				3.8 mg/kg	2.976	10.319	mg/kg	0.00103 %	✓	
	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 }				<0.3 mg/kg	1.405	<0.422	mg/kg	<0.0000422 %		<LOD
	034-002-00-8										
10	zinc { zinc chromate }				5.6 mg/kg	2.774	14.174	mg/kg	0.00142 %	✓	
	024-007-00-3	236-878-9	13530-65-9								
11	pH				7.7 pH		7.7	pH	7.7 pH		
12	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5										
13	acenaphthene				<0.02 mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		201-469-6	83-32-9								
14	acenaphthylene				<0.02 mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	anthracene	204-371-1	120-12-7		0.03 mg/kg		0.0274 mg/kg	0.00000274 %	✓	
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.1 mg/kg		0.0912 mg/kg	0.00000912 %	✓	
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.09 mg/kg		0.0821 mg/kg	0.00000821 %	✓	
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.11 mg/kg		0.1 mg/kg	0.00001 %	✓	
19	benzo[ghi]perylene	205-883-8	191-24-2		0.05 mg/kg		0.0456 mg/kg	0.00000456 %	✓	
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.04 mg/kg		0.0365 mg/kg	0.00000365 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.08 mg/kg		0.073 mg/kg	0.0000073 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
23	fluoranthene	205-912-4	206-44-0		0.15 mg/kg		0.137 mg/kg	0.0000137 %	✓	
24	fluorene	201-695-5	86-73-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.06 mg/kg		0.0547 mg/kg	0.00000547 %	✓	
26	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
27	phenanthrene	201-581-5	85-01-8		0.1 mg/kg		0.0912 mg/kg	0.00000912 %	✓	
28	pyrene	204-927-3	129-00-0		0.15 mg/kg		0.137 mg/kg	0.0000137 %	✓	
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
33	TPH (C6 to C40) petroleum group		TPH		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
34	confirm TPH has NOT arisen from diesel or petrol				☒					
35	asbestos	650-013-00-6	----- 12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
Total:								0.0103 %		



Key

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

Classification of sample: WS05

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

Sample details

Sample name:	LoW Code:
WS05	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30-0.50 m	
Moisture content:	
6.6%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.6% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number								
1		arsenic { arsenic trioxide }				3.1 mg/kg	1.32	3.84 mg/kg	0.000384 %	✓		
		033-003-00-0	215-481-4	1327-53-3								
2		cadmium { cadmium oxide }				<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD	
		048-002-00-0	215-146-2	1306-19-0								
3		chromium in chromium(III) compounds {  chromium(III) oxide (worst case) }				<1 mg/kg	1.462	<1.462 mg/kg	<0.000146 %		<LOD	
			215-160-9	1308-38-9								
4		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1 mg/kg	1.923	<1.923 mg/kg	<0.000192 %		<LOD	
		024-001-00-0	215-607-8	1333-82-0								
5		copper { dicopper oxide ; copper (I) oxide }				7 mg/kg	1.126	7.393 mg/kg	0.000739 %	✓		
		029-002-00-X	215-270-7	1317-39-1								
6		lead { lead chromate }			1	8.2 mg/kg	1.56	11.999 mg/kg	0.000769 %	✓		
		082-004-00-2	231-846-0	7758-97-6								
7		mercury { mercury dichloride }				<0.5 mg/kg	1.353	<0.677 mg/kg	<0.0000677 %		<LOD	
		080-010-00-X	231-299-8	7487-94-7								
8		nickel { nickel chromate }				10 mg/kg	2.976	27.92 mg/kg	0.00279 %	✓		
		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 }				0.4 mg/kg	1.405	0.527 mg/kg	0.0000527 %	✓		
		034-002-00-8										
10		zinc { zinc chromate }				20.5 mg/kg	2.774	53.349 mg/kg	0.00533 %	✓		
		024-007-00-3	236-878-9	13530-65-9								
11		pH				7.7 pH		7.7 pH	7.7 pH			
				PH								
12		cyanides {  salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD	
		006-007-00-5										
13		acenaphthene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD	
			201-469-6	83-32-9								
14		acenaphthylene				<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD	
			205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
15	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
16	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
17	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
18	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
19	benzo[ghi]perylene		205-883-8	191-24-2	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
21	chrysene	601-048-00-0	205-923-4	218-01-9	<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
23	fluoranthene		205-912-4	206-44-0	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
24	fluorene		201-695-5	86-73-7	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
25	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
26	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
27	phenanthrene		201-581-5	85-01-8	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
28	pyrene		204-927-3	129-00-0	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
33	TPH (C6 to C40) petroleum group			TPH	<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
34	confirm TPH has NOT arisen from diesel or petrol				☒						
35	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
Total:									0.0118 %		



Key

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

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

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

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

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

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

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

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

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

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

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

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Eye Irrit. 2; H319, STOT SE 3; H335, Carc. 2; H351, Skin Sens. 1; H317, Aquatic Acute 1; H400, Aquatic Chronic 1; H410, Skin Irrit. 2; H315

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

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

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

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

■ **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 May 2015

Hazard Statements: None.

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

cadmium {cadmium oxide}

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

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

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

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

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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



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

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

zinc {zinc chromate}

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

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

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

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2022.325.5408.10064 (21 Nov 2022)

HazWasteOnline Database: 2022.325.5408.10064 (21 Nov 2022)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021