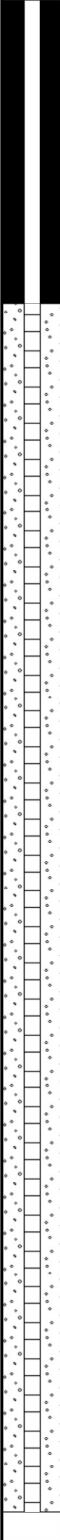
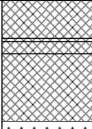
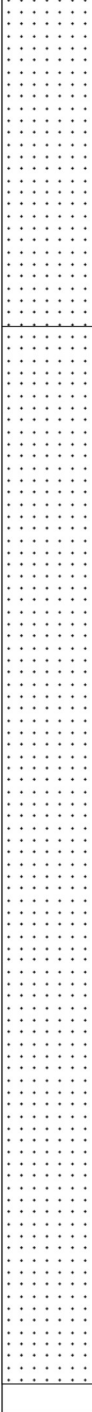


				Borehole Log			Borehole No. RBH104 Sheet 1 of 1		
Project Name: Renaissance Hotel				Project No. 14261		Co-ords: 383729E - 398624N		Hole Type BH	
Location: Deansgate, Manchester				Level:		Scale 1:50			
Client: Property Alliance Group Ltd				Dates: 22/02/2021		Logged By J Craig			

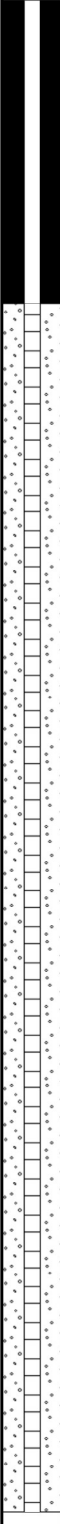
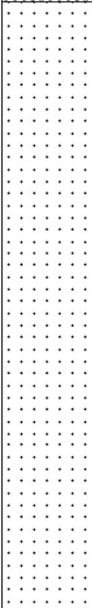
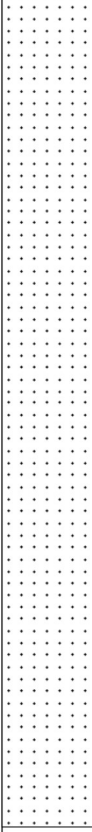
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES		0.25 0.27 0.35		MADE GROUND: Concrete.		
		0.90	ES		0.80		MADE GROUND: Rubber membrane.		
	1.00	SPT	50 (25 for 60mm/50 for 45mm)		MADE GROUND: Concrete.				
	1.45	U			MADE GROUND: Brick wall. (unknown underlying structure)				
		2.00	SPT	50 (25 for 45mm/50 for 40mm)			Very weak medium bedded reddish brown fine SANDSTONE. Bedding 0-10 degrees, widely to medium spaced, planar rough.	1	
		2.43	U					2	
		3.00	SPT	50 (25 for 30mm/50 for 20mm)	3.00			3	
		3.36	U				Strong medium bedded reddish brown coarse SANDSTONE. Bedding 0-10 degrees medium spaced planar rough, becoming undulating rough. Jointing 40-45 degrees undulating rough.		
		4.00	SPT	50 (25 for 25mm/50 for 30mm)				4	
		4.20	U						
		5.00	SPT	50 (25 for 2mm/50 for 10mm)				5	
		5.60	U						
		6.00	SPT	50 (25 for 70mm/50 for 75mm)				6	
		6.43	U						
		7.00	SPT	50 (25 for 60mm/50 for 55mm)			7		
	7.26	U							
	9.60	U					8		
							9		
				10.00			End of Borehole at 10.00m	10	

Remarks

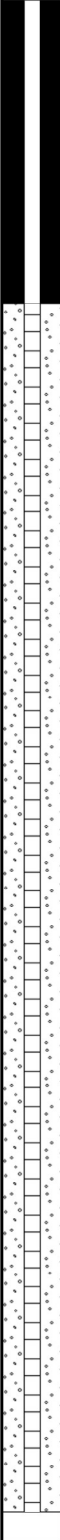
1. Install of 2m plain, 8m slotted 2. Borehole terminated at 10.00m bgl in sandstone at target depth



