SOUTH WEST GEOTECHNICAL
Unit 3 Brooklands Howden Road Tiverton Devon EX16 5HW
t: 01884 252444 e: mail@swgeotech.co.uk

Our ref: 15598 Paignton Academy

Your ref:

Torbay Development Agency
Via e-mail

Attention: Batout Bestanji

7 February 2024

Dear Sir

Paignton Academy

Further to the fieldwork undertaken on the site on 21 December 2023, we now write to discuss the findings.

Introduction
It is proposed to construct a single storey building on a similar footprint to an existing temporary classroom building, which is to be demolished. The purpose of this investigation is to determine ground conditions to assist with foundation design for the new building.

Geology
The bedrock geology at the site comprises the Torbay Breccia Formation. These materials are weakly cemented breccia, that tends to weather to a combination of sandy silt and silty sand near surface.

A geological fault is shown a short distance to the south of the site. This downthrows the Torbay Breccia materials to be in contact with the older Meadfoot Group. Faults result in brittle deformation of the bedrock and the engineering properties of faulted rocks tend to be poorer than unfaulted materials. Faults result in deep weathering of rocks and typically act as conduits for groundwater.

Fieldwork
Three window sample boreholes with Standard Penetration Test (SPTs) were undertaken at the locations shown on the attached plan. The boreholes were positioned at accessible locations to give maximum coverage around the proposed development, whilst causing minimal disruption to the premises and avoiding underground services.

Ground Conditions
The strata encountered in the exploratory holes have been summarised in Table 1.

Table 1: Strata Encountered

Stratum	Depth Range Recorded (m BGL)
Topsoil	0.2
Residual Soil	1.6->5.45
Torbay Breccia	>1.6->4.0
Groundwater	Not encountered

Surface coverings of topsoil were encountered across the site. Beneath the topsoil, soils derived from the weathering of the Torbay Breccia were encountered comprising firm and stiff consistency, sandy, very gravelly silt.

The upper surface of the Torbay Breccia was encountered at depths of 1.6m in WS01 and 4.0m in WS02, comprising extremely weak breccia.

Groundwater was not encountered.

SPTs were undertaken at regular intervals in the boreholes. In the soils, the N values typically range from 6 to 11 (average 8) in the two boreholes undertaken in the vicinity of the proposed building (WS02 and 03), with effective refusal (N = >50) only recorded where the bedrock was encountered. The N values recorded in the soils are lower than would be expected based on the consistency of the materials.

Laboratory Testing

Two Liquid and Plastic (Atterberg) Limit tests were undertaken on the more cohesive soils, and indicate the materials are low to intermediate (CL/CI) plasticity and negligible volume change potential in accordance with NHBC (2024) guidance. The soils are silt and therefore will be prone to loss of strength on wetting up.

Three particle size distribution sieves and pipettes undertaken on the materials. These indicate the fines (clay and silt) content range from 26 to 47% indicating the materials will predominantly behave as cohesive materials.

pH concentrations of between 7.9 and 10.3 were recorded in the soils, with a characteristic pH of 8.1. Soluble sulphate concentrations of less than 0.5 g/l were recorded.

Groundwater is expected to be mobile.

On this basis, concrete should be designed to a Design Sulphate Class of DS-1, and ACEC Class AC-1 (BRE Digest SD1, 2005).

Geotechnical Recommendations

Although the soils appear, based on the consistency, to have reasonable strength, the variability of the materials (ranging from silt to sand), means the strength / density of the materials is relatively low, based on the SPT N values. Therefore, shallow foundations up to a maximum of 1.0m wide, formed in the residual soils can be designed on an allowable bearing capacity of 75 kN/m^2. Alternatively piled foundations would be required if higher bearing capacities are required. Further investigation works will be needed to inform pile design.

Settlement of these foundations should be less than 25mm.

Any loose material should be removed prior to pouring of concrete. Should foundations be stepped to account for changes in topography, steps should not be higher than the thickness of the strip foundation and should not exceed 0.5m in height.

All foundation excavation bases should be inspected by a qualified and experienced engineer to ensure consistency.

The negligible volume change potential of the cohesive soils mean that a ground bearing floor could be utilised, although it is noted that the site is in an area where full radon protection measures are required. Therefore, a suspended floor is expected to be necessary.

Waste Assessment

One sample of natural soils was submitted for Waste Acceptance Criteria (leachate) testing and three samples of natural soils were submitted for solids parameter testing. The full laboratory reports are enclosed. The solid parameter test results were assessed for hazardous – non-hazardous classification using HazWasteOnline™.

The results of the HazWastOnline™ assessment indicate that the materials can be considered as non-hazardous waste, classified as 17 05 04 in the European Waste Catalogue (EWC) List of Waste.

The results of the WAC test indicate that the material would be considered as Inert Waste Landfill.

Any facility that is chosen to take the material should be supplied with the attached results / assessment to ensure compliance with their own permit. This assessment alone does not allow for a receiving facility to make judgement on acceptance.

Conclusions

Shallow foundations up to a maximum of 1.0m wide, formed in the residual soils can be designed on an allowable bearing capacity of 75 kN/m^2. Alternatively piled foundations would be required if higher bearing capacities are required. Further investigation works will be needed to inform pile design.

Concrete should be designed to a Design Sulphate Class of DS-1, and ACEC Class AC-1.

The results of the HazWastOnline™ assessment indicate that the materials can be considered as non-hazardous waste, classified as 17 05 04 in the European Waste Catalogue (EWC) List of Waste.

The results of the WAC test indicate that the material would be considered as Inert Waste Landfill.

We trust this information is sufficient for your requirements. Please feel free to contact us if you have any questions.

