REPORT ON A SITE INVESTIGATION

Site

152-154 QUEENS ROAD, WIMBLEDON, GREATER LONDON SW19 8LX

Client

SANFORD DEVELOPMENTS (WIMBLEDON) LTD

Report Ref
22/12498/KJC

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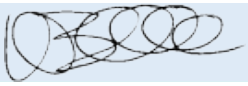
Prepared by	**K J Clark** BSc Hons Director		
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The recommendations made and opinions expressed in this Report are based on the strata conditions revealed by the fieldworks as indicated on the exploratory records, together with an assessment of the data from in situ and laboratory tests. No liability can be accepted for conditions which have not been revealed by the fieldworks, for example, between exploratory positions. While this Report may offer opinions on the possible configuration of strata, both between the excavations and below the maximum depth achieved by the investigation, these comments are for guidance only and no liability can be accepted for their accuracy. The data obtained relate to the conditions which are relevant at the time of the investigation.

The groundwater observations entered on exploratory records are those noted at the time of the investigation. The normal rate of progress does not usually permit the recording of any equilibrium water level for any one water strike. It should be noted that groundwater levels are prone to seasonal variation and to changes in local drainage conditions. The word 'none' indicates that groundwater was sealed off by the borehole casing or that no water was observed in the exploratory hole upon completion.

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REPORT REF: 22/12498/KJC
CONTRACT: QUEENS ROAD, WIMBLEDON

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1 INTRODUCTION

The Client proposes to construct a small terrace of two storey dwellings following the demolition of the existing structures at 152-154 Queens Road, Wimbledon ("the site"). Consequently, a site investigation has been undertaken in order to ascertain the nature and engineering properties of the soils underlying the proposed development site and to obtain data which will assist in the formulation of a safe and economical foundation solution. In addition, a geo-environmental appraisal of the site has also been carried out. At the time of the site works, the site was in use as an MOT and motor repairs service centre with the existing buildings still present.

The programme of this investigation comprised the construction of five boreholes using hand-held window sampling techniques. Diamond coring of the existing surface concrete was completed at a number of the investigatory locations. During this work samples were recovered for further examination and laboratory testing. In addition, a number of in situ hand shear vane tests were also performed. This report describes the work undertaken, presents the information obtained and discusses the ground conditions with respect to foundation design, construction and potential contamination.

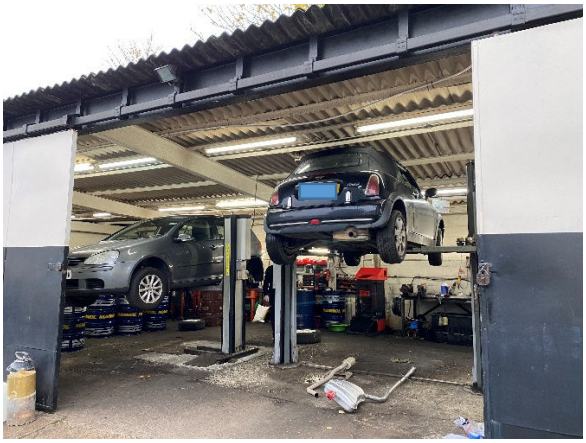
2 FIELDWORKS

2.1 Site Works

The boreholes were constructed on 29th November 2022 at locations as shown on the site plan, drawing no. 22/12498/1, which is presented as Figure 1. The exploratory positions were located in order to provide adequate site coverage taking in to account site constraints and the proposed layout. Diamond coring of the surface concrete was completed at the location of boreholes 1 and 4 to penetrate the concrete slabs at these positions within the existing buildings.

The depths and descriptions of the strata encountered in the boreholes are given on the records which comprise Appendix 1 to this report. These records note the depths at which samples were taken, the results of in situ tests and the groundwater observations noted at the time of the fieldworks.

Photographs which give a general impression of the site at the time of the fieldworks are included below.



3 GROUND CONDITIONS

3.1 Geology

Reference has been made to the published 1:50,000 scale British Geological Survey (BGS) mapping of the area. The site is indicated as being underlain by the London Clay Formation of Eocene age. Superficial deposits comprising Head of recent or Quaternary age are noted to overlie the London Clay Formation to the north and south.

3.2 Stratigraphy

Consideration of the borehole records indicates that concrete or macadam are present at surface at the investigatory locations which extend to depths of between 0.1m and 0.2m. Made ground varying from dark grey clinker/ash/sand to dark grey/brown silty clay were encountered upon penetration of the surface layer and were shown to extend to depths of between 0.6m and 0.9m.

Grey organic silty clay which oxidises to a brown colouration on exposure was observed beneath the made ground in borehole 3 and extends to 1.50m. The geological origin of this soil is unclear.

Brown silty clay with grey veining, typical of the weathered zone of the London Clay Formation, was present below the made ground and organic soils and was proved to the full depth of this investigation at 3.1m and 4.1m.

3.3 Groundwater

During the construction of the exploratory positions groundwater strikes were encountered at 2.6m and 3m, with the exception of borehole 1 which remained dry throughout. Short-term standing water levels upon completion of boreholes 2 to 5 of between 2.6m and 3.5m were recorded.

3.4 In Situ Testing

Hand shear vane tests were conducted using the Geonor Shear Vane test equipment. Shear strengths corrected for plasticity effects ranging from 70kPa to 205kPa have been established, which represent a firm to very stiff in situ condition for a purely cohesive soil.

During the sampling of the near surface soils measurement of soil vapours [VOC] was carried out on the samples of the soils taken using a PhoCheck Tiger PID meter. The composite sample is placed within a sealed plastic bag with a limited air space (headspace) which allows vapours to enter following agitation of the sample bag. The headspace is then measured using the PID meter and the results recorded in ppm as an indicative total VOC. The maximum TVOC recorded during this work was 6.5ppm, which is typical of normal background concentrations. Moreover, no visual or olfactory evidence of contamination was apparent during the sampling.

4 LABORATORY TESTING

A programme of laboratory testing has been undertaken and the results are presented as Appendix 2 to this report. The geotechnical soil testing was undertaken by Albury S.I. Ltd, whilst representative samples were submitted for geochemical testing at the UKAS accredited laboratories operated by i2 Analytical Ltd. Each type of test is summarised below and the results obtained have been used to assist in the formulation of the discussion.

4.1 Water Content

The water contents of samples of the soils encountered at this site have been determined. Water contents within the range 25.7% to 37.0% have been recorded.

4.2 Index Properties

The liquid and plastic limits of samples of the clay soils have been determined. The results of this work indicate that the samples tested can generally be described as inorganic clays of high to very high plasticity and of medium to high shrinkage potential.

4.3 Chemical Testing – Soluble Sulphates & pH

Samples of the soils and groundwater encountered at this site have been subjected to chemical analyses in order to determine their soluble sulphate contents and pH values. Under the conditions of this work low to moderate concentrations of soluble sulphate have been recorded in association with near neutral pH values.

4.4 Geochemical Testing

Selected samples of the made ground have been submitted to the UKAS accredited laboratories operated by i2 Analytical Ltd. The testing comprises a suite of typical inorganic and organic priority contaminants including metals, PAH, TPH CWG and an asbestos screen.

5 GEOTECHNICAL DISCUSSION

5.1 Foundations

The Client proposes to construct a short terrace of 3 no two storey houses following demolition of the existing motor garage. The proposed layout is shown in Figure 2. At the time of the preparation of this report the anticipated structural loads were not known.

It cannot be recommended that major structural foundations be located within the made ground revealed by this investigation. Soils of this origin are frequently present in a weak and variable condition such that unacceptable settlement could occur even under the action of light loading intensities. Therefore, it will be necessary to continue foundation excavations through these undesirable materials where they are of less than 1.00m in thickness to this minimum depth in order to avoid that zone of soil which is subject to normal seasonal moisture variation or frost action. The above precautions need not necessarily be applied to light ancillary structures, which will be formed structurally discrete from the main development and in which a greater degree of settlement can be tolerated.

It is known that a number of trees are present in the vicinity to the north of the proposed structures. A discussion of the causes, effects and classification of desiccation in clay soils is included in Appendix 3 to this report. Consideration of the results of the laboratory testing indicates that moisture deficiency is present within the near surface soils at depth of 1.5m and 2m. Hence, foundations will have to be located within moisture stable soils at a depth of 2.5m. Moreover, NHBC criteria should be adopted in the design of foundations on the basis that the soils are of high shrinkage potential.

Interpretation of the data derived from this investigation indicates that strip or spread foundations, constructed in accordance with the above recommendation, can be designed to accept a maximum increase in load of 150kPa. At this loading intensity a factor of safety of 3 against general shear failure will be operative. Moreover, settlements should remain within tolerable limits for the type of structure proposed. These movements are likely to occur over an extended period of time due to the highly plastic nature of the underlying soils.

Alternatively, consideration could be given to piles. The design of piles lies outside the scope of this report as it is dependent upon the type of pile employed, its size and bearing capacity. Therefore, when the loadings are known it will be sensible to seek the advice of suitably experienced specialist piling contractors in order to provide a satisfactory solution to the problem. The information given in Appendices 1 and 2 of this report may be used in pile design. It is likely that a deep borehole will be required in order to provide suitable pile design parameters.

5.2 Stability of Excavations

Excavations of less than 1.00m depth should not require temporary support to their sides. However, as foundation excavations will have to be extended below this level, adequate temporary support or shoring should be provided in order to comply with current statutory safety regulations and to maintain the stability of the excavation sides.

5.3 Groundwater

The groundwater observations noted at the time of the fieldworks suggest that this phenomenon should not represent an engineering problem. It is considered that only limited quantities of groundwater are likely to be encountered which can be dealt with by constructing sumps from which the water can be pumped.

It should be appreciated that the London Clay Formation will deteriorate rapidly in the presence of groundwater in the unconfined state. Where this situation is likely to arise it would be advisable to apply a blinding layer of leanmix concrete to the bases of excavations.

