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Analytical Report Number : 21-52534

Replaces Analytical Report Number: 21-52534, issue no. 1
Additional analysis undertaken.

Project / Site name:	Dial Post Bund	Samples received on:	22/01/2021
Your job number:	AH-2-DP	Samples instructed on/ Analysis started on:	22/01/2021
Your order number:	AH-2-DP	Analysis completed by:	17/02/2021
Report Issue Number:	2	Report issued on:	17/02/2021
Samples Analysed:	4 soil samples		

Signed: 

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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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 Your Order No: AH-2-DP

Lab Sample Number				1745596	1745597	1745598	1745599
Sample Reference				TP1	TP2	TP3	TP4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.80	0.20	0.50
Date Sampled				20/01/2021	20/01/2021	20/01/2021	20/01/2021
Time Taken				1025	1035	1045	1100
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	21	16	18
Total mass of sample received	kg	0.001	NONE	1.2	1	1	1.2

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Amosite	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	8.3	8.3	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	530	950	1100	2400
Organic Matter	%	0.1	MCERTS	1.1	2.3	3.7	2.8

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.4
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.51
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.19	6.8
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.16	9.3
Phenanthrene	mg/kg	0.05	MCERTS	0.15	1	1.9	65
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.32	0.5	15
Fluoranthene	mg/kg	0.05	MCERTS	0.49	2.4	4	40
Pyrene	mg/kg	0.05	MCERTS	0.33	1.8	3.6	36
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.3	1.9	3.4	25
Chrysene	mg/kg	0.05	MCERTS	0.2	1	2.1	21
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.9	3.6	23
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.1	1.5	10
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.7	3.2	20
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.76	1.4	8.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.7
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.9	1.6	8.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	1.47	14.8	27.2	290
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	15	18	12
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	1.3	2	2.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.6	0.8	0.7
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	22	22	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	31	34	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34	95	120	110
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	18	18	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	91	100	160	120

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Sample Reference	TP1			TP2			TP3			TP4		
Sample Number	None Supplied			None Supplied			None Supplied			None Supplied		
Depth (m)	0.50			0.80			0.20			0.50		
Date Sampled	20/01/2021			20/01/2021			20/01/2021			20/01/2021		
Time Taken	1025			1035			1045			1100		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status									

Monoaromatics & Oxygenates

Compound	Units	Limit of detection	Accreditation Status	1745596	1745597	1745598	1745599
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	Limit of detection	Accreditation Status	1745596	1745597	1745598	1745599
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	Limit of detection	Accreditation Status	1745596	1745597	1745598	1745599
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	20
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	45
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	12	140
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	19	47	140
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	26	59	340

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



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Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1745597	TP2	0.80	159	Loose Fibres	Amosite	< 0.001	< 0.001

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

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* 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 *
1745596	TP1	None Supplied	0.5	Brown clay and sand with gravel.
1745597	TP2	None Supplied	0.8	Brown sandy clay with gravel.
1745598	TP3	None Supplied	0.2	Brown loam and clay with gravel and vegetation.
1745599	TP4	None Supplied	0.5	Brown loam and clay with gravel and vegetation.

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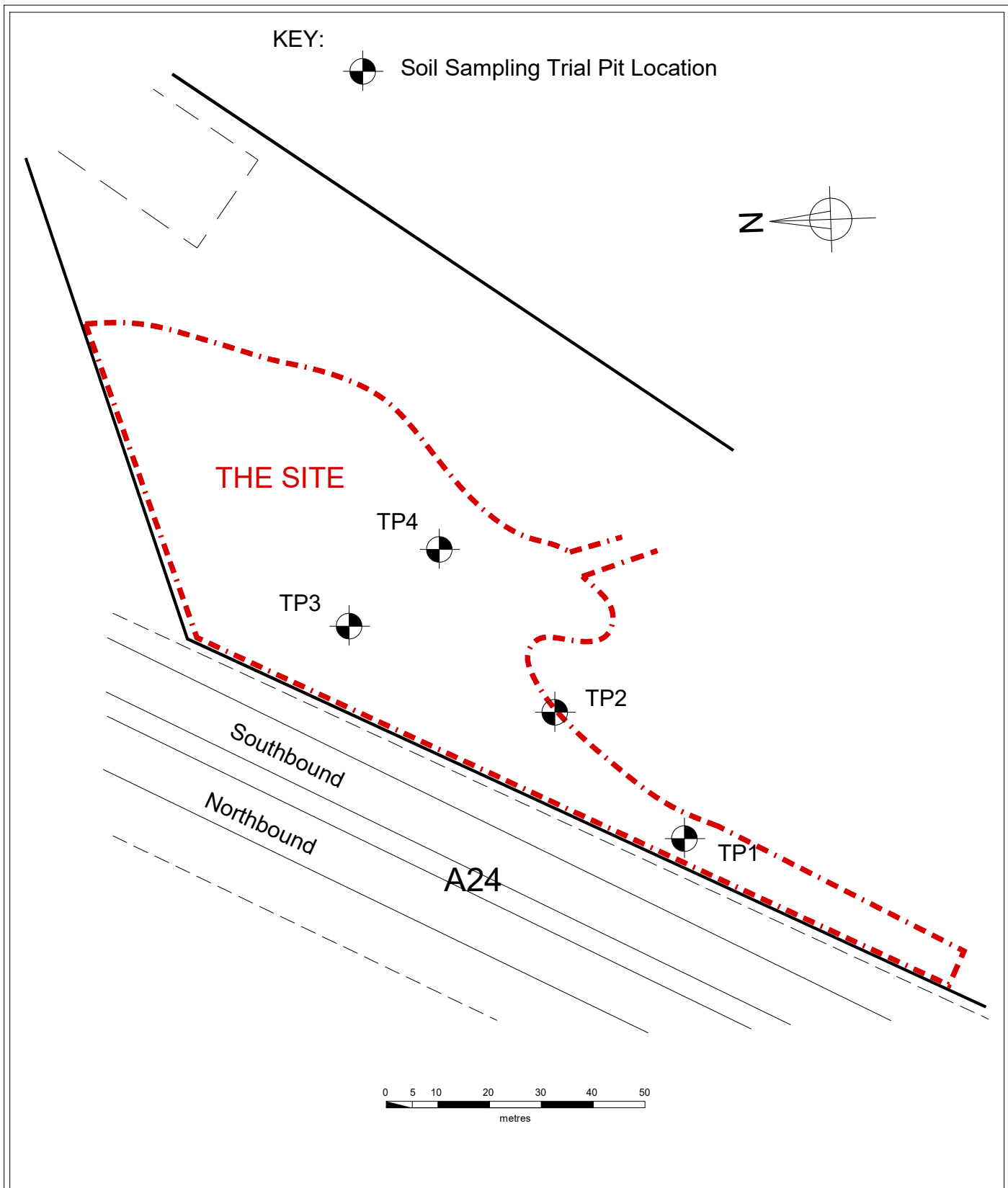
Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

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 disperion 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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Organic matter (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
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
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
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
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
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' 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.



Scale as shown

A. HYATT CONTRACTORS LTD

BUND AT SITE AT DIAL POST, WEST SUSSEX

Figure 1: Soil Sampling Locations

February 2021