Toby Eick
BSc FGS
Graduate Engineering Geologist

Ben Ogden
CGeol MSc BSc FGS
Principal

Encs:

Exploratory Hole Location Plan
Exploratory Hole Logs and Photos
Laboratory Testing Results

286900E

286950E

287000E

59900N

59850N

59800N

WS01

WS02

WS03

Torbay
Breccia
Formation

Geological
Fault

Meadfoot
Group

Narcie's Sewing
Alterations
Clothing
alteration service

0 10 20 m

N

Plan Legend:

Paignton Academy

Exploratory Hole Location Plan

SIZE:	JOB NO:	DWG NO:	REV:
A3	15598	Fig No. 1	1

SCALE: 1:500	10/01/2024	SHEET 1 OF 1

SOUTH WEST GEOTECHNICAL

South West Geotechnical Ltd,
Unit 3 Brooklands, Howden Road,
Tiverton, Devon.
EX16 5HW
01884 252 444

SOUTH WEST GEOTECHNICAL
Web: www.swgeotech.co.uk
Email: mail@swgeotech.co.uk
Phone: 01884 252444

Site	Number
Paignton Academy	WS01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			TDA	15598
	Location	**Dates** 21/12/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Red/ brownish slighly sandy, gravelly, silty, CLAY.		
					0.20	Soft ro firm red slightly sandy, very gravelly, SILT. Gravel is fine to coarse subangular to angular mudstone, sandstone and quartz. RESIDUAL SOIL		
0.50	ES							
0.60	D							
					(1.40)			
1.00-1.45	SPT N=4		1,0/0,0,3,1					
1.20	ES							
1.50	D							
					1.60			
1.60-2.05	SPT N=50		6,8/12,18,20		(0.35)	Extremely weak, red BRECCIA. Gravel is fine to coarse angular to sub angular sandstone and mudstone. TORBAY BRECCIA FORMATION		
					1.95	Complete at 1.95m		

Remarks
1. No water found.

Scale (approx)	Logged By
1:25	TE

Figure No. 15598.WS01

SOUTH WEST GEOTECHNICAL
Web: www.swgeotech.co.uk
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Phone: 01884 252444

Site	Number
Paignton Academy	WS02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			TDA	15598
	Location	**Dates** 21/12/2023	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Red/ brownish slighly sandy, gravelly, silty, CLAY.		
					0.20	Firm to stiff red brown, sandy, very gravelly SILT. Tending in part to clayey sandy gravel. Gravel is fine to medium sub-angular to rounded of varying lithologies. RESIDUAL SOIL		
0.60	ES							
0.80	D							
1.00-1.45	SPT N=8		2,1/2,2,2,2					
1.40	ES							
1.70	D							
2.00-2.45	SPT N=7		2,2/2,1,2,2		(3.80)			
2.40	D							
3.00-3.45	SPT N=7		1,1/1,2,2,2					
3.50	D							
4.00-4.42	SPT 50/270		1,1/11,39		4.00	Extremely weak red brown BRECCIA. TORBAY BRECCIA FORMATION		
					(0.40)			
					4.40	Complete at 4.40m		

Remarks
1. No water found.

Scale (approx)	Logged By
1:25	TE

Figure No. 15598.WS02

SOUTH WEST GEOTECHNICAL
Web: www.swgeotech.co.uk
Email: mail@swgeotech.co.uk
Phone: 01884 252444

Site	Number
Paignton Academy	WS03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			TDA	15598
	Location	**Dates** 21/12/2023	**Engineer**	**Sheet** 1/2

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	TOPSOIL: Red/ brownish slighly sandy, gravelly, silty, CLAY.		
					0.20	Firm to stiff red slightly sandy, very gravelly, SILT. Gravel is fine to medium subrounded to sub angular mudstone and sandstone. RESIDUAL SOIL		
0.50	ES							
0.80	D							
1.00-1.45	SPT N=6		2,1/2,2,1,1					
					(2.50)			
1.50	ES							
1.60	D							
2.00-2.45	SPT N=8		1,3/2,1,2,3					
					2.70			
2.80	D					Medium dense red silty, clayey, sandy, GRAVEL. Gravel is fine to coarse sub rounded to sub angular mudstone. REDISDUAL SOIL		
3.00-3.45	SPT N=10		1,1/3,2,2,3					
					(1.10)			
3.40	D							
					3.80			
4.00-4.45	SPT N=10		1,2/2,2,3,3			Stiff red slightly sandy, slightly gravelly, silty, CLAY. Gravel is fine to medium subrounded to sub angular mudstone and sandstone. RESIDUAL SOIL		
4.60	D				(1.65)			
5.00-5.45	SPT N=11		2,3/4,2,3,2					

Remarks
1. No water found. 2.Collapsed at 4m back to 2m.

Scale (approx)	Logged By
1:25	TE

Figure No. 15598.WS03

SOUTH WEST GEOTECHNICAL	Web: www.swgeotech.co.uk Email: mail@swgeotech.co.uk Phone: 01884 252444	**Site** Paignton Academy	**Number** **WS03**
Excavation Method Drive-in Windowless Sampler	**Dimensions**	**Ground Level (mOD)**	**Client** TDA	**Job Number** 15598
	Location	**Dates** 21/12/2023	**Engineer**	**Sheet** 2/2

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						... as previous		
					5.45	Complete at 5.45m		

Remarks	Scale (approx)	Logged By
	1:25	TE
	Figure No. 15598.WS03	

EXCAVATIONS: Window Samples

WS01

WS02

WS03

Test Report

South West Geotechnical Ltd
Unit 3 Brooklands,
Howden Road,
Tiverton,
Devon
EX16 5HW

Job No:	15598	**Date Received:**	04/01/24
Job Name:	Paignton Academy	**Date Sent:**	07/02/24
Client Name:	South West Geotechnical Ltd	**Transmittal Number:**	T9054
Client Job No:	-	**Senders Initials:**	DT
Client Address	Unit 3 Brooklands, Howden Road, Tiverton, Devon, EX16 5HW	**Report Revision No.**	1
		Sampled by SWG lab staff?	NO

Ref.	Test Detail	No. of Tests / Report No.
A1	BS EN ISO 17892-1: 2014 - Water Content - UKAS Accredited	2
A5	BS EN ISO 17892-12: 2018 - Atterberg Limits - UKAS Accredited	2
A9	BS EN ISO 17892-4:2016: Clause 5.2 Sieving method - Determination of Particle Size Distribution - UKAS Accredited	3
A10	BS EN ISO 17892-4:2016: Clause 5.4 Pipette method - Determination of Particle Size Distribution - UKAS Accredited	3

Sampling not performed by South West Geotechnical laboratory staff. Results apply to the samples as received.