5.4 Drainage

The near surface drainage characteristics of the underlying soils have not been specifically considered as part of this investigation. However, the presence of the underlying London Clay Formation, which is highly plastic, is unlikely to act as a suitable drainage medium. Hence, alternative means of disposal of surface water run-off will need to be considered.

5.5 Ground Floor Slabs

The thickness of made ground revealed by this investigation, commonly in excess of 0.60m, and the presence of moisture deficiency infers that a system of fully suspended floor slabs should be incorporated within the proposed structures in accordance with NHBC criteria.

5.6 Buried Concrete

The information obtained from this investigation has been compared with the criteria proposed in BRE Special Digest 1, 2005 Edition, Concrete in Aggressive Ground. Using the information in Table C1 of this publication the Aggressive Chemical Environment for Concrete Classification (ACEC) is AC-2, which coincides with a Design Sulphate Class DS-2. The ACEC Class above can be used to determine the Design Chemical Class for concrete for general cast-in-situ use as required Part D of the Digest.

6 GROUND CONTAMINATION

6.1 Human Health

A generic assessment of the chronic or long-term risk to human health from soil contamination has been made using the available generic screening criteria. The screening values include the Category 4 Screening Levels [C4SLs] (DEFRA, 2014) and Suitable for Use Levels [S4ULs] (LQM/CIEH, 2014) derived using the CLEA software. It should be appreciated that these do not consider the short-term or acute risks, such as to construction workers or SI personnel.

The results have been compared against the available GAC for the Residential land-use category. A study of the data reveals elevated levels of the PAH species benzo(a)pyrene and dibenz(a,h)anthracene in boreholes 2 to 5. Beryllium and lead were also noted in boreholes 1, 2 and 4. The beryllium level was 6.8mg/kg compared to the S4UL GAC of 1.7mg/kg. The reported lead levels were 280mg/kg and 320mg/kg, compared to the C4SL GAC of 200mg/kg.

Therefore, it is recommended that remedial measures are implemented in proposed areas of soft landscaping. It is recommended that 600mm of soil is removed and replaced by clean topsoil and subsoil. It would be prudent to incorporate a high visibility membrane at the base of the imported soil. A formal remedial method statement should be anticipated as part of this redevelopment for agreement with the Local Authority and if relevant, the warranty provider.

6.2 Preliminary Waste Assessment

It is likely that, if excavated soils cannot be re-used or retained on site, these surplus materials will require off-site disposal. It may be possible to divert the unwanted material to a soil treatment hub where it can be recycled. Where material cannot be re-used or recycled then disposal at a licensed landfill site can be considered. It will then be necessary to classify the spoil as inert, non-hazardous or hazardous. A discussion of the current regime for the classification and treatment of waste soils is included in Appendix 4.

An initial assessment of the geochemical results obtained from this investigation has been carried out to provide a preliminary classification of the surplus materials. The output from the HazWaste Online assessment is located in Appendix 4. Based on the output waste soil arisings from this site have been tentatively identified as being non-hazardous waste.

This assessment is preliminary and based upon the information obtained from the investigation. Where made ground is excavated then these materials should be stockpiled and segregated. Further sampling, testing and characterisation to accurately classify waste soil arisings may be required. It should be appreciated that it is the responsibility of the waste producer to sufficiently characterise their waste. Moreover, the agreement of the waste acceptor should be sought.

If hazardous material is to be disposed at a licensed waste landfill site, then supplementary waste acceptance criteria [WAC] testing may also be required. Confirmation should be sought from the relevant licensed waste handler or landfill operator.

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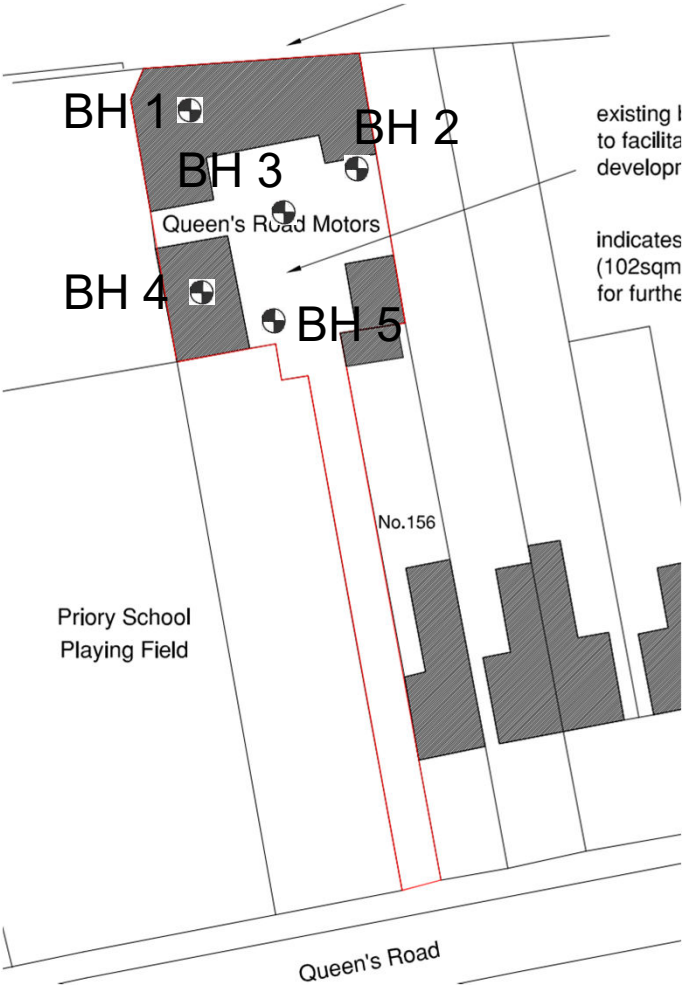
LIST OF ABBREVIATIONS

AOD	-	Above Ordnance Datum
ACM	-	Asbestos-containing Material
AST	-	Above-ground Storage Tank
BGS	-	British Geological Survey
BH	-	Borehole
BRE	-	Building Research Establishment
BSI	-	British Standards Institution
BS	-	British Standard
C4SL	-	Category Four Screening Level
CIRIA	-	Construction Industry Research and Information Association
CP	-	Cable Percussive
DPH	-	Dynamic Probing Heavy
DPSH	-	Dynamic Probing Super Heavy
EA	-	Environment Agency
GAC	-	Generic Assessment Criteria
LL	-	Liquid Limit
mAOD	-	Metres Above Ordnance Datum
mBGL	-	Metres Below Ground Level
mOD	-	Metres Ordnance Datum
OS	-	Ordnance Survey
PAH	-	Polycyclic Aromatic Hydrocarbons
PCB	-	Polychlorinated Biphenyl
PID	-	Photo Ionisation Detector
PL	-	Plastic Limit
PSD	-	Particle Size Distribution
SGV	-	Soil Guideline Value
SOM	-	Soil Organic Matter
SPT	-	Standard Penetration Test
SPZ	-	Source Protection Zone
SVOC	-	Semi-volatile Organic Compounds
TPH	-	Total Petroleum Hydrocarbon
UST	-	Underground Storage Tank
UXB	-	Unexploded Bombs
UXO	-	Unexploded Ordnance
VOC	-	Volatile Organic Compound

FIGURE 1

SITE LAYOUT PLAN



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Client:	Sanford Developments (Wimbledon) Ltd
Contract:	Queens Road, Wimbledon
Job Ref:	22/12498/KJC
Scale:	NTS
Revision:	0
Issue Date:	03/01/2023

Legend:

- Borehole Location
- Trial Pit Location
- Site Boundary

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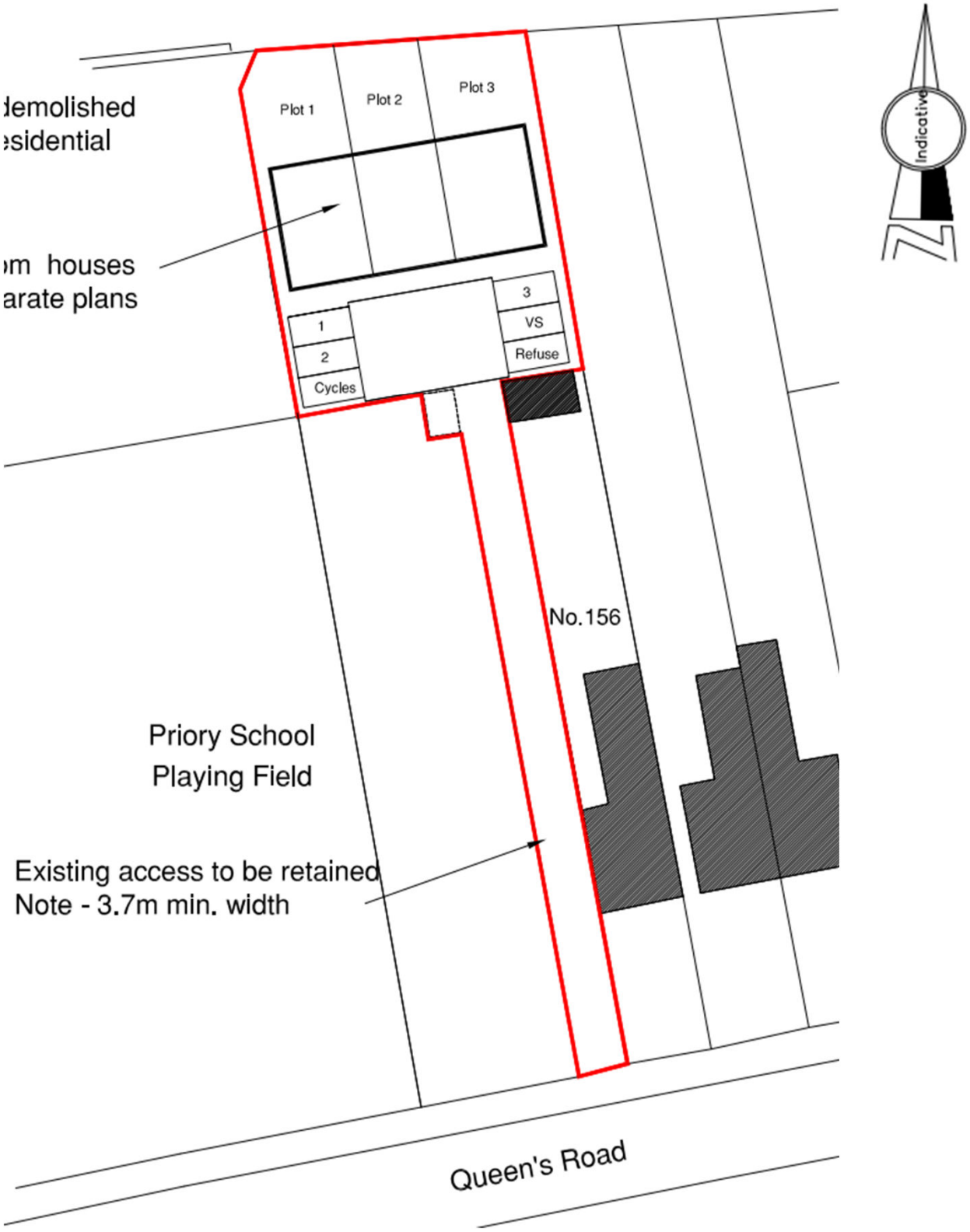
FIGURE 2