				Borehole Log				Borehole No. RBH105 Sheet 1 of 1	
Project Name: Renaissance Hotel				Project No. 14261		Co-ords: 383704E - 398599N		Hole Type BH	
Location: Deansgate, Manchester				Level:				Scale 1:50	
Client: Property Alliance Group Ltd				Dates: 26/02/2021				Logged By J Craig	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.30	ES		0.35			MADE GROUND: Concrete.		
		0.50	ES		0.45					
		0.78	U					MADE GROUND: Grey slightly sandy gravel. Gravel is fine to coarse angular to subangular of limestone. (MOT) Very weak medium bedded reddish brown fine SANDSTONE. Bedding 0-10 degrees, widely to medium spaced, planar rough.	1	
		1.10	U							
		3.00	SPT	50 (25 for 70mm/50 for 45mm)						3
		3.40	U							
		4.00	SPT	50 (25 for 45mm/50 for 55mm)		4.48			4	
		5.00	U					Strong medium bedded reddish brown coarse SANDSTONE. Bedding 0-10 degrees medium spaced planar rough, becoming undulating rough.	5	
		6.00	SPT	50 (25 for 60mm/50 for 40mm)						6
		6.13	U							
		6.80	U							
		7.00	SPT	50 (25 for 30mm/50 for 35mm)						7
		8.00	SPT	50 (25 for 50mm/50 for 40mm)					8	
		8.37	U						9	
		9.73	U						10	
				10.00			End of Borehole at 10.00m			

Remarks 1. Install of 2m plain, 8m slotted 2. Borehole terminated at 10.00m bgl in sandstone at target depth		
---	--	---

				Borehole Log			Borehole No. RBH106 Sheet 1 of 1		
Project Name: Renaissance Hotel				Project No. 14261		Co-ords: 383722E - 398602N		Hole Type BH	
Location: Deansgate, Manchester				Level:		Scale 1:50		Logged By J Craig	
Client: Property Alliance Group Ltd				Dates: 24/02/2021					
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.35	ES		0.26 0.28 0.40		 MADE GROUND: Concrete.		
							 MADE GROUND: Rubber membrane.		
							 MADE GROUND: Concrete.		
							 MADE GROUND: Concrete wall and sandstone.		1
		1.54	U		1.50				
		1.80	SPT	50 (25 for 70mm/50 for 45mm)			 Strong medium bedded reddish brown coarse SANDSTONE. Bedding 0-10 degrees medium spaced planar rough, becoming undulating rough.		2
		2.80	SPT	50 (21,4/50 for 70mm)					
		3.10	U						3
		3.37	U						
		3.80	SPT	50 (25 for 45mm/50 for 75mm)					4
		4.50	SPT	50 (25 for 60mm/50 for 55mm)					
		4.70	U						5
		5.40	U						
		5.40	SPT	50 (25 for 50mm/50 for 45mm)					6
		6.20	SPT	50 (25 for 6mm/50 for 70mm)					
	7.20	U						7	
	7.20	SPT	50 (25 for 60mm/50 for 45mm)						
	8.20	U		8.20				8	
	8.20	SPT	50 (25 for 50mm/50 for 35mm)			 NO RECOVERY (Assumed SANDSTONE).			
	9.00	SPT	50 (25 for 60mm/50 for 40mm)	9.20				9	
	9.80	U				 Strong medium bedded reddish brown coarse SANDSTONE. Bedding 0-10 degrees medium spaced planar rough, becoming undulating rough.			
				10.00			End of Borehole at 10.00m	10	
Remarks 1. Install of 2m plain, 8m slotted 2. Borehole terminated at 10.00m bgl in sandstone at target depth									

APPENDIX VI

CHEMICAL TESTING

RESULTS

**Stuart Ellis**

e3p
Taylor Road
Urmston
Manchester
M41 7JQ

e: sellis@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 21-59458

Project / Site name:	Renaissance Hotel	Samples received on:	26/02/2021
Your job number:	14-261	Samples instructed on/ Analysis started on:	26/02/2021
Your order number:	14-261-SE-K	Analysis completed by:	08/03/2021
Report Issue Number:	1	Report issued on:	08/03/2021
Samples Analysed:	4 soil samples		

Signed: 

Zina Abdul Razzak
Senior Quality 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

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.

Analytical Report Number: 21-59458
Project / Site name: Renaissance Hotel
Your Order No: 14-261-SE-K

Lab Sample Number				1786020	1786021	1786022	1786023
Sample Reference				RH101	RH102	RH103	RH103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.60	0.80	0.40
Date Sampled				23/02/2021	23/02/2021	23/02/2021	23/02/2021
Time Taken				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
Moisture Content	%	0.01	NONE	19	13	18	14
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5	0.5

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
------------------	------	-----	-----------	--------------	--------------	--------------	--------------

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.2	12.4	9.2	12.3
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	94	5500	270	5100
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.014	0.015	0.083	0.011
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	28	31	170	21
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	mg/l	1.25	MCERTS	13.8	15.4	83.3	10.5
Sulphide	mg/kg	1	MCERTS	< 1.0	4.6	< 1.0	5.8
Total Sulphur	mg/kg	50	MCERTS	< 50	2000	390	1900

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.4	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.44	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.42	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.33	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	1.82	< 0.80
-----------------------------	-------	-----	--------	--------	--------	------	--------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	1.7	3.2	2.2	3.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	4.2	14	5.7	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	29	14	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	3.6	9.8	14	11
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	5.9	9.5	7.4	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	21	64	38	65