Approved Signatories:

David Trowbridge (Laboratory Manager)

Matt Stokes (Senior Technician)

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Accredited to ISO/IEC 17025:2017

Summary of Classification Test Results

Unit 3 Brooklands,
Howden Road,
Tiverton,
Devon
EX16 5HW

Project No.	Project Name
15598	Paignton Academy
Client Job No.	**Client**
-	South West Geotechnical Ltd

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17025:2017

Hole No.	Sample				Soil Description	*wc*	Passing 425µm	LL	PL	PI	Particle density	Remarks
	Type	Top	Base	Ref		%	%	%	%	%	Mg/m3	
WS01	D	0.60			Reddish brown slightly sandy silty clayey GRAVEL	18.1	46 - Sieved	37	21	16	-	
WS01	D	1.50			Reddish brown slightly sandy silty clayey GRAVEL	16.5	38 - Sieved	34	21	13	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	
						-	-	-	-	-	-	

Preparation in accordance with BS1377-1:2016 where applicable. Atterberg 4 point preparation in accordance with BS EN ISO 17892-12:2018

Key

Atterberg Limits
4pt - BS EN ISO 17892-12:2018
(30° cone and increasing water contents) unless :

1pt - BS1377-2:1990 (CL.4.4)

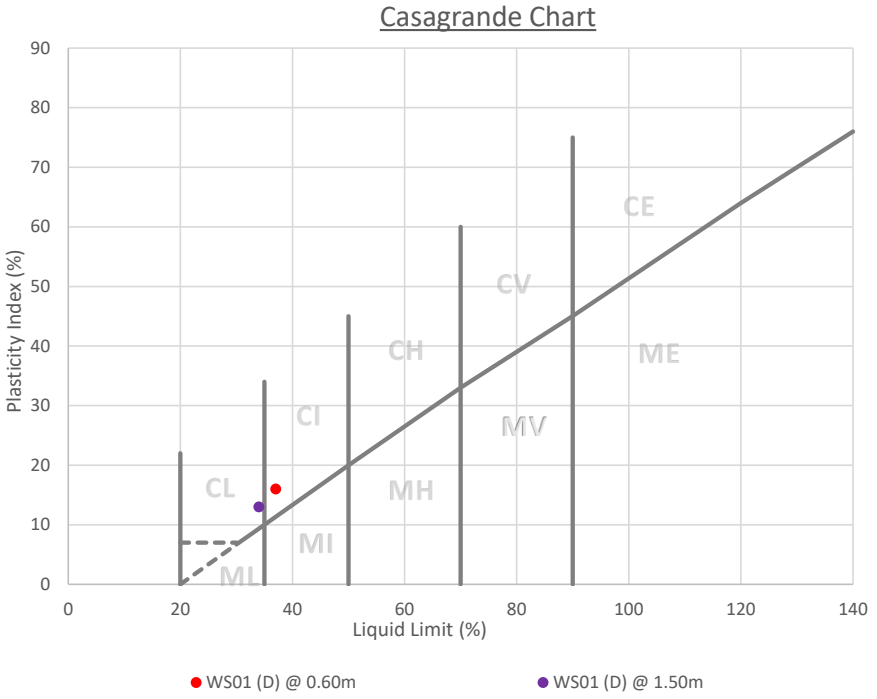
Water Content (wc) % BS EN ISO 17892-1:2014
Particle density BS1377-2:1990
sp - small pyknometer CL.8.3
gj - gas jar CL.8.2

Date	Approved By	Page No.	1
07/02/2024	David Trowbridge - Laboratory Manager	KL001R Index Summary	

Graphical Summary of Atterberg Test Results

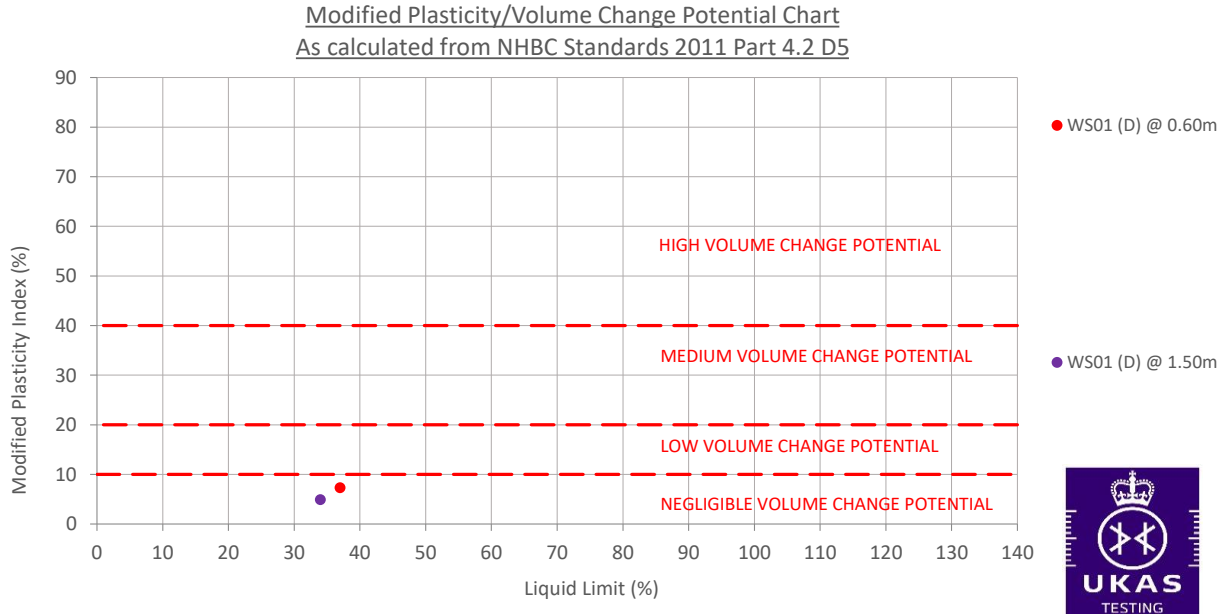
Unit 3 Brooklands,
Howden Road,
Tiverton,
Devon
EX16 5HW

Project No.	Project Name
15598	Paignton Academy
Client Job No.	**Client**
-	South West Geotechnical Ltd



Sample ID	Plasticity Index (%)	Modified Plasticity Index (%)
WS01 (D) @ 0.60m	16	7
WS01 (D) @ 1.50m	13	5
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

The Modified Plasticity Index (I'p) is defined as the Plasticity Index (Ip) of the soil multiplied by the percentage of particles less than 425µm.
ie. I'p x % less than 425um/100%



KL001a Index Graphical Summary	Approved By	Date
	David Trowbridge - Laboratory Manager	07/02/2024 11:53