PROPOSED LAYOUT



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Dwg No:	22/12498/2
Client:	Sanford Developments (Wimbledon) Ltd
Contract:	Queens Road, Wimbledon
Job Ref:	22/12498/KJC
Scale:	NTS
Revision:	0
Issue Date:	03/01/2023

Legend:

- Borehole Location
- Trial Pit Location
- Site Boundary

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APPENDIX 1

EXPLORATORY RECORDS

ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH		**BOREHOLE**	1
Contract	Queens Road, Wimbledon	**Report Ref**	22/12498/KJC
Client	Sanford Developments (Wimbledon) Ltd	**Date**	29/11/2022
Site Address	152-154 Queens Road, Wimbledon, Greater London SW19 8LX	**Ground Level**	

Type of excavator	Window Sampler	**Water level after completion, m**	dry

Water strikes, m		**Dimensions, m**		**Ease of excavation, m**		
1	none	Diameter	0.06	Very easy		Difficult
2				Moderate	GL-3.10	Very hard

Remarks
No visual or olfactory evidence of contamination noted.

Samples or tests		Shear Strength kPa	PID TVOC ppm	Depth m	Legend	Strata Description
Type	Depth, m					
D	0.20		0.6	0.15		MADE GROUND (concrete)
						MADE GROUND (dark grey CLINKER/ASH/SAND)
				0.40		
D	0.50		0.4			MADE GROUND (grey sandy CLAY with gravel and brick fragments)
				0.90		
D	1.00	70	0			Firm orange-brown/brown silty CLAY
				1.30		
D	1.50	100				Stiff brown silty CLAY with grey veining
D	2.00	120				
D	2.50					
D	3.00					
				3.10		END OF BOREHOLE

Sample Code: B - Large Disturbed D - Small Disturbed W - Water Sample R - Root Sample T - Tube Sample

ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH		**BOREHOLE**	**2**
Contract	Queens Road, Wimbledon	**Report Ref**	22/12498/KJC
Client	Sanford Developments (Wimbledon) Ltd	**Date**	29/11/2022
Site Address	152-154 Queens Road, Wimbledon, Greater London SW19 8LX	**Ground Level**	
Type of excavator	Window Sampler	**Water level after completion, m**	3.00

Water strikes, m		Dimensions, m		Ease of excavation, m		
1	3.00	Diameter	0.06	Very easy		Difficult
2				Moderate	GL-3.10	Very hard

Remarks
No visual or olfactory evidence of contamination noted.

Samples or tests		Shear Strength kPa	PID TVOC ppm	Depth m	Legend	Strata Description
Type	Depth, m					
				0.20		MADE GROUND (reinforced concrete)
D	0.25		0.1			MADE GROUND (dark grey clayey SAND with gravel and brick fragments)
D	0.50		0.1			
				0.80		
D	1.00	85	0.4			Stiff orange-brown/brown silty CLAY
				1.40		
D	1.50	155				Very stiff brown silty CLAY
D	2.00	180				
				2.40		
D	2.50					Brown silty CLAY with grey veining
D	3.00			3.10		Calcareous nodule @2m
						END OF BOREHOLE

Sample Code: B - Large Disturbed D - Small Disturbed W - Water Sample R - Root Sample T - Tube Sample

ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH		**BOREHOLE**	**3**
Contract	Queens Road, Wimbledon	**Report Ref**	22/12498/KJC
Client	Sanford Developments (Wimbledon) Ltd	**Date**	29/11/2022
Site Address	152-154 Queens Road, Wimbledon, Greater London SW19 8LX	**Ground Level**	

Type of excavator	Window Sampler	**Water level after completion, m**	2.60

Water strikes, m		**Dimensions, m**		**Ease of excavation, m**		
1	3.00	Diameter	0.06	Very easy	Difficult	GL-4.10
2				Moderate	Very hard	

Remarks
No visual or olfactory evidence of contamination noted.

Samples or tests		Shear Strength kPa	PID TVOC ppm	Depth m	Legend	Strata Description
Type	Depth, m					
				0.10		MADE GROUND (macadam)
D	0.20		6.5			MADE GROUND (grey SAND with gravel and brick fragments)
D	0.30		2.7	0.30		MADE GROUND (grey clayey SAND AND GRAVEL with brick and ash fragments)
D	0.50		1.1	0.50		MADE GROUND (dark grey/brown silty CLAY)
				0.80		Stiff grey organic silty CLAY; oxidises to a brown colouration on exposure
D	1.00	85	0			
D	1.50	160		1.50		Very stiff brown silty CLAY
D	2.00	185				
				2.30		Brown silty CLAY with grey veining
D	2.50					
D	3.00					
D	3.50					
D	4.00					
				4.10		END OF BOREHOLE
W	(2.60)					

Sample Code: B - Large Disturbed D - Small Disturbed W - Water Sample R - Root Sample T - Tube Sample

ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH		**BOREHOLE**	**4**
Contract	Queens Road, Wimbledon	**Report Ref**	22/12498/KJC
Client	Sanford Developments (Wimbledon) Ltd	**Date**	29/11/2022
Site Address	152-154 Queens Road, Wimbledon, Greater London SW19 8LX	**Ground Level**	

Type of excavator	Window Sampler	**Water level after completion, m**	2.80

Water strikes, m		**Dimensions, m**		**Ease of excavation, m**		
1	2.60	Diameter	0.06	Very easy		Difficult
2				Moderate	GL-3.10	Very hard

Remarks
No visual or olfactory evidence of contamination noted.

Samples or tests		**Shear Strength kPa**	**PID TVOC ppm**	**Depth m**	**Legend**	**Strata Description**
Type	**Depth, m**					
				0.20		MADE GROUND (concrete)
D	0.25		0.1			MADE GROUND (dark brown/grey sandy CLAY with gravel and brick fragments)
D	0.50		0	0.60		
D	0.70		0			Orange-brown silty CLAY
D	1.00	75	0	1.00		Stiff to very stiff brown silty CLAY
D	1.50	180				
D	2.00	205				
D	2.50					
D	3.00			3.10		END OF BOREHOLE

Sample Code: B - Large Disturbed D - Small Disturbed W - Water Sample R - Root Sample T - Tube Sample

ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH		**BOREHOLE**	**5**
Contract	Queens Road, Wimbledon	**Report Ref**	22/12498/KJC
Client	Sanford Developments (Wimbledon) Ltd	**Date**	29/11/2022
Site Address	152-154 Queens Road, Wimbledon, Greater London SW19 8LX	**Ground Level**	

Type of excavator	Window Sampler	**Water level after completion, m**	3.50

Water strikes, m		**Dimensions, m**		**Ease of excavation, m**			
1	3.00	Diameter	0.06	Very easy		Difficult	1.00-1.40
2				Moderate	GL-1.00, 1.40-4.10	Very hard	

Remarks
No visual or olfactory evidence of contamination noted.

Samples or tests		Shear Strength kPa	PID TVOC ppm	Depth m	Legend	Strata Description
Type	**Depth, m**					
						MADE GROUND (concrete)
D	0.20		0.1	0.15		
D	0.30		0.2	0.25		MADE GROUND (light brown silty SAND with gravel and roots)
D	0.50		0.2	0.60		MADE GROUND (dark brown clayey SAND with gravel and brick; becoming dark brown silty CLAY)
						Stiff to very stiff brown silty CLAY
D	0.75		0.1			
D	1.00	150	0.1			
D	1.50	170				
D	2.00	190		2.20		Brown silty CLAY with grey veining
D	2.50					
D	3.00					
D	3.50					
D	4.00			4.10		END OF BOREHOLE

Sample Code: B - Large Disturbed D - Small Disturbed W - Water Sample R - Root Sample T - Tube Sample

APPENDIX 2

LABORATORY TEST RESULTS

INDEX PROPERTIES AND WATER CONTENTS

BS 1377 : Part 2 : 1990

Report Ref	22/12498/KJC	**Contract**	Queens Road, Wimbledon

BH/TP No.	Sample		Water Content W %	Liquid Limit W_L %	Plastic Limit W_P %	Plasticity Index IP %	% Passing 425 Micron Sieve	Corrected Plasticity Index IPc %	Soil Classification	Remarks
	Depth m	Description								
BH 1	1.00	Orange-brown/brown silty clay	37.0	82	28	54	100	54	CV	
	1.50	Brown silty clay with grey veining	30.4							
	2.00	Brown silty clay with grey veining	27.7	59	24	35	100	35	CH	
	2.50	Brown silty clay with grey veining	28.5							
	3.00	Brown silty clay with grey veining	28.9							
BH 2	1.00	Orange-brown/brown silty clay	29.7	59	22	37	100	37	CH	
	1.50	Brown silty clay	28.1							
	2.00	Brown silty clay	26.5	53	22	31	98	30	CH	
	2.50	Brown silty clay with grey veining	28.2							
	3.00	Brown silty clay with grey veining	29.4							
BH 3	1.00	Grey organic silty clay; oxidises to a brown colouration on exposure	33.8	78	26	52	100	52	CV	