Petroleum Hydrocarbons

Analytical Report Number: 21-59458
 Project / Site name: Renaissance Hotel
 Your Order No: 14-261-SE-K

Lab Sample Number				1786020	1786021	1786022	1786023
Sample Reference				RH101	RH102	RH103	RH103
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.60	0.80	0.40
Date Sampled				23/02/2021	23/02/2021	23/02/2021	23/02/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	7.1	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	51	< 1.0	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	60	< 10	< 10

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



Analytical Report Number : 21-59458
Project / Site name: Renaissance Hotel

* 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, day 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 *
1786020	RH101	None Supplied	0.8	Brown sand.
1786021	RH102	None Supplied	0.6	Light grey sandy clay with gravel.
1786022	RH103	None Supplied	0.8	Brown sand with gravel.
1786023	RH103	None Supplied	0.4	Light grey sandy clay with gravel.

Analytical Report Number : 21-59458
Project / Site name: Renaissance Hotel

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
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
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
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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	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 SO ₄ 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 Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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
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	MCERTS
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 (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS



Analytical Report Number : 21-59458
Project / Site name: Renaissance Hotel

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
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

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.

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.

**Stuart Ellis**

e3p
Taylor Road
Urmston
Manchester
M41 7JQ

e: sellis@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 21-59809

Project / Site name:	Renaissance Hotel	Samples received on:	01/03/2021
Your job number:	14-261	Samples instructed on/ Analysis started on:	02/03/2021
Your order number:	14261-SE-K	Analysis completed by:	09/03/2021
Report Issue Number:	1	Report issued on:	09/03/2021
Samples Analysed:	1 leachate sample - 4 soil samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
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.

Analytical Report Number: 21-59809
Project / Site name: Renaissance Hotel
Your Order No: 14261-SE-K

Lab Sample Number				1787943	1787944	1787945	1787946
Sample Reference				TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	0.45	0.45
Date Sampled				26/02/2021	26/02/2021	26/02/2021	26/02/2021
Time Taken				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
Moisture Content	%	0.01	NONE	4.6	14	5.9	4.8
Total mass of sample received	kg	0.001	NONE	1	0.5	0.5	0.5

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	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	11.5	12.3	11.2	11.3
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1200	1800	640	390
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.031	0.0047	0.077	0.027
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	62	9.3	150	53
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	mg/l	1.25	MCERTS	31.2	4.7	76.7	26.6
Sulphide	mg/kg	1	MCERTS	2.7	5.6	13	8
Total Sulphur	mg/kg	50	MCERTS	460	630	620	250

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80
-----------------------------	-------	-----	--------	--------	--------	--------	--------

Analytical Report Number: 21-59809
 Project / Site name: Renaissance Hotel
 Your Order No: 14261-SE-K

Lab Sample Number				1787943	1787944	1787945	1787946
Sample Reference				TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	0.40	0.45	0.45
Date Sampled				26/02/2021	26/02/2021	26/02/2021	26/02/2021
Time Taken				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	3.5	1.6	1.9	1.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2	0.4	0.3
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.5	8.2	6.1	5.6
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	18	13	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	4.1	7.1	6.4
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	9.2	6.6	6	5.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	24	23	21

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	16	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	42	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	14	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	74	< 10

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



Analytical Report Number: 21-59809
Project / Site name: Renaissance Hotel
Your Order No: 14261-SE-K

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
1787946	TP04	0.45	136	Loose Fibres	Chrysotile	< 0.001	< 0.001

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



Analytical Report Number: 21-59809
Project / Site name: Renaissance Hotel

Your Order No: 14261-SE-K

Lab Sample Number				1787947
Sample Reference				TP01
Sample Number				None Supplied
Depth (m)				0.40
Date Sampled				26/02/2021
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH	pH Units	N/A	ISO 17025	12
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	6.7
----------------------------	------	---	-----------	-----

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2
-------------------	------	-----	------	-------

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	11
Chromium (dissolved)	µg/l	0.4	ISO 17025	12
Copper (dissolved)	µg/l	0.7	ISO 17025	14
Lead (dissolved)	µg/l	1	ISO 17025	1.2
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.5
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	9.5

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10



Analytical Report Number: 21-59809
Project / Site name: Renaissance Hotel

Your Order No: 14261-SE-K

Lab Sample Number				1787947
Sample Reference				TP01
Sample Number				None Supplied
Depth (m)				0.40
Date Sampled				26/02/2021
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10
------------------	------	----	------	------

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10

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

Analytical Report Number : 21-59809
Project / Site name: Renaissance Hotel

* 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, day 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 *
1787943	TP01	None Supplied	0.4	Brown loam and sand with gravel and vegetation.
1787944	TP02	None Supplied	0.4	Brown clay and sand with gravel and vegetation.
1787945	TP03	None Supplied	0.45	Brown clay and sand with gravel.
1787946	TP04	None Supplied	0.45	Brown clay and sand with gravel.