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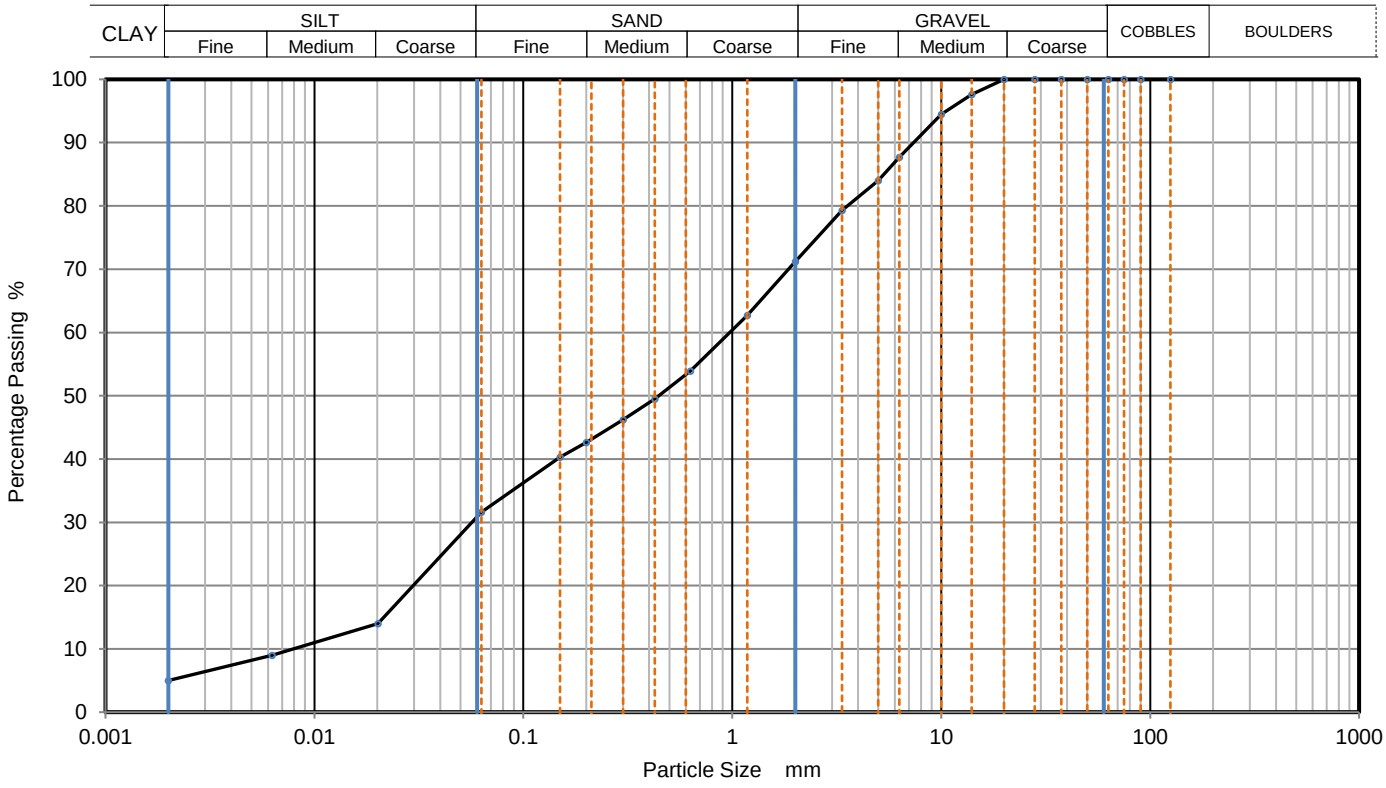
PARTICLE SIZE DISTRIBUTION

Project No.	15598		
Borehole/Pit No.	WS02		
Project Name	Paignton Academy	Sample No.	
Soil Description	Reddish brown very gravelly very silty clayey SAND	Depth, m	1.70
Specimen Reference	3	Specimen Depth	m
Sample Type	D		
Test Method	BS EN ISO 17892-4: 2016, clauses 5.2 & 5.4		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0201	14
90	100	0.0063	9
75	100	0.0020	5
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	95		
6.3	88		
5	84		
3.35	79		
2	71		
1.18	63		
0.63	54	Particle density	(assumed)
0.425	50	2.65	Mg/m3
0.3	46		
0.2	43		
0.15	40		
0.063	32		

Dry Mass of sample, g	741

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	40
Silt	27
Clay	5

Grading Analysis		
D100	mm	
D60	mm	0.974
D30	mm	0.0567
D10	mm	0.00773
Uniformity Coefficient		130
Curvature Coefficient		0.43

Remarks

Preparation and testing in accordance with BS EN ISO 17892-4: 2016

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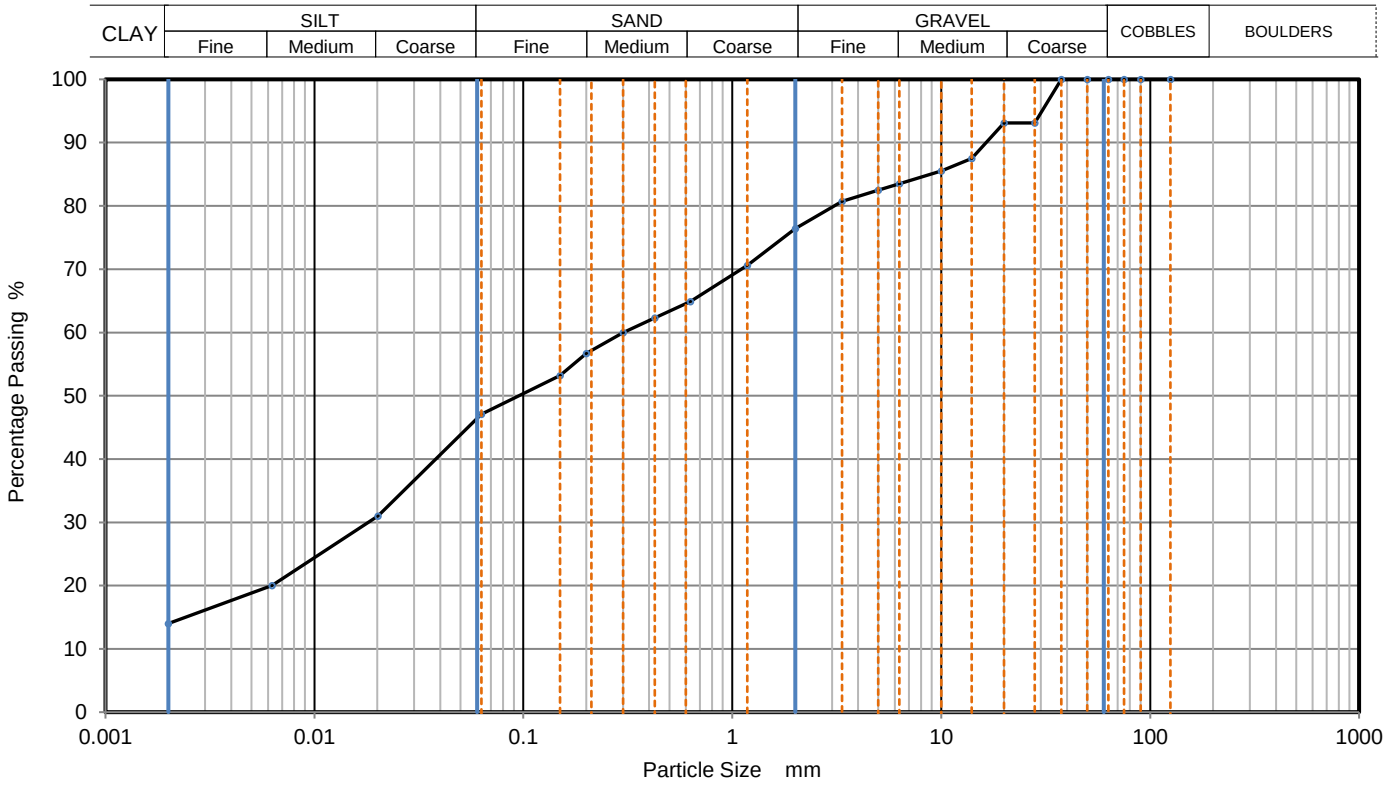
Approved by	Date	Sheet ID:
David Trowbridge - Laboratory Manager	24/01/2024	KL002R PSD