KEY: *Soil Type:* **C** - Clay **M** - Silt **O** - Organic **NP** - Non Plastic

Plasticity: **L** - Low **I** - Intermediate **H** - High **V** - Very High **E** - Extremely High

INDEX PROPERTIES AND WATER CONTENTS

BS 1377 : Part 2 : 1990

Report Ref	22/12498/KJC	**Contract**	Queens Road, Wimbledon	*Continuation Sheet*	*1*

BH/TP No.	Sample		Water Content W %	Liquid Limit W_L %	Plastic Limit W_P %	Plasticity Index IP %	% Passing 425 Micron Sieve	Corrected Plasticity Index IPc %	Soil Classification	Remarks
	Depth m	Description								
BH 3	1.50	Brown silty clay	27.2							
	2.00	Brown silty clay	25.7	53	23	30	100	30	CH	
	2.50	Brown silty clay with grey veining	33.9							
	3.00	Brown silty clay with grey veining	29.5							
BH 4	1.00	Brown silty clay	33.8	79	28	51	100	51	CV	
	1.50	Brown silty clay	25.7							
	2.00	Brown silty clay	25.7	55	23	32	100	32	CH	
	2.50	Brown silty clay	30.5							
	3.00	Brown silty clay	35.1							
BH 5	1.00	Brown silty clay	38.5							
	1.50	Brown silty clay	26.6	61	24	37	100	37	CH	

KEY: *Soil Type:* **C** - Clay **M** - Silt **O** - Organic **NP** - Non Plastic

Plasticity: **L** - Low **I** - Intermediate **H** - High **V** - Very High **E** - Extremely High

INDEX PROPERTIES AND WATER CONTENTS

BS 1377 : Part 2 : 1990

Report Ref	22/12498/KJC	**Contract**	Queens Road, Wimbledon	***Continuation Sheet***	***2***

BH/TP No.	**Sample**		**Water Content W %**	**Liquid Limit W_L %**	**Plastic Limit W_P %**	**Plasticity Index IP %**	**% Passing 425 Micron Sieve**	**Corrected Plasticity Index IPc %**	**Soil Classification**	**Remarks**
	Depth m	Description								
BH 5	2.00	Brown silty clay	28.2							
	2.50	Brown silty clay with grey veining	29.6							
	3.00	Brown silty clay with grey veining	30.1							

KEY: *Soil Type:* **C** - Clay **M** - Silt **O** - Organic **NP** - Non Plastic

Plasticity: **L** - Low **I** - Intermediate **H** - High **V** - Very High **E** - Extremely High

ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH

SUMMARY OF CHEMICAL ANALYSES

Determination of Soluble Sulphate Contents of Soil and Groundwater, Organic Matter Content and pH Value

Report Ref	22/12498/KJC	**Contract**	Queens Road, Wimbledon

BH/TP No.	**Sample**			**Concentration of Sulphates expressed as SO_4**		**pH Value**	**Organic Content %**
	Depth m	Soil Type	% passing 2mm sieve	2:1 Water:Soil Extract mg/l	Groundwater mg/l		
BH1	1.50	Clay	100	<250		7.1	
BH2	1.00	Clay	100	<250		7.1	
	2.50	Clay	100	<250		8.0	
BH3	1.50	Clay	100	<250		8.4	
	2.60	Water			1215	6.8	
BH4	1.00	Clay	100	<250		7.5	
	2.00	Clay	100	<250		8.1	
BH5	1.50	Clay	100	<250		8.2	

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Analytical Report Number : 22-10488

Project / Site name:	Queens Road Wimbledon	**Samples received on:**	30/11/2022
Your job number:	22 12498 KJC	**Samples instructed on/ Analysis started on:**	30/11/2022
Your order number:	14678	**Analysis completed by:**	20/12/2022
Report Issue Number:	1	**Report issued on:**	20/12/2022
Samples Analysed:	5 soil samples		

Signed:

Joanna Wawrzeczko
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-10488
Project / Site name: Queens Road Wimbledon
Your Order No: 14678

Lab Sample Number				2517132	2517133	2517134	2517135	2517136
Sample Reference				1	2	3	4	5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.25	0.20	0.30	0.20
Date Sampled				29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	14	9.4	18	15
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE	ASE	ASE	ASE
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8	8.9	8.9	8.4	10.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	2.4	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	11000	720	1100	700	1800
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	4000	92	300	250	240
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	2	0.046	0.15	0.13	0.12
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	2020	46.2	150	126	120
Sulphide	mg/kg	1	MCERTS	29	24	89	11	8.4
Elemental Sulphur	mg/kg	5	MCERTS	160	< 5.0	31	< 5.0	< 5.0
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4.3	1.3	1.4	2.5	0.6
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.65*	0.6*	2.1*	0.27*
Acenaphthylene	mg/kg	0.05	MCERTS	0.07	3.4*	2.8*	12*	1.3*
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.19*	0.62*	0.69*	0.23*
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.51*	0.78*	2.1*	0.21*
Phenanthrene	mg/kg	0.05	MCERTS	0.37	9.6*	11*	49*	3.4*
Anthracene	mg/kg	0.05	MCERTS	0.08	3.4*	3.6*	13*	1.3*
Fluoranthene	mg/kg	0.05	MCERTS	1	38*	31*	170*	16*
Pyrene	mg/kg	0.05	MCERTS	0.97	34*	28*	150*	16*
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.7	23*	15*	88*	11*
Chrysene	mg/kg	0.05	MCERTS	0.64	18*	16*	79*	10*
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.79	25*	19*	120*	13*
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.38	7.4*	4.5*	40*	3*
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.61	19*	15*	91*	10*
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.39	12*	9*	56*	6*
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	3*	2.2*	13*	1.5*
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.45	12*	9.7*	68*	6.5*
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.55	212*	168*	943*	100*

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Analytical Report Number: 22-10488
Project / Site name: Queens Road Wimbledon
Your Order No: 14678

Lab Sample Number				2517132	2517133	2517134	2517135	2517136
Sample Reference				1	2	3	4	5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.25	0.20	0.30	0.20
Date Sampled				29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	26	17	12	17	8.5
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	6.8	1.1	0.77	1.5	0.57
Boron (water soluble)	mg/kg	0.2	MCERTS	6.6	0.9	1.5	0.6	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.5	0.7	0.4
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	22	28	19	27	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	28	19	27	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	53	39	88	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	280	100	320	58
Manganese (aqua regia extractable)	mg/kg	1	MCERTS	410	210	340	250	290
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	0.6	< 0.3	0.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	64	21	15	24	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	72	56	38	67	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	170	110	340	91
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

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Analytical Report Number: 22-10488
Project / Site name: Queens Road Wimbledon
Your Order No: 14678

Lab Sample Number				2517132	2517133	2517134	2517135	2517136
Sample Reference				1	2	3	4	5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.25	0.20	0.30	0.20
Date Sampled				29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH C6 - C40 EH_CU+HS_CU_1D_TOTAL	mg/kg	10	NONE	33	230	320	640	130
TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	8.9*	3.2*	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	10*	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	27*	< 8.0	< 8.0	40*	< 8.0
TPH-CWG - Aliphatic >EC21 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	33	< 10	< 10	50	< 10
TPH-CWG - Aliphatic > EC35 - EC44 EH_CU_1D_AL	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	11	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	NONE	27	< 10	14	54	< 10
TPH-CWG - Aliphatic (EC5 - EC44) EH_CU+HS_1D_AL	mg/kg	10	NONE	27	< 10	14	65	< 10
TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	3.2	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	13	21	7.2	2.1
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	68	82	210	33
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	130	170	330	88
TPH-CWG - Aromatic >EC21 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	150	200	360	99
TPH-CWG - Aromatic > EC35 - EC44 EH_CU_1D_AR	mg/kg	8.4	NONE	< 8.4	23	57	33	17
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	210	280	550	120
TPH-CWG - Aromatic (EC5 - EC44) EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	240	330	580	140

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

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Analytical Report Number : 22-10488
Project / Site name: Queens Road Wimbledon

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2517132	1	None Supplied	0.2	Grey sand with gravel.
2517133	2	None Supplied	0.25	Brown clay and sand with rubble and gravel
2517134	3	None Supplied	0.2	Brown clay and sand with gravel.
2517135	4	None Supplied	0.3	Brown clay and sand with gravel and brick.
2517136	5	None Supplied	0.2	Light brown clay and sand with gravel and vegetation.