Analytical Report Number : 21-59809
Project / Site name: Renaissance Hotel

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
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
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
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
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
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	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	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
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 leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
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
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In house method.	L005-PL	W	ISO 17025
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

Analytical Report Number : 21-59809
Project / Site name: Renaissance Hotel

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
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	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 leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
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	MCERTS
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
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
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 (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

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.

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.

**Stuart Ellis**

e3p
Taylor Road
Urmston
Manchester
M41 7JQ

e: sellis@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 21-60252

Project / Site name:	Renaissance Hotel	Samples received on:	03/03/2021
Your job number:	14-261	Samples instructed on/ Analysis started on:	03/03/2021
Your order number:	14261-JC-H	Analysis completed by:	10/03/2021
Report Issue Number:	1	Report issued on:	10/03/2021
Samples Analysed:	5 soil samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
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.

Analytical Report Number: 21-60252
Project / Site name: Renaissance Hotel
Your Order No: 14261-JC-H

Lab Sample Number				1790718	1790719	1790720	1790721	1790722
Sample Reference				RBH104	RBH104	RBH105	RBH105	RBH106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.90	0.30	0.50	0.35
Date Sampled				02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
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	51	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	11	2.2	12	3.4
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
------------------	------	-----	-----------	--------------	--------------	--------------	--------------	--------------

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	9.1	11.5	9.5	11.7
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1300	100	980	140	2800
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.42	0.0095	0.02	0.014	0.017
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	830	19	40	29	34
Water Soluble SO ₄ (2:1 Leach, Equiv.) 1hr extraction	mg/l	1.25	MCERTS	416	9.5	19.8	14.3	16.9
Sulphide	mg/kg	1	MCERTS	2.8	1	8.5	< 1.0	4.2
Total Sulphur	mg/kg	50	MCERTS	370	< 50	450	< 50	1100

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	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80
-----------------------------	-------	-----	--------	--------	--------	--------	--------	--------

Analytical Report Number: 21-60252
Project / Site name: Renaissance Hotel
Your Order No: 14261-JC-H

Lab Sample Number				1790718	1790719	1790720	1790721	1790722
Sample Reference				RBH104	RBH104	RBH105	RBH105	RBH106
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.90	0.30	0.50	0.35
Date Sampled				02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
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	3.6	3.2	2.6	3.2	3.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.6	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.5	5.6	9.2	6.5	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	11	12	13	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	2.9	13	2.8	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	7.7	7.8	9.5	8.6	9
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	31	18	45	18	54

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

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

Analytical Report Number : 21-60252
Project / Site name: Renaissance Hotel

* 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, day 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 *
1790718	RBH104	None Supplied	0.3	Brown loam and sand with gravel and vegetation.
1790719	RBH104	None Supplied	0.9	Brown loam and sand with gravel and vegetation.
1790720	RBH105	None Supplied	0.3	Brown loam and sand with gravel and stones.
1790721	RBH105	None Supplied	0.5	Brown loam and sand with gravel.
1790722	RBH106	None Supplied	0.35	Brown loam and sand with gravel.

Analytical Report Number : 21-60252
Project / Site name: Renaissance Hotel

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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	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 SO ₄ 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 Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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
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	MCERTS
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 (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS



Analytical Report Number : 21-60252
Project / Site name: Renaissance Hotel

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
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

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.

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.

**Stuart Ellis**

e3p
Taylor Road
Urmston
Manchester
M41 7JQ

e: sellis@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 21-60269

Project / Site name:	Renaissance Hotel	Samples received on:	03/03/2021
Your job number:	14-261	Samples instructed on/ Analysis started on:	03/03/2021
Your order number:	14-261-JC-I	Analysis completed by:	10/03/2021
Report Issue Number:	1	Report issued on:	10/03/2021
Samples Analysed:	2 wac multi samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
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.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results								
Report No:	21-60269							
					Client: E3P			
Location	Renaissance Hotel							
Lab Reference (Sample Number)	1790751				Landfill Waste Acceptance Criteria			
Sampling Date	03/03/2021				Limits			
Sample ID	TP101				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Depth (m)	0.65							
Solid Waste Analysis								
TOC (%)**	0.1				3%	5%	6%	
Loss on Ignition (%) **	0.5				--	--	10%	
BTEX (µg/kg) **	< 10				6000	--	--	
Sum of PCBs (mg/kg) **	< 0.30				1	--	--	
Mineral Oil (mg/kg) #	90				500	--	--	
Total PAH (WAC-17) (mg/kg)	3.10				100	--	--	
pH (units)**	11.1				--	>6	--	
Acid Neutralisation Capacity (mol / kg)	45				--	To be evaluated	To be evaluated	
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test			
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)			
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25	
Barium *	0.24	0.090		1.0	20	100	300	
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5	
Chromium *	0.015	0.0062		0.069	0.5	10	70	
Copper *	0.010	0.012		0.12	2	50	100	
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2	
Molybdenum *	0.0069	0.0032		0.035	0.5	10	30	
Nickel *	0.0026	0.0023		0.023	0.4	10	40	
Lead *	< 0.0050	< 0.0050		0.026	0.5	10	50	
Antimony *	< 0.0050	< 0.0050		0.026	0.06	0.7	5	
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7	
Zinc *	0.0018	0.0036		0.035	4	50	200	
Chloride *	13	< 4.0		30	800	15000	25000	
Fluoride	0.34	0.32		3.2	10	150	500	
Sulphate *	8.9	14		130	1000	20000	50000	
TDS*	830	400		4200	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-	
DOC	6.9	5.3		54	500	800	1000	
Leach Test Information								
Stone Content (%)	< 0.1							
Sample Mass (kg)	1.2							
Dry Matter (%)	94							
Moisture (%)	5.8							
Stage 1								
Volume Eluate L2 (litres)	0.34							
Filtered Eluate VE1 (litres)	0.12							
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** - MCFETS accredited			