PARTICLE SIZE DISTRIBUTION

Project No.	15598		
Borehole/Pit No.	WS03		
Project Name	Paignton Academy	Sample No.	
Soil Description	Orangish brown slightly gravelly slightly sandy slightly clayey SILT	Depth, m	0.80
Specimen Reference	3	Specimen Depth	m
Sample Type	D		
Test Method	BS EN ISO 17892-4: 2016, clauses 5.2 & 5.4		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0201	31
90	100	0.0063	20
75	100	0.0020	14
63	100		
50	100		
37.5	100		
28	93		
20	93		
14	88		
10	86		
6.3	84		
5	83		
3.35	81		
2	76		
1.18	71		
0.63	65	Particle density 2.65	(assumed) Mg/m3
0.425	62		
0.3	60		
0.2	57		
0.15	53		
0.063	47		

Dry Mass of sample, g	811

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	29
Silt	33
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.299
D30	mm	0.0185
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS EN ISO 17892-4: 2016

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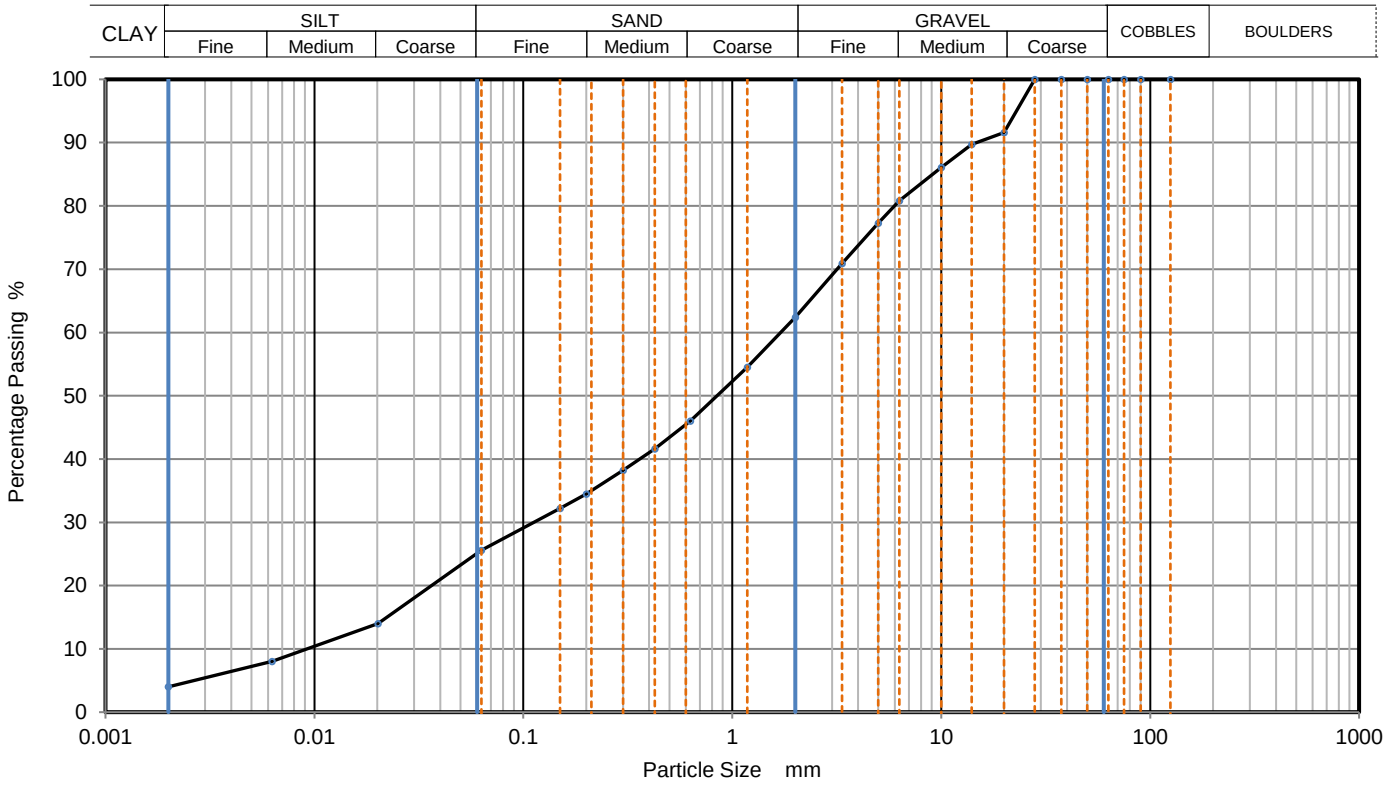
Approved by	Date	Sheet ID:
David Trowbridge - Laboratory Manager	24/01/2024	KL002R PSD