Analytical Report Number : 22-10488
Project / Site name: Queens Road Wimbledon

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE

Analytical Report Number : 22-10488
Project / Site name: Queens Road Wimbledon

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

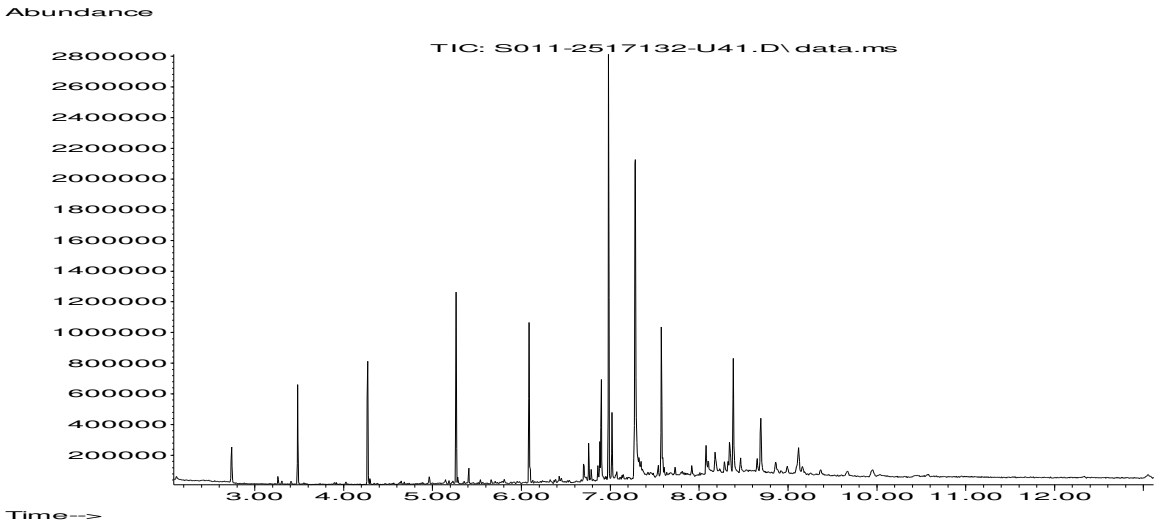
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total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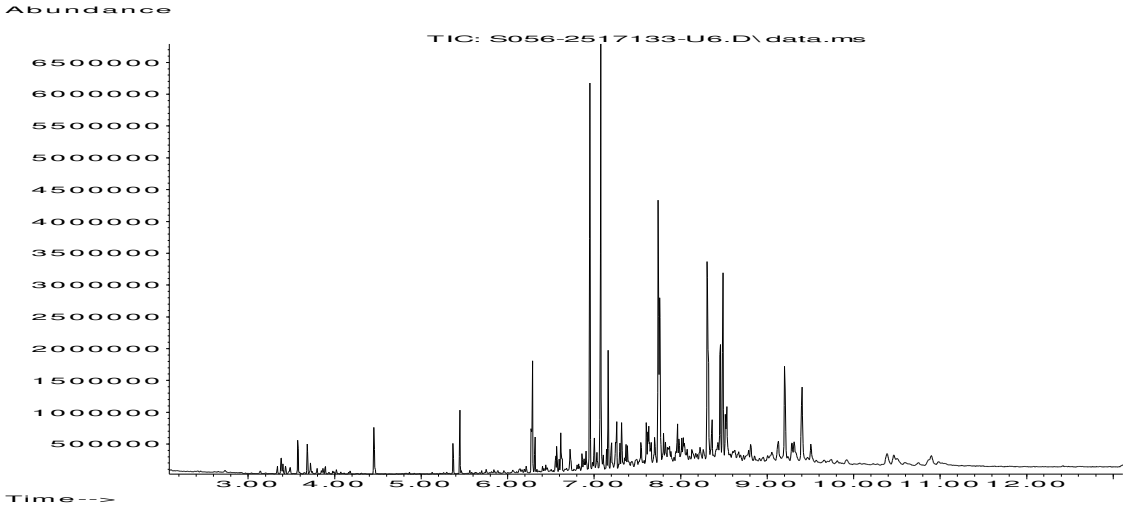
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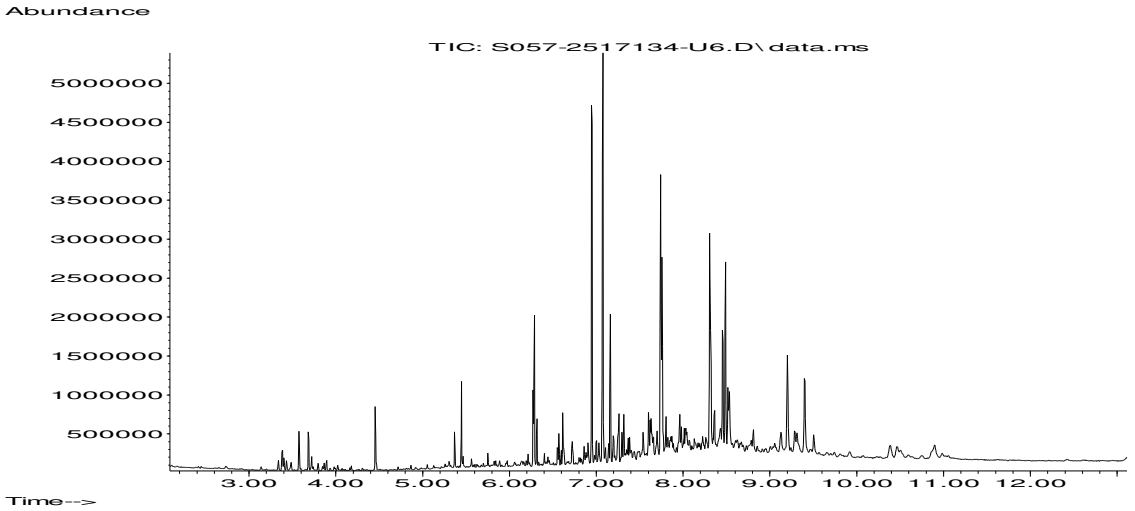
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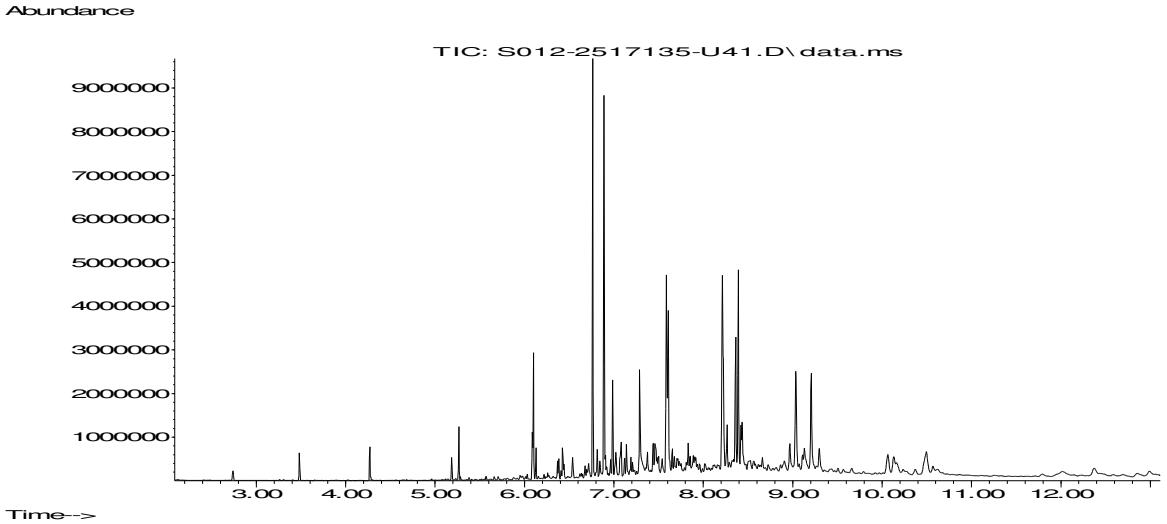
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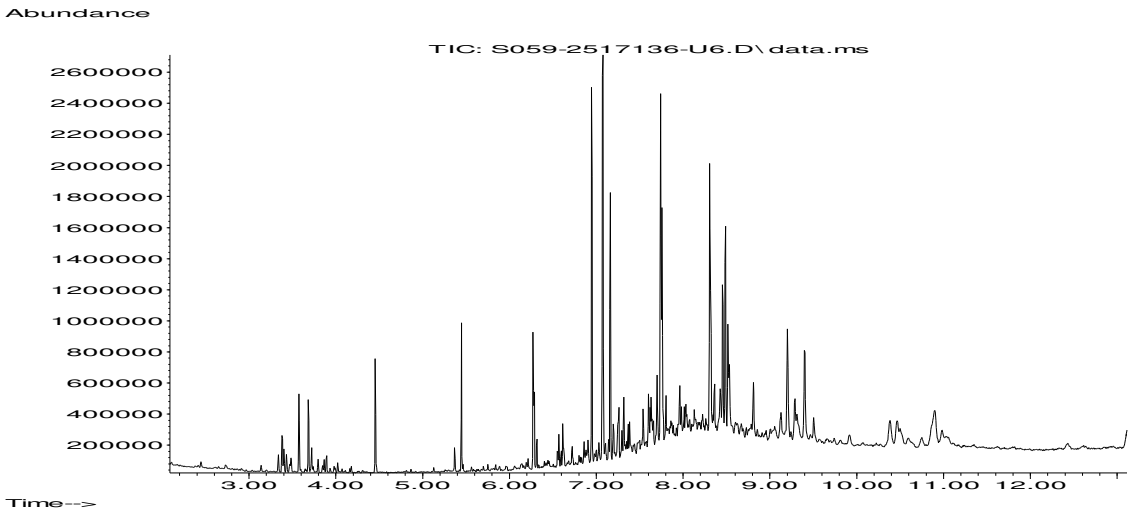
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4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
Time-->

APPENDIX 3

DESSICATION

DESICCATION

Classification

The removal of moisture from a soil as a result of external influences with a constant stress regime, results in shrinkage or settlement of the soil. The magnitude of shrinkage is dependent upon the geological stress history of the soil, its clay content and the composition of the clay minerals. Under normal climatic conditions, there is a seasonal cyclic variation in soil moisture and, hence, volume change, which extends to depths of approximately 1m. When the soil moisture deficit attains a critical value, the shrinkage of the soil can become significant. In these circumstances, the soil can be regarded as being present in a desiccated state.

Causes

A common cause of desiccation consists of the reduction in soil moisture by tree root action. In the absence of a water table at shallow depth, root action of trees will reduce the soil moisture level in order to maintain growth. In general terms, the increase in rainfall which occurs during winter periods will allow for some replacement of the moisture content of the soil, particularly where isolated or immature trees are concerned.

However, when drought summer conditions or limited winter rainfall occurs, desiccated zones will develop within the zone of influence of tree roots. In woodland, desiccation develops as it is not possible for rainfall to overcome the soil moisture deficit. Other causes of desiccation, which have created problems to structures, include incorrectly installed and insulated heating pipes or ducts and industrial processes, ie furnaces or brick kilns.