* = UKAS accredited (liquid eluate analysis only)

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results							
Report No:	21-60269						
					Client: E3P		
Location	Renaissance Hotel						
Lab Reference (Sample Number)	1790752				Landfill Waste Acceptance Criteria		
Sampling Date	03/03/2021				Limits		
Sample ID	TP103				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.45						
Solid Waste Analysis							
TOC (%)**	0.1				3%	5%	6%
Loss on Ignition (%) **	0.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	57				500	--	--
Total PAH (WAC-17) (mg/kg)	2.04				100	--	--
pH (units)**	11.2				--	>6	--
Acid Neutralisation Capacity (mol / kg)	69				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.23	0.099		1.1	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	0.015	0.0057		0.063	0.5	10	70
Copper *	0.016	0.0058		0.065	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.0047	< 0.0030		0.023	0.5	10	30
Nickel *	0.0028	0.0023		0.024	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.023	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0082	0.0073		0.074	4	50	200
Chloride *	13	< 4.0		31	800	15000	25000
Fluoride	0.38	0.31		3.2	10	150	500
Sulphate *	11	13		130	1000	20000	50000
TDS*	940	460		4900	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	6.9	5.5		56	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	96						
Moisture (%)	4.1						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.12						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



Analytical Report Number : 21-60269
Project / Site name: Renaissance Hotel

* 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, day 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 *
1790751	TP101	None Supplied	0.65	Brown clay and sand with gravel.
1790752	TP103	None Supplied	0,45	Brown clay and sand with gravel.

Analytical Report Number : 21-60269
Project / Site name: Renaissance Hotel

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
Moisture Content	Moisture content, determined gravimetrically. (30 °C)	In house method.	L019-UK/PL	W	NONE
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
Preparation WAC leachate		In-house method	L043-PL	W	NONE
Speciated WAC-17 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. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS

Analytical Report Number : 21-60269
Project / Site name: Renaissance Hotel

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
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS

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.

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.

**Stuart Ellis**

e3p
Taylor Road
Urmston
Manchester
M41 7JQ

e: sellis@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 21-68515

Project / Site name:	Deansgate CLR Park	Samples received on:	14/04/2021
Your job number:	14 261	Samples instructed on/ Analysis started on:	14/04/2021
Your order number:	14 261 SE S	Analysis completed by:	21/04/2021
Report Issue Number:	1	Report issued on:	21/04/2021
Samples Analysed:	3 water samples		

Signed: *Karolina Marek*

Karolina Marek
PL Head of 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.



Analytical Report Number: 21-68515
Project / Site name: Deansgate CLR Park

Your Order No: 14 261 SE S

Lab Sample Number				1835880	1835881	1835882
Sample Reference				RB 101	RB 104	RB 105
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/04/2021	13/04/2021	13/04/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH	pH Units	N/A	ISO 17025	7.3	10.2	10.0
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	0.80	6.01	0.97

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	4.8	4.8	3.4
----------------------------	------	---	-----------	-----	-----	-----

Heavy Metals / Metalloids

Calcium (dissolved)	mg/l	0.012	ISO 17025	18	22	20
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.39	2.93	1.18
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.03	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.2	3.8	1.6
Copper (dissolved)	µg/l	0.5	ISO 17025	3.1	8.4	2.9
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	120	0.60	0.46
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	1.22	0.07
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.2	2.1	0.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	2.8	2.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	7.8	2.7	2.2

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10
------------------	------	----	------	------	------	------

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10



Analytical Report Number: 21-68515
Project / Site name: Deansgate CLR Park

Your Order No: 14 261 SE S

Lab Sample Number				1835880	1835881	1835882
Sample Reference				RB 101	RB 104	RB 105
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/04/2021	13/04/2021	13/04/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	18.8	8.6	7.9
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0