PARTICLE SIZE DISTRIBUTION

Project No.	15598		
Borehole/Pit No.	WS03		
Project Name	Paignton Academy	Sample No.	
Soil Description	Reddish brown very sandy very silty slightly clayey GRAVEL	Depth, m	2.80
Specimen Reference	3	Specimen Depth	m
Sample Type	D		
Test Method	BS EN ISO 17892-4: 2016, clauses 5.2 & 5.4		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0201	14
90	100	0.0063	8
75	100	0.0020	4
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	90		
10	86		
6.3	81		
5	77		
3.35	71		
2	62		
1.18	55		
0.63	46	Particle density 2.65	(assumed) Mg/m3
0.425	42		
0.3	38		
0.2	35		
0.15	32		
0.063	26		

Dry Mass of sample, g	643

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	37
Silt	22
Clay	4

Grading Analysis		
D100	mm	
D60	mm	1.71
D30	mm	0.112
D10	mm	0.00849
Uniformity Coefficient		200
Curvature Coefficient		0.87

Remarks
Preparation and testing in accordance with BS EN ISO 17892-4: 2016

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Approved by	Date	Sheet ID:
David Trowbridge - Laboratory Manager	24/01/2024	KL002R PSD

David Trowbridge
South West Geotechnical Ltd
Unit 3 Brooklands
Howden Road
Tiverton
Devon
EX16 5HW

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-00169

Site Reference:	Paignton Academy
Project / Job Ref:	15598_T9054
Order No:	T9054
Sample Receipt Date:	09/01/2024
Sample Scheduled Date:	09/01/2024
Report Issue Number:	1
Reporting Date:	15/01/2024

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

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

For Topsoil and WAC analysis the expanded uncertainty measurement should be considered while evaluating results against compliance values.

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

4480

Soil Analysis Certificate						
DETS Report No: 24-00169	**Date Sampled**	21/12/23	21/12/23	21/12/23	21/12/23	21/12/23
South West Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Paignton Academy	**TP / BH No**	WS01	WS01	WS02	WS02	WS03
Project / Job Ref: 15598_T9054	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: T9054	**Depth (m)**	0.50	1.20	0.60 - 0.80	1.40	0.50
Reporting Date: 15/01/2024	**DETS Sample No**	693065	693066	693067	693068	693069

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected			Not Detected	
pH	pH Units	N/a	MCERTS	7.9	9.4		10.3	8.5
Total Cyanide	mg/kg	< 1	NONE	< 1			< 1	
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	280			< 200	
Total Sulphate as SO_4	%	< 0.02	MCERTS	0.03			< 0.02	
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS		< 10			< 10
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS		< 0.01			< 0.01
Sulphide	mg/kg	< 5	NONE	< 5			< 5	
Organic Matter (SOM)	%	< 0.1	MCERTS	1.4			0.4	
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	0.8			0.3	
Arsenic (As)	mg/kg	< 2	MCERTS	16			13	
W/S Boron	mg/kg	< 1	NONE	< 1			< 1	
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.4			< 0.2	
Chromium (Cr)	mg/kg	< 2	MCERTS	22			21	
Chromium (III)	mg/kg	< 2	NONE	22			21	
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2			< 2	
Copper (Cu)	mg/kg	< 4	MCERTS	11			10	
Lead (Pb)	mg/kg	< 3	MCERTS	21			22	
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1			< 1	
Nickel (Ni)	mg/kg	< 3	MCERTS	17			12	
Selenium (Se)	mg/kg	< 2	MCERTS	< 2			< 2	
Zinc (Zn)	mg/kg	< 3	MCERTS	60			45	
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2			< 2	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 24-00169	**Date Sampled**	21/12/23	21/12/23			
South West Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Paignton Academy	**TP / BH No**	WS03	WS03			
Project / Job Ref: 15598_T9054	**Additional Refs**	None Supplied	None Supplied			
Order No: T9054	**Depth (m)**	1.50	1.60			
Reporting Date: 15/01/2024	**DETS Sample No**	693070	693071			

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected				
pH	pH Units	N/a	MCERTS	8.3	8.7			
Total Cyanide	mg/kg	< 1	NONE	< 1				
Total Sulphate as SO_4	mg/kg	< 200	MCERTS	< 200				
Total Sulphate as SO_4	%	< 0.02	MCERTS	< 0.02				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS		< 10			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS		< 0.01			
Sulphide	mg/kg	< 5	NONE	14				
Organic Matter (SOM)	%	< 0.1	MCERTS	0.7				
TOC (Total Organic Carbon)	%	< 0.1	MCERTS	0.4				
Arsenic (As)	mg/kg	< 2	MCERTS	11				
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	0.3				
Chromium (Cr)	mg/kg	< 2	MCERTS	27				
Chromium (III)	mg/kg	< 2	NONE	27				
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	MCERTS	7				
Lead (Pb)	mg/kg	< 3	MCERTS	19				
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1				
Nickel (Ni)	mg/kg	< 3	MCERTS	14				
Selenium (Se)	mg/kg	< 2	MCERTS	< 2				
Zinc (Zn)	mg/kg	< 3	MCERTS	43				
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs							
DETS Report No: 24-00169	**Date Sampled**	21/12/23	21/12/23	21/12/23		
South West Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Paignton Academy	**TP / BH No**	WS01	WS02	WS03		
Project / Job Ref: 15598_T9054	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: T9054	**Depth (m)**	0.50	1.40	1.50		
Reporting Date: 15/01/2024	**DETS Sample No**	693065	693068	693070		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6		

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-00169	**Date Sampled**	21/12/23	21/12/23	21/12/23	21/12/23	
South West Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Paignton Academy	**TP / BH No**	WS01	WS02	WS02	WS03	
Project / Job Ref: 15598_T9054	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: T9054	**Depth (m)**	0.50	0.60 - 0.80	1.40	1.50	
Reporting Date: 15/01/2024	**DETS Sample No**	693065	693067	693068	693070	

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01		< 0.01	< 0.01	
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05		< 0.05	< 0.05	
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2		< 2	< 2	
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2		< 2	< 2	
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3		< 3	< 3	
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3		< 3	< 3	
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10		< 10	< 10	
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21		< 21	< 21	
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01		< 0.01	< 0.01	
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05		< 0.05	< 0.05	
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2		< 2	< 2	
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2		< 2	< 2	
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2		< 2	< 2	
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3		< 3	< 3	
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10		< 10	< 10	
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21		< 21	< 21	
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42		< 42	< 42	