Effects

The development of desiccation in clay soils will result in an increase in strength of the material. In addition, negative pore water pressure or soil suction will develop. Any foundation system located within soil which is subject to a reduction in soil moisture can experience structural distress, which results from the loss in volume or shrinkage of the ground. Also, if the source of the desiccation is removed, there will be heave of the soils as a result of an increase in equilibrium water content

It is evident, therefore, that foundation systems founded in soils which are actively experiencing an increase or decrease in soil moisture, will be subject to either heave or settlement, which can induce stresses within the structure. It should also be appreciated that a desiccated soil, which is experiencing an increase in equilibrium water content, will attempt to increase its volume in a horizontal as well as vertical plane. It is important, therefore, to ensure that horizontal movements do not apply differential stresses to structural elements, by incorporating collapsible membranes within remedial works.

Identification

A soil in a state of equilibrium is present in a semi-solid state. At the onset of desiccation, the condition of the soil moves towards the boundary between a solid and semi-solid state, this boundary being defined as the plastic limit of the soil. It follows, therefore, that when the natural water content of a soil lies close to, or falls below, the value of the plastic limit, the soil can be considered to be desiccated.

An alternative proposal was made by Driscoll (1983), who related the soil suction induced by desiccation to a function of the liquid limit of the soil. In general terms, desiccation is assumed to be present when the moisture content falls below a level of 40% liquid limit. The arbitrary factor of 0.4 relates to a soil suction value proposed by Croney (1977) and may vary with the composition and mineralogy of different soil types. This approach is only considered to be valid over a limited depth range as the overburden effect will result in a natural reduction in soil moisture and result in the development of negative pore pressures.

A further approach, which considers the shear strength of the clay, Pugh et al (1995), recognises the fact that a reduction in soil moisture will result in an increase in undrained shear strength as well as the development of negative pore pressures. Whilst this approach has a considerable amount of merit, care is required in establishing the value of the soil's in situ shear strength, particularly if it is not possible to obtain representative "undisturbed" samples from cable percussion boreholes. The proposal made in the Pugh paper that the simple pocket penetrometer will provide accurate consistent results should be treated with care, as the pocket penetrometer can take no account of the effects of disturbance and remoulding that are inevitable when completing a trial pit with a mechanical excavator. It is for this reason that this Company attempts to establish the shear strength of clay soils by using the Geonor Field Vane. With this test equipment the appropriate-sized vane is pushed into the side of the pit, through the thin disturbed zone which is caused by the teeth of the bucket during excavation. Furthermore, by use of the 'blank' probe, it is possible to take account of any skin friction which builds up on the shaft of the vane and thus provide a more accurate assessment of the shear strength of the soils.

Hence, a combination of the methods discussed above should be considered in order to confirm whether the development of soil moisture reduction to achieve a desiccated state has occurred within a particular site. The data for affected areas should, where possible, be compared with soils which lie outside the influence of tree root bulbs and may, therefore, be considered to be present in a stable and equilibrium state.

References

Croney D (1977)	The Design and Performance of Road Pavements London HMSO pp 674
Driscoll R (1983)	The Influence of Vegetation on the Swelling and Shrinking of Clay Soils in Britain Geotechnique 33.4 pp 93-105
Pugh RS, Parnell PG and Parks RD (1995)	A rapid and reliable on site method of assessing desiccation in clay soils Geotechnical Engineering 13 Jan 1995 pp 25—30

APPENDIX 4

WASTE

WASTE CLASSIFICATION

The European Waste Framework Directive is implemented in the UK by the 2002 Landfill Regulations, together with a number of other acts and regulations. A key part of this process is to establish the hazardous properties of potential waste. The classification and definition of hazardous waste is interpreted within the Environment Agency guidance WM3 and all wastes require classifying in accordance with the European Waste Catalogue [EWC]. The EWC is a detailed list of typical industry waste types and each has a 6 digit code. Typically the appropriate EWC codes for excavated soil being disposed off site are:

17 05 03* soil and stones containing dangerous substances, or
17 05 04 soil and stones other than those mentioned in 17 05 03

If excavated soils are to be discarded or exported from site then they would be considered controlled waste and require classification. However, if soils can be re-used on site then they are not considered to be controlled waste. A Desk Study, soil descriptions, laboratory chemical analysis and risk assessment can all contribute to basic waste characterisation. Depending upon the chemical composition or levels of contaminants in the waste (e.g. metals, TPH, asbestos), soil and stones can either be hazardous or non-hazardous. Waste Acceptance Criteria [WAC] test results are used to determine the suitability of the waste intended for disposal against the acceptance criteria for a particular class of landfill site. WAC tests are not used for the classification of waste soils and are only required for inert or hazardous excavated material which is destined for landfill.

Wastes containing asbestos with a concentration of >0.10% weight/weight (w/w) are generally considered to be hazardous. While waste with <0.10% w/w of asbestos are considered non-hazardous. Where free fibres or fibrous asbestos is present at concentrations of >0.001% then these are considered to pose a risk to human health and are deemed hazardous waste. These waste materials also require a suitably licensed company to handle them.

Waste Treatment

It is a requirement of the 2002 Landfill Regulations that all wastes must undergo some form of pre-treatment prior to disposal at an appropriately licensed landfill. Treatment is defined using a 'three-point test' and can include physical, chemical, biological or thermal processes, which must change the characteristics of the waste in order to:

- reduce its volume, or
- reduce its hazardous nature, or
- facilitate its handling, or
- enhance its recovery.

The exceptions to this are:

- inert waste for which treatment is not technically feasible.
- it is waste other than inert waste and treatment would not reduce its quantity or its hazards to human health or the environment.

The waste producer should either treat their own waste or ensure that the waste will be treated by a subsequent handler. The waste producer should record the type and amount of pre-treatment undertaken prior to disposal.

Examples of treatment include mechanical segregation or sorting, compositing, soil treatment hubs and incineration. This can include physical sorting of waste soil types into separate stockpiles at the producer site, e.g. topsoil, made ground and natural clay, sand or gravels.

Waste Classification Report

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

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

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

59SDY-4R8AZ-4LLPI

Job name

22-10488_HWOL_Results

Description/Comments

residential redevelopment

Project

22/12498/KJC

Site

Queens Road, Wimbledon

Classified by

Name:
Keith Clark
Date:
21 Dec 2022 10:47 GMT
Telephone:

Company:
Albury SI Ltd
Miltons Yard, Petworth Rd
Witley
GU8 5LH

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

HazWasteOnline™ Certification: -

Course	Date
Hazardous Waste Classification	-

Purpose of classification

2 - Material Characterisation

Address of the waste

152-154 Queens Road, Wimbledon, London **Post Code** SW19 8LX

SIC for the process giving rise to the waste

Description of industry/producer giving rise to the waste

redevelopment of site

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

waste created during foundation excavation

Description of the waste

made ground

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	1--29112022-0.20		Non Hazardous		4
2	2--29112022-0.25		Non Hazardous		7
3	3--29112022-0.20		Non Hazardous		10
4	4--29112022-0.30		Non Hazardous		13
5	5--29112022-0.20		Non Hazardous		16

Related documents

#	Name	Description
1	22-10488_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Example waste stream template for contaminated soils	waste stream template used to create this Job

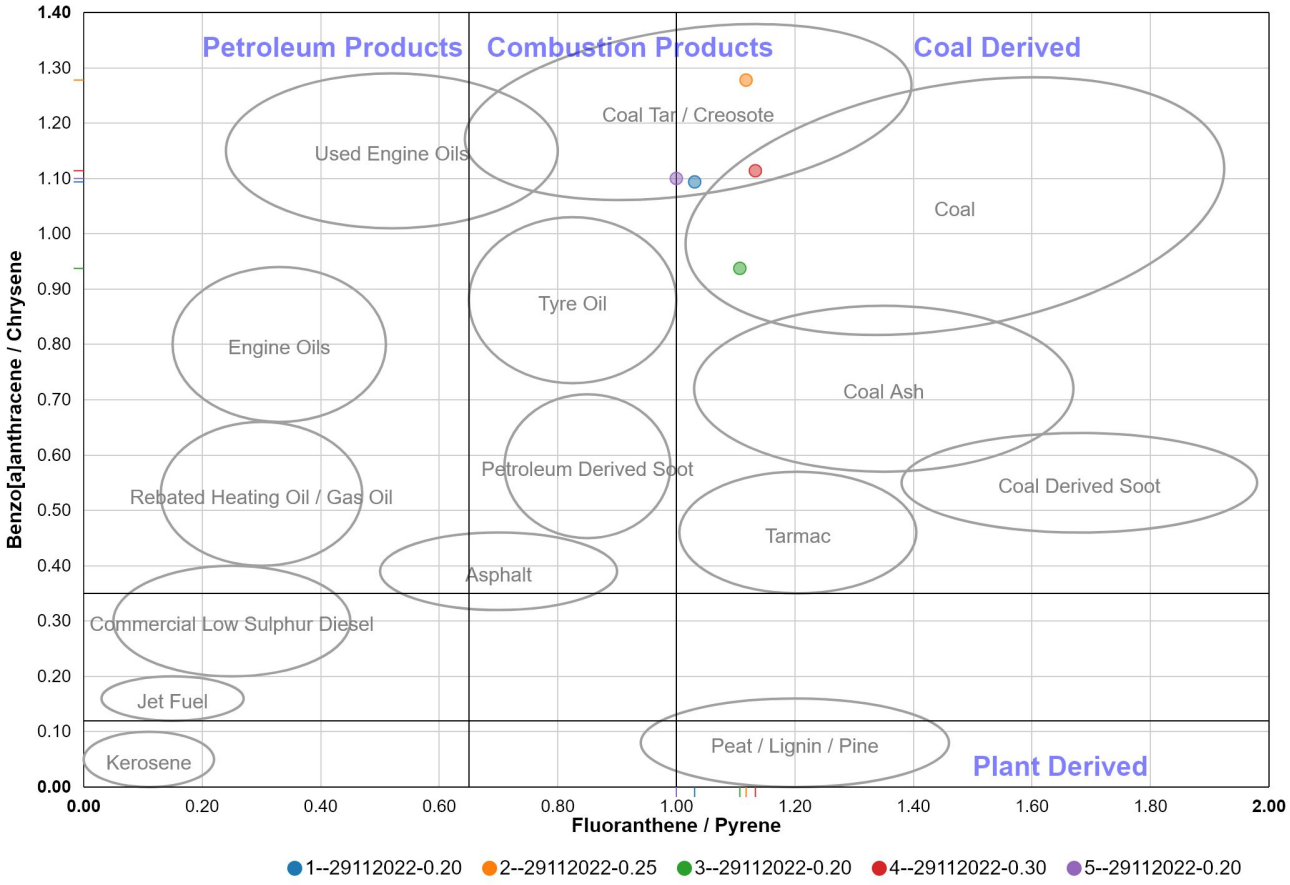
Report

Created by: Keith Clark

Created date: 21 Dec 2022 10:47 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	19
Appendix B: Rationale for selection of metal species	20
Appendix C: Version	21

Double Ratio PAH Plot



Disclaimer

The domains, oval areas and the plotted points are **indicators only** and must be combined with other lines of evidence to form conclusions. Samples marked with an empty circle are not plotted as they fall outside of the graph's boundaries.