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-00169	**Date Sampled**	21/12/23	21/12/23	21/12/23		
South West Geotechnical Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied		
Site Reference: Paignton Academy	**TP / BH No**	WS01	WS02	WS03		
Project / Job Ref: 15598_T9054	**Additional Refs**	None Supplied	None Supplied	None Supplied		
Order No: T9054	**Depth (m)**	0.50	1.40	1.50		
Reporting Date: 15/01/2024	**DETS Sample No**	693065	693068	693070		

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5		

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Waste Acceptance Criteria Analytical Certificate - BS EN 12457/3

							Landfill Waste Acceptance Criteria Limits		
DETS Report No: 24-00169		**Date Sampled**	21/12/23						
South West Geotechnical Ltd		**Time Sampled**	None Supplied				**Inert Waste Landfill**	**Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Site Reference: Paignton Academy		**TP / BH No**	WS02						
Project / Job Ref: 15598_T9054		**Additional Refs**	None Supplied						
Order No: T9054		**Depth (m)**	0.60 - 0.80						
Reporting Date: 15/01/2024		**DETS Sample No**	693067						
Determinand	**Unit**	**MDL**							
TOC^MU	%	< 0.1	0.3				3%	5%	6%
Loss on Ignition^MU	%	< 0.01	3.20				--	--	10%
BTEX^MU	mg/kg	< 0.05	< 0.05				6	--	--
Sum of PCBs	mg/kg	< 0.1	< 0.1				1	--	--
Mineral Oil^MU	mg/kg	< 10	< 10				500	--	--
Total PAH^MU	mg/kg	< 1.7	< 1.7				100	--	--
pH^MU	pH Units	N/a	8.9				--	>6	--
Acid Neutralisation Capacity	mol/kg (+/-)	< 1	< 1				--	To be evaluated	To be evaluated
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**		**Cumulative 10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)**		
Arsenic^U			0.0004	0.0003		0.006	0.5	2	25
Barium^U			0.0046	0.0018		0.036	20	100	300
Cadmium^U			< 0.0002	< 0.0002		< 0.002	0.04	1	5
Chromium^U			0.0007	0.0003		0.006	0.5	10	70
Copper^U			0.0011	0.0009		0.017	2	50	100
Mercury^U			< 0.00004	< 0.00004		< 0.0004	0.01	0.2	2
Molybdenum^U			< 0.0002	< 0.0002		0.002	0.5	10	30
Nickel^U			< 0.0002	< 0.0002		0.0008	0.4	10	40
Lead^U			0.0002	< 0.0002		< 0.002	0.5	10	50
Antimony^U			< 0.0002	< 0.0002		< 0.002	0.06	0.7	5
Selenium^U			0.0003	< 0.0002		0.0022	0.1	0.5	7
Zinc^U			0.020	0.006		0.12	4	50	200
Chloride^U			6	3		52	800	15000	25000
Fluoride^U			0.6	< 0.5		< 1	10	150	500
Sulphate^U			3	2		36	1000	20000	50000
TDS			59	21		430	4000	60000	100000
Phenol Index^U			< 0.01	< 0.01		< 0.5	1	-	-
DOC^U			10.9	11.5		208	500	800	1000
Leach Test Information									
Sample Mass (kg)			0.10						
Dry Matter (%)			86.7						
Moisture (%)			15.4						
Stage 1									
Volume Eluate L2 (litres)			0.16						
Filtered Eluate VE1 (litres)			0.12						

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Stated limits are for guidance only and DETS Ltd cannot be held responsible for any discrepencies with current legislation
M Denotes MCERTS accredited test
U Denotes ISO17025 accredited test

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-00169	
South West Geotechnical Ltd	
Site Reference: Paignton Academy	
Project / Job Ref: 15598_T9054	
Order No: T9054	
Reporting Date: 15/01/2024	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
$ 693065	WS01	None Supplied	0.50	13	Red sandy clay with stones
$ 693066	WS01	None Supplied	1.20	13.3	Red sandy clay with stones
$ 693067	WS02	None Supplied	0.60 - 0.80	12.8	Red sandy clay with stones
$ 693068	WS02	None Supplied	1.40	11.6	Red sandy clay with stones
$ 693069	WS03	None Supplied	0.50	12.3	Red sandy clay with stones
$ 693070	WS03	None Supplied	1.50	10	Red sandy clay with stones
$ 693071	WS03	None Supplied	1.60	11.2	Red sandy clay with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

$ samples exceeded recommended holding times

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-00169
South West Geotechnical Ltd
Site Reference: Paignton Academy
Project / Job Ref: 15598_T9054
Order No: T9054
Reporting Date: 15/01/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-00169
South West Geotechnical Ltd
Site Reference: Paignton Academy
Project / Job Ref: 15598_T9054
Order No: T9054
Reporting Date: 15/01/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

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

List of HWOL Acronyms and Operators
DETS Report No: 24-00169
South West Geotechnical Ltd
Site Reference: Paignton Academy
Project / Job Ref: 15598_T9054
Order No: T9054
Reporting Date: 15/01/2024

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
Mineral Oil (C10 - C40) (BS EN 12457-3) - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
Total BTEX (BS EN 12457-3) - HS_1D_MS_Total
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Parameter	Matrix Type	Suite Reference	Expanded Uncertainity Measurement	Unit
TOC	Soil	BS EN 12457	10.4	%
Loss on Ignition	Soil	BS EN 12457	16.9	%
BTEX	Soil	BS EN 12457	14.0	%
Sum of PCBs	Soil	BS EN 12457	21.1	%
Mineral Oil	Soil	BS EN 12457	9.0	%
Total PAH	Soil	BS EN 12457	17.9	%
pH	Soil	BS EN 12457	0.282	Units
Acid Neutralisation Capacity	Soil	BS EN 12457	18.0	%
Arsenic	Leachate	BS EN 12457	19.5	%
Barium	Leachate	BS EN 12457	12.2	%
Cadmium	Leachate	BS EN 12457	17.2	%
Chromium	Leachate	BS EN 12457	20.7	%
Copper	Leachate	BS EN 12457	14.1	%
Mercury	Leachate	BS EN 12457	16.7	%
Molybdenum	Leachate	BS EN 12457	13.3	%
Nickel	Leachate	BS EN 12457	14.0	%
Lead	Leachate	BS EN 12457	12.1	%
Antimony	Leachate	BS EN 12457	16.1	%
Selenium	Leachate	BS EN 12457	15.5	%
Zinc	Leachate	BS EN 12457	14.0	%
Chloride	Leachate	BS EN 12457	15.7	%
Fluoride	Leachate	BS EN 12457	19.1	%
Sulphate	Leachate	BS EN 12457	27.6	%
TDS	Leachate	BS EN 12457	10.0	%
Phenol Index	Leachate	BS EN 12457	12.9	%
DOC	Leachate	BS EN 12457	20.4	%
Clay Content	Soil	BS 3882: 2015	15.0	%
Silt Content	Soil	BS 3882: 2015	14.0	%
Sand Content	Soil	BS 3882: 2015	13.0	%
Loss on Ignition	Soil	BS 3882: 2015	16.9	%
pH	Soil	BS 3882: 2015	0.282	Units
Carbonate	Soil	BS 3882: 2015	12.0	%
Total Nitrogen	Soil	BS 3882: 2015	12.0	%
Phosphorus (Extractable)	Soil	BS 3882: 2015	24.0	%
Potassium (Extractable)	Soil	BS 3882: 2015	20.0	%
Magnesium (Extractable)	Soil	BS 3882: 2015	26.0	%
Zinc	Soil	BS 3882: 2015	19.8	%
Copper	Soil	BS 3882: 2015	23.2	%
Nickel	Soil	BS 3882: 2015	32.6	%
Available Sodium	Soil	BS 3882: 2015	23.0	%
Available Calcium	Soil	BS 3882: 2015	23.0	%
Electrical Conductivity	Soil	BS 3882: 2015	10.0	%