Credits

The domains and the horizontal and vertical lines are derived from Yunker et al. 2002 (Organic Geochemistry 33, 489-515)
The oval areas and their labels are with kind permission of Jones Environmental Forensics Limited (now Element Materials Technology)

Classification of sample: 1--29112022-0.20

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

Sample details

Sample name:
1--29112022-0.20
Moisture content:
14%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		26 mg/kg	1.32	29.522 mg/kg	0.00295 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		6.8 mg/kg	2.775	16.23 mg/kg	0.00162 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		6.6 mg/kg	3.22	18.276 mg/kg	0.00183 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22 mg/kg	1.462	32.154 mg/kg	0.00322 %		
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2 mg/kg	2.27	<2.724 mg/kg	<0.000272 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		120 mg/kg	1.126	116.192 mg/kg	0.0116 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	110 mg/kg	1.56	147.559 mg/kg	0.00946 %	✓	
9	manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		410 mg/kg	2.749	969.144 mg/kg	0.0969 %	✓	
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.7 mg/kg	1.353	0.815 mg/kg	0.0000815 %	✓	
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		64 mg/kg	2.976	163.814 mg/kg	0.0164 %	✓	
12	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		140 mg/kg	1.245	149.864 mg/kg	0.015 %	✓	
14	TPH (C6 to C40) petroleum group			TPH		27 mg/kg		23.22 mg/kg	0.00232 %	✓	
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
16	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**

#		Determinand	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		toluene	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3											
18		ethylbenzene	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4											
19		xylene	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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-022-00-9											
20		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											
21		pH		PH		8	pH		8	pH	8pH		
22		naphthalene	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2											
23		acenaphthylene	205-917-1	208-96-8		0.07	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
24		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		fluorene	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		phenanthrene	201-581-5	85-01-8		0.37	mg/kg		0.318	mg/kg	0.0000318 %	✓	
27		anthracene	204-371-1	120-12-7		0.08	mg/kg		0.0688	mg/kg	0.00000688 %	✓	
28		fluoranthene	205-912-4	206-44-0		1	mg/kg		0.86	mg/kg	0.000086 %	✓	
29		pyrene	204-927-3	129-00-0		0.97	mg/kg		0.834	mg/kg	0.0000834 %	✓	
30		benzo[a]anthracene	200-280-6	56-55-3		0.7	mg/kg		0.602	mg/kg	0.0000602 %	✓	
		601-033-00-9											
31		chrysene	205-923-4	218-01-9		0.64	mg/kg		0.55	mg/kg	0.000055 %	✓	
		601-048-00-0											
32		benzo[b]fluoranthene	205-911-9	205-99-2		0.79	mg/kg		0.679	mg/kg	0.0000679 %	✓	
		601-034-00-4											
33		benzo[k]fluoranthene	205-916-6	207-08-9		0.38	mg/kg		0.327	mg/kg	0.0000327 %	✓	
		601-036-00-5											
34		benzo[a]pyrene; benzo[def]chrysene	200-028-5	50-32-8		0.61	mg/kg		0.525	mg/kg	0.0000525 %	✓	
		601-032-00-3											
35		indeno[123-cd]pyrene	205-893-2	193-39-5		0.39	mg/kg		0.335	mg/kg	0.0000335 %	✓	
36		dibenz[a,h]anthracene	200-181-8	53-70-3		0.08	mg/kg		0.0688	mg/kg	0.00000688 %	✓	
		601-041-00-2											
37		benzo[ghi]perylene	205-883-8	191-24-2		0.45	mg/kg		0.387	mg/kg	0.0000387 %	✓	
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
39		vanadium { divanadium pentaoxide; vanadium pentoxide }	215-239-8	1314-62-1		72	mg/kg	1.785	110.539	mg/kg	0.0111 %	✓	
		023-001-00-8											
40		sulfur { sulfur }	231-722-6	7704-34-9		160	mg/kg		137.6	mg/kg	0.0138 %	✓	
		016-094-00-1											
										Total:	0.188 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 wm3 example

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00232%)

Classification of sample: 2--29112022-0.25

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

Sample details

Sample name:
2--29112022-0.25
Moisture content:
14%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17 mg/kg	1.32	19.303 mg/kg	0.00193 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.1 mg/kg	2.775	2.625 mg/kg	0.000263 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.9 mg/kg	3.22	2.492 mg/kg	0.000249 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		28 mg/kg	1.462	40.924 mg/kg	0.00409 %		
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2 mg/kg	2.27	<2.724 mg/kg	<0.000272 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		53 mg/kg	1.126	51.318 mg/kg	0.00513 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	280 mg/kg	1.56	375.603 mg/kg	0.0241 %	✓	
9	manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		210 mg/kg	2.749	496.391 mg/kg	0.0496 %	✓	
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.6 mg/kg	1.353	0.698 mg/kg	0.0000698 %	✓	
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21 mg/kg	2.976	53.751 mg/kg	0.00538 %	✓	
12	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<**LOD**
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		170 mg/kg	1.245	181.977 mg/kg	0.0182 %	✓	
14	TPH (C6 to C40) petroleum group			TPH		240 mg/kg		206.4 mg/kg	0.0206 %	✓	
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**
16	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
19		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
21		pH			PH		8.9	pH		8.9	pH	8.9 pH		
22		naphthalene	601-052-00-2	202-049-5	91-20-3		0.65	mg/kg		0.559	mg/kg	0.0000559 %	✓	
23		acenaphthylene		205-917-1	208-96-8		3.4	mg/kg		2.924	mg/kg	0.000292 %	✓	
24		acenaphthene		201-469-6	83-32-9		0.19	mg/kg		0.163	mg/kg	0.0000163 %	✓	
25		fluorene		201-695-5	86-73-7		0.51	mg/kg		0.439	mg/kg	0.0000439 %	✓	
26		phenanthrene		201-581-5	85-01-8		9.6	mg/kg		8.256	mg/kg	0.000826 %	✓	
27		anthracene		204-371-1	120-12-7		3.4	mg/kg		2.924	mg/kg	0.000292 %	✓	
28		fluoranthene		205-912-4	206-44-0		38	mg/kg		32.68	mg/kg	0.00327 %	✓	
29		pyrene		204-927-3	129-00-0		34	mg/kg		29.24	mg/kg	0.00292 %	✓	
30		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		23	mg/kg		19.78	mg/kg	0.00198 %	✓	
31		chrysene	601-048-00-0	205-923-4	218-01-9		18	mg/kg		15.48	mg/kg	0.00155 %	✓	
32		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		25	mg/kg		21.5	mg/kg	0.00215 %	✓	
33		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		7.4	mg/kg		6.364	mg/kg	0.000636 %	✓	
34		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		19	mg/kg		16.34	mg/kg	0.00163 %	✓	
35		indeno[123-cd]pyrene		205-893-2	193-39-5		12	mg/kg		10.32	mg/kg	0.00103 %	✓	
36		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		3	mg/kg		2.58	mg/kg	0.000258 %	✓	
37		benzo[ghi]perylene		205-883-8	191-24-2		12	mg/kg		10.32	mg/kg	0.00103 %	✓	
38		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
39		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		56	mg/kg	1.785	85.975	mg/kg	0.0086 %	✓	
40		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
											Total:	0.158 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - 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 wm3 example

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0206%)

Classification of sample: 3--29112022-0.20

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

Sample details

Sample name:
3--29112022-0.20
Moisture content:
9.4%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 9.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12 mg/kg	1.32	14.355 mg/kg	0.00144 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.77 mg/kg	2.775	1.936 mg/kg	0.000194 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.5 mg/kg	3.22	4.376 mg/kg	0.000438 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.5 mg/kg	1.142	0.517 mg/kg	0.0000517 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2 mg/kg	2.27	<2.724 mg/kg	<0.000272 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		39 mg/kg	1.126	39.782 mg/kg	0.00398 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	100 mg/kg	1.56	141.319 mg/kg	0.00906 %	✓	
9	manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		340 mg/kg	2.749	846.668 mg/kg	0.0847 %	✓	
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		15 mg/kg	2.976	40.447 mg/kg	0.00404 %	✓	
12	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		110 mg/kg	1.245	124.048 mg/kg	0.0124 %	✓	
14	TPH (C6 to C40) petroleum group			TPH		344 mg/kg		311.664 mg/kg	0.0312 %	✓	
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
19		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
21		pH			PH		8.9	pH		8.9	pH	8.9 pH		
22		naphthalene	601-052-00-2	202-049-5	91-20-3		0.6	mg/kg		0.544	mg/kg	0.0000544 %	✓	
23		acenaphthylene		205-917-1	208-96-8		2.8	mg/kg		2.537	mg/kg	0.000254 %	✓	
24		acenaphthene		201-469-6	83-32-9		0.62	mg/kg		0.562	mg/kg	0.0000562 %	✓	
25		fluorene		201-695-5	86-73-7		0.78	mg/kg		0.707	mg/kg	0.0000707 %	✓	
26		phenanthrene		201-581-5	85-01-8		11	mg/kg		9.966	mg/kg	0.000997 %	✓	
27		anthracene		204-371-1	120-12-7		3.6	mg/kg		3.262	mg/kg	0.000326 %	✓	
28		fluoranthene		205-912-4	206-44-0		31	mg/kg		28.086	mg/kg	0.00281 %	✓	
29		pyrene		204-927-3	129-00-0		28	mg/kg		25.368	mg/kg	0.00254 %	✓	
30		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		15	mg/kg		13.59	mg/kg	0.00136 %	✓	
31		chrysene	601-048-00-0	205-923-4	218-01-9		16	mg/kg		14.496	mg/kg	0.00145 %	✓	
32		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		19	mg/kg		17.214	mg/kg	0.00172 %	✓	
33		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		4.5	mg/kg		4.077	mg/kg	0.000408 %	✓	
34		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		15	mg/kg		13.59	mg/kg	0.00136 %	✓	
35		indeno[123-cd]pyrene		205-893-2	193-39-5		9	mg/kg		8.154	mg/kg	0.000815 %	✓	
36		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		2.2	mg/kg		1.993	mg/kg	0.000199 %	✓	
37		benzo[ghi]perylene		205-883-8	191-24-2		9.7	mg/kg		8.788	mg/kg	0.000879 %	✓	
38		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
39		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		38	mg/kg	1.785	61.46	mg/kg	0.00615 %	✓	
40		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		31	mg/kg		28.086	mg/kg	0.00281 %	✓	
											Total:	0.175 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 wm3 example