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.

O0XHN-4RINJ-6WJC2

Job name

24-00169.1

Description/Comments

Project

15598

Site

Paignton Academy

Classified by

Name:
Zoe Brown
Company:
South West Geotechnical Ltd
Date:
07 Feb 2024 15:15 GMT
Telephone:

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

7 - Disposal of Waste

Address of the waste

Borough Road Campus, Borough Rd, Paignton **Post Code** TQ4 7DH

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Construction of single storey educational building

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

Waste created during construction

Description of the waste

Red sandy clay with stones

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01-0.50	0.50	Non Hazardous		3
2	WS02-1.40	1.40	Non Hazardous		5
3	WS03-1.50	1.50	Non Hazardous		7

Related documents

#	Name	Description
1	24-00169.1.hwol	DETS South .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: Zoe Brown

Created date: 07 Feb 2024 15:15 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	9
Appendix B: Rationale for selection of metal species	10
Appendix C: Version	11

Classification of sample: WS01-0.50

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

Sample details

Sample name:
WS01-0.50
Sample Depth:
0.50 m
Moisture content:
13%
(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: 13% 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		16	mg/kg	1.32	18.379	mg/kg	0.00184 %	✓	
2	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.4	mg/kg	1.142	0.398	mg/kg	0.0000398 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22	mg/kg	1.462	27.974	mg/kg	0.0028 %	✓	
5	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				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	10.775	mg/kg	0.00108 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	21	mg/kg	1.56	28.498	mg/kg	0.00183 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		17	mg/kg	2.976	44.019	mg/kg	0.0044 %	✓	
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		60	mg/kg	2.774	144.81	mg/kg	0.0145 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
13	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
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		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											
19		pH				7.9	pH		7.9	pH	7.9 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
										Total:	0.0326 %		

Key

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

Classification of sample: WS02-1.40

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

Sample details

Sample name:
WS02-1.40
Sample Depth:
1.40 m
Moisture content:
11.6%
(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: 11.6% 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		13	mg/kg	1.32	15.173	mg/kg	0.00152 %	✓	
2	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
3	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
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21	mg/kg	1.462	27.132	mg/kg	0.00271 %	✓	
5	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				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10	mg/kg	1.126	9.953	mg/kg	0.000995 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	22	mg/kg	1.56	30.335	mg/kg	0.00194 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12	mg/kg	2.976	31.572	mg/kg	0.00316 %	✓	
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		45	mg/kg	2.774	110.356	mg/kg	0.011 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
13	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
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		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											
19		pH				10.3	pH		10.3	pH	10.3 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
										Total:	0.0276 %		

Key

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

Classification of sample: WS03-1.50

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

Sample details

Sample name:
WS03-1.50
Sample Depth:
1.50 m
Moisture content:
10%
(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: 10% 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		11	mg/kg	1.32	13.071	mg/kg	0.00131 %	✓	
2	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<1	mg/kg	3.22	<3.22	mg/kg	<0.000322 %		<LOD
3	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.308	mg/kg	0.0000308 %	✓	
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27	mg/kg	1.462	35.516	mg/kg	0.00355 %	✓	
5	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				<2	mg/kg	2.27	<4.54	mg/kg	<0.000454 %		<LOD
6	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		7	mg/kg	1.126	7.093	mg/kg	0.000709 %	✓	
7	lead { lead chromate }	082-004-00-2	231-846-0	7758-97-6	1	19	mg/kg	1.56	26.673	mg/kg	0.00171 %	✓	
8	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<1	mg/kg	1.353	<1.353	mg/kg	<0.000135 %		<LOD
9	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		14	mg/kg	2.976	37.501	mg/kg	0.00375 %	✓	
10	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<2	mg/kg	2.554	<5.108	mg/kg	<0.000511 %		<LOD
11	zinc { zinc chromate }	024-007-00-3	236-878-9	13530-65-9		43	mg/kg	2.774	107.359	mg/kg	0.0107 %	✓	
12	TPH (C6 to C40) petroleum group			TPH		<42	mg/kg		<42	mg/kg	<0.0042 %		<LOD
13	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
14	benzene	601-020-00-8	200-753-7	71-43-2		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
15	toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
16		ethylbenzene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
17		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
18		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											
19		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
20		naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
21		acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8									
22		acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9									
23		fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7									
24		phenanthrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-581-5	85-01-8									
25		anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-371-1	120-12-7									
26		fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-912-4	206-44-0									
27		pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			204-927-3	129-00-0									
28		benzo[a]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
29		chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
30		benzo[b]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
31		benzo[k]fluoranthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
32		benzo[a]pyrene; benzo[def]chrysene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
33		indeno[123-cd]pyrene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-893-2	193-39-5									
34		dibenz[a,h]anthracene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
35		benzo[ghi]perylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-883-8	191-24-2									
36		monohydric phenols				<2	mg/kg		<2	mg/kg	<0.0002 %		<LOD
				P1186									
										Total:	0.028 %		

Key

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

Appendix A: Classifier defined and non 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

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)

boron {diboron trioxide}

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)

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 chromate}

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

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

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

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

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
GB MCL List v2.0 - version 2.0 of 20th October 2023