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0312%)

Classification of sample: 4--29112022-0.30

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

Sample details

Sample name:
4--29112022-0.30
Moisture content:
18%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		17	mg/kg	1.32	18.405	mg/kg	0.00184 %	✓	
2		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.5	mg/kg	2.775	3.414	mg/kg	0.000341 %	✓	
3		boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.6	mg/kg	3.22	1.584	mg/kg	0.000158 %	✓	
4		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7	mg/kg	1.142	0.656	mg/kg	0.0000656 %	✓	
5		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27	mg/kg	1.462	39.462	mg/kg	0.00395 %		
6		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2	mg/kg	2.27	<2.724	mg/kg	<0.000272 %		<**LOD**
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		88	mg/kg	1.126	81.244	mg/kg	0.00812 %	✓	
8		lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	320	mg/kg	1.56	409.295	mg/kg	0.0262 %	✓	
9		manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		250	mg/kg	2.749	563.456	mg/kg	0.0563 %	✓	
10		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.6	mg/kg	1.353	0.666	mg/kg	0.0000666 %	✓	
11		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		24	mg/kg	2.976	58.573	mg/kg	0.00586 %	✓	
12		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
13		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		340	mg/kg	1.245	347.026	mg/kg	0.0347 %	✓	
14		TPH (C6 to C40) petroleum group			TPH		645	mg/kg		528.9	mg/kg	0.0529 %	✓	
15		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
16		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
19		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				2.4	mg/kg	1.884	4.522	mg/kg	0.000452 %		
21		pH			PH		8.4	pH		8.4	pH	8.4 pH		
22		naphthalene	601-052-00-2	202-049-5	91-20-3		2.1	mg/kg		1.722	mg/kg	0.000172 %	✓	
23		acenaphthylene		205-917-1	208-96-8		12	mg/kg		9.84	mg/kg	0.000984 %	✓	
24		acenaphthene		201-469-6	83-32-9		0.69	mg/kg		0.566	mg/kg	0.0000566 %	✓	
25		fluorene		201-695-5	86-73-7		2.1	mg/kg		1.722	mg/kg	0.000172 %	✓	
26		phenanthrene		201-581-5	85-01-8		49	mg/kg		40.18	mg/kg	0.00402 %	✓	
27		anthracene		204-371-1	120-12-7		13	mg/kg		10.66	mg/kg	0.00107 %	✓	
28		fluoranthene		205-912-4	206-44-0		170	mg/kg		139.4	mg/kg	0.0139 %	✓	
29		pyrene		204-927-3	129-00-0		150	mg/kg		123	mg/kg	0.0123 %	✓	
30		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		88	mg/kg		72.16	mg/kg	0.00722 %	✓	
31		chrysene	601-048-00-0	205-923-4	218-01-9		79	mg/kg		64.78	mg/kg	0.00648 %	✓	
32		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		120	mg/kg		98.4	mg/kg	0.00984 %	✓	
33		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		40	mg/kg		32.8	mg/kg	0.00328 %	✓	
34		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		91	mg/kg		74.62	mg/kg	0.00746 %	✓	
35		indeno[123-cd]pyrene		205-893-2	193-39-5		56	mg/kg		45.92	mg/kg	0.00459 %	✓	
36		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		13	mg/kg		10.66	mg/kg	0.00107 %	✓	
37		benzo[ghi]perylene		205-883-8	191-24-2		68	mg/kg		55.76	mg/kg	0.00558 %	✓	
38		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
39		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		67	mg/kg	1.785	98.078	mg/kg	0.00981 %	✓	
40		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
											Total:	0.28 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 wm3 example

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0529%)

Classification of sample: 5--29112022-0.20

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

Sample details

Sample name:
5--29112022-0.20
Moisture content:
15%
(wet weight correction)

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

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.5 mg/kg	1.32	9.539 mg/kg	0.000954 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.57 mg/kg	2.775	1.345 mg/kg	0.000134 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.4 mg/kg	3.22	1.095 mg/kg	0.000109 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4 mg/kg	1.142	0.388 mg/kg	0.0000388 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
6	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.2 mg/kg	2.27	<2.724 mg/kg	<0.000272 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	28.71 mg/kg	0.00287 %	✓	
8	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	58 mg/kg	1.56	76.899 mg/kg	0.00493 %	✓	
9	manganese { manganese sulphate }	025-003-00-4	232-089-9	7785-87-7		290 mg/kg	2.749	677.521 mg/kg	0.0678 %	✓	
10	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
11	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12 mg/kg	2.976	30.358 mg/kg	0.00304 %	✓	
12	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
13	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		91 mg/kg	1.245	96.279 mg/kg	0.00963 %	✓	
14	TPH (C6 to C40) petroleum group			TPH		140 mg/kg		119 mg/kg	0.0119 %	✓	
15	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
16	benzene	601-020-00-8	200-753-7	71-43-2		<0.005 mg/kg		<0.005 mg/kg	<0.0000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
18		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
19		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]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
20		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
21		pH			PH		10.1	pH		10.1	pH	10.1 pH		
22		naphthalene	601-052-00-2	202-049-5	91-20-3		0.27	mg/kg		0.23	mg/kg	0.000023 %	✓	
23		acenaphthylene		205-917-1	208-96-8		1.3	mg/kg		1.105	mg/kg	0.000111 %	✓	
24		acenaphthene		201-469-6	83-32-9		0.23	mg/kg		0.196	mg/kg	0.0000196 %	✓	
25		fluorene		201-695-5	86-73-7		0.21	mg/kg		0.179	mg/kg	0.0000179 %	✓	
26		phenanthrene		201-581-5	85-01-8		3.4	mg/kg		2.89	mg/kg	0.000289 %	✓	
27		anthracene		204-371-1	120-12-7		1.3	mg/kg		1.105	mg/kg	0.000111 %	✓	
28		fluoranthene		205-912-4	206-44-0		16	mg/kg		13.6	mg/kg	0.00136 %	✓	
29		pyrene		204-927-3	129-00-0		16	mg/kg		13.6	mg/kg	0.00136 %	✓	
30		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		11	mg/kg		9.35	mg/kg	0.000935 %	✓	
31		chrysene	601-048-00-0	205-923-4	218-01-9		10	mg/kg		8.5	mg/kg	0.00085 %	✓	
32		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		13	mg/kg		11.05	mg/kg	0.00111 %	✓	
33		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		3	mg/kg		2.55	mg/kg	0.000255 %	✓	
34		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		10	mg/kg		8.5	mg/kg	0.00085 %	✓	
35		indeno[123-cd]pyrene		205-893-2	193-39-5		6	mg/kg		5.1	mg/kg	0.00051 %	✓	
36		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		1.5	mg/kg		1.275	mg/kg	0.000127 %	✓	
37		benzo[ghi]perylene		205-883-8	191-24-2		6.5	mg/kg		5.525	mg/kg	0.000553 %	✓	
38		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
39		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		31	mg/kg	1.785	47.04	mg/kg	0.0047 %	✓	
40		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<5	mg/kg		<5	mg/kg	<0.0005 %		<**LOD**
											Total:	0.119 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
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 wm3 example

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0119%)

Appendix A: Classifier defined and non GB MCL determinands

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

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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

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

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

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 £ conc. < 3 % , Eye Irrit. 2; H319 1 £ conc. < 3 % , Aquatic Chronic 2; H411

- **divanadium pentaoxide; vanadium pentoxide** (EC Number: 215-239-8, CAS Number: 1314-62-1)

GB MCL index number: 023-001-00-8
Description/Comments:
Additional Hazard Statement(s): Carc. 1B; H350 , Acute Tox. 3; H301 , Acute Tox. 2; H330
Reason for additional Hazards Statement(s):
20 Sep 2022 - Carc. 1B; H350 hazard statement sourced from: ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be Carc. 1B; H350. The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List]. Substance has therefore been self-classified.
28 Sep 2022 - Acute Tox. 3; H301 hazard statement sourced from: ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be "Acute tox 3; H301". The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List]. Substance has therefore been self-classified.
28 Sep 2022 - Acute Tox. 2; H330 hazard statement sourced from: ATP 18 (Regulation (EU) 2022/692) considers vanadium pentoxide to be "Acute tox 2; H330". The GB MCL Agency has reached the same opinion [but is yet to formerly make this change to the MCL List]. Substance has therefore been self-classified.

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

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

beryllium {beryllium oxide}

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

boron {diboron trioxide; boric oxide}

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

cadmium {cadmium oxide}

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

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

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

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

manganese {manganese sulphate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc oxide}

no chromium vi

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)

vanadium {divanadium pentaoxide; vanadium pentoxide}

worst case

sulfur {sulfur}

worst case

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2022.354.5456.10119 (20 Dec 2022)
HazWasteOnline Database: 2022.354.5456.10119 (20 Dec 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