Analytical Report Number: 21-68515
Project / Site name: Deansgate CLR Park

Your Order No: 14 261 SE S

Lab Sample Number				1835880	1835881	1835882
Sample Reference				RB 101	RB 104	RB 105
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/04/2021	13/04/2021	13/04/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	3.1	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01



Analytical Report Number: 21-68515
Project / Site name: Deansgate CLR Park

Your Order No: 14 261 SE S

Lab Sample Number				1835880	1835881	1835882
Sample Reference				RB 101	RB 104	RB 105
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/04/2021	13/04/2021	13/04/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10

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



Analytical Report Number : 21-68515
Project / Site name: Deansgate CLR Park

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
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	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.

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.

APPENDIX VII

ORIGIN OF TIER I GENERIC ASSESSMENT CRITERIA

Renaissance Hotel**Phase II Geoenvironmental Site Assessment**

April 2021

CONSTITUENT	ORIGIN OF RISK ASSESSMENT VALUE
Arsenic	2014 LQM/CIEH S4ULs
Cadmium	2014 LQM/CIEH S4ULs
Chromium	2014 LQM/CIEH S4ULs
Lead	2014 LQM/CIEH S4ULs
Mercury	2014 LQM/CIEH S4ULs – methylmercury
Nickel	2014 LQM/CIEH S4ULs
Selenium	2014 LQM/CIEH S4ULs
Copper	2014 LQM/CIEH S4ULs
Zinc	2014 LQM/CIEH S4ULs
Cyanide – Total	2014 LQM/CIEH S4ULs
Phenols – Total	2014 LQM/CIEH S4ULs
Naphthalene	General assessment criteria (GAC) developed by CIEH/LQM Suitable 4 Use Levels with supporting data from SR3, SR7 and existing Tox report where applicable. 1% SOM.
Acenaphthylene	
Acenaphthene	
Fluorene	
Phenanthrene	
Anthracene	
Fluoranthene	
Pyrene	
Benzo(a)Anthracene	
Chrysene	
Benzo(b/k)Fluoranthene ⁽ⁱⁱⁱ⁾	
Benzo(a)Pyrene	
Indeno(123-cd)Pyrene	
Dibenzo(a,h)Anthracene	
Benzo(ghi)Perylene	
TPH C₅-C₆ (aliphatic)	
TPH C₆-C₈ (aliphatic)	
TPH C₈-C₁₀ (aliphatic)	
TPH C₁₀-C₁₂ (aliphatic)	
TPH C₁₂-C₁₆ (aromatic)	
TPH C₁₆-C₂₁ (aromatic)	
TPH C₂₁-C₃₅ (aromatic)	



APPENDIX VIII

GEOTECHNICAL TESTING

CERTIFICATES



LABORATORY REPORT



4043

Contract Number: PSL21/1855

Report Date: 30 March 2021

Client's Reference: 14-261

Client Name: E3P
Taylor Road
Urmston
Manchester
M41 7JQ

For the attention of: Jamie Craig

Contract Title: Renaissance Deansgate

Date Received: 4/3/2021

Date Commenced: 4/3/2021

Date Completed: 30/3/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Senior Technician)


S Eyre
(Senior Technician)

H Daniels
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Renaissance Deansgate

Contract No:

PSL21/1855

Client Ref:

14-261

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

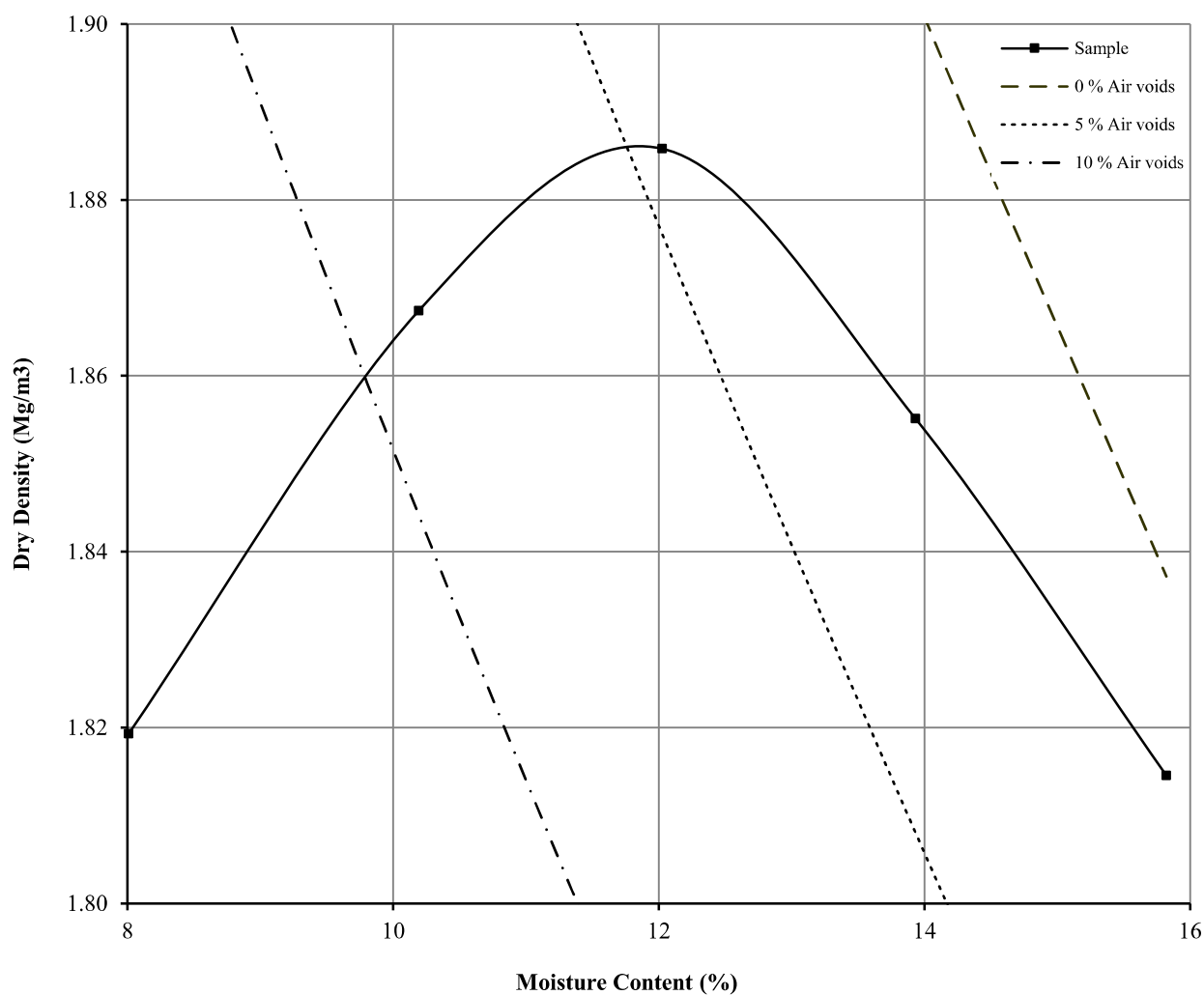
Hole Number: RBH101

Top Depth (m) : 0.80

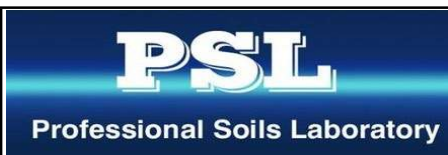
Sample Number:

Base Depth (m) :

Sample Type: B



Initial Moisture Content:	22	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.59	Measured	Material Retained on 37.5 mm Test Sieve (%):	0
Maximum Dry Density (Mg/m3):	1.89		Material Retained on 20.0 mm Test Sieve (%):	0
Optimum Moisture Content (%):	12			
Remarks See summary of soil descriptions				



Renaissance Deansgate

Contract
PSL21/1855
Client Ref
14-261

DETERMINATION OF UNCONFINED COMPRESSIVE STRENGTH

ISRM Suggested Methods, pp 111 –116, 1981.

[illegible]

Renaissance Deansgate

Contract No:

PSL21/1855

Client Ref:

14-261

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation Par / Perp	Dimensions (mm)		Area (mm ²)	D _c ²	D _c (mm)	Failure Load (P)		I _s (MPa)	Corr Fac F	I _{s50} (MPa)	Failure Type	Remarks
					W	D				(Mpa)	(kN)					
RBH101	2.30		A	Perp	88	53	4664	5938.39	77.06	-	0.21	0.04	1.215	0.04	Valid	
RBH101	6.28		A	Perp	88	50	4400	5602.25	74.85	-	1.01	0.18	1.199	0.22	Valid	
RBH101	7.47		A	Perp	88	50	4400	5602.25	74.85	-	1.43	0.26	1.199	0.31	Valid	
RBH101	8.82		A	Perp	88	54	4752	6050.43	77.78	-	0.99	0.16	1.220	0.20	Valid	
RBH101	6.71		A	Perp	89	40	3560	4532.73	67.33	-	0.81	0.18	1.143	0.20	Valid	
RBH102	7.23		A	Perp	88	53	4664	5938.39	77.06	-	1.59	0.27	1.215	0.33	Valid	
RBH102	1.86		A	Perp	85	50	4250	5411.27	73.56	-	0.97	0.18	1.190	0.21	Valid	
RBH102	8.82		A	Perp	88	44	3872	4929.98	70.21	-	0.77	0.16	1.165	0.18	Valid	
RBH102	9.65		A	Perp	89	50	4450	5665.92	75.27	-	0.69	0.12	1.202	0.15	Valid	
RBH102	9.30		A	Perp	86	45	3870	4927.44	70.20	-	0.48	0.10	1.165	0.11	Valid	
RBH102	8.64		A	Perp	89	33	2937	3739.50	61.15	-	1.12	0.30	1.095	0.33	Valid	
RBH103	1.50		A	Perp	89	37	3293	4192.78	64.75	-	1.59	0.38	1.123	0.43	Valid	
RBH103	3.40		A	Perp	89	55	4895	6232.51	78.95	-	2.01	0.32	1.228	0.40	Valid	
RBH103	8.60		A	Perp	89	41	3649	4646.05	68.16	-	0.84	0.18	1.150	0.21	Valid	
RBH104	2.43		A	Perp	85	45	3825	4870.14	69.79	-	0.47	0.10	1.162	0.11	Valid	
RBH104	3.36		A	Perp	88	44	3872	4929.98	70.21	-	1.45	0.29	1.165	0.34	Valid	
RBH104	5.60		A	Perp	87	40	3480	4430.87	66.56	-	0.83	0.19	1.137	0.21	Valid	
RBH104	7.26		A	Perp	87	46	4002	5095.50	71.38	-	2.06	0.40	1.174	0.47	Valid	
RBH105	1.10		A	Perp	88	43	3784	4817.94	69.41	-	0.63	0.13	1.159	0.15	Valid	
RBH105	5.00		A	Perp	83	41	3403	4332.83	65.82	-	1.46	0.34	1.132	0.38	Valid	
RBH105	6.80		A	Perp	89	50	4450	5665.92	75.27	-	1.12	0.20	1.202	0.24	Valid	
RBH105	9.73		A	Perp	86	52	4472	5693.93	75.46	-	1.45	0.25	1.203	0.31	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

 4043		Renaissance Deansgate	Contract No:
			PSL21/1855
			Client Ref:
			14-261

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e (mm)	Failure Load		I_s (MPa)	Corr Fac F	I_{s50} (MPa)	Failure Type	Remarks
				Par / Perp	L	D			(Mpa)	(kN)					
RBH101	2.30		D	Par	-	88	7744	88.00	-	0.33	0.043	1.290	0.05	Valid	
RBH101	6.28		D	Par	-	88	7744	88.00	-	0.72	0.093	1.290	0.12	Valid	
RBH101	7.47		D	Par	-	88	7744	88.00	-	1.09	0.141	1.290	0.18	Valid	
RBH101	8.82		D	Par	-	88	7744	88.00	-	0.69	0.089	1.290	0.11	Valid	
RBH101	6.71		D	Par	-	89	7921	89.00	-	0.68	0.086	1.296	0.11	Valid	
RBH102	7.23		D	Par	-	88	7744	88.00	-	0.73	0.094	1.290	0.12	Valid	
RBH102	1.86		D	Par	-	85	7225	85.00	-	0.85	0.118	1.270	0.15	Valid	
RBH102	8.82		D	Par	-	88	7744	88.00	-	0.54	0.070	1.290	0.09	Valid	
RBH102	9.65		D	Par	-	89	7921	89.00	-	0.45	0.057	1.296	0.07	Valid	
RBH102	9.30		D	Par	-	86	7396	86.00	-	0.48	0.065	1.276	0.08	Valid	
RBH102	8.64		D	Par	-	89	7921	89.00	-	1.28	0.162	1.296	0.21	Valid	
RBH103	1.50		D	Par	-	89	7921	89.00	-	1.06	0.134	1.296	0.17	Valid	
RBH103	3.40		D	Par	-	89	7921	89.00	-	1.11	0.140	1.296	0.18	Valid	
RBH103	8.60		D	Par	-	89	7921	89.00	-	1.10	0.139	1.296	0.18	Valid	
RBH104	2.43		D	Par	-	85	7225	85.00	-	0.41	0.057	1.270	0.07	Valid	
RBH104	3.36		D	Par	-	88	7744	88.00	-	1.01	0.130	1.290	0.17	Valid	
RBH104	5.60		D	Par	-	87	7569	87.00	-	0.76	0.100	1.283	0.13	Valid	
RBH104	7.26		D	Par	-	87	7569	87.00	-	1.44	0.190	1.283	0.24	Valid	
RBH105	1.10		D	Par	-	88	7744	88.00	-	0.43	0.056	1.290	0.07	Valid	
RBH105	5.00		D	Par	-	83	6889	83.00	-	0.33	0.048	1.256	0.06	Valid	
RBH105	6.80		D	Par	-	89	7921	89.00	-	0.61	0.077	1.296	0.10	Valid	
RBH105	9.73		D	Par	-	86	7396	86.00	-	1.51	0.204	1.276	0.26	Valid	

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Renaissance Deansgate

Contract No:

PSL21/1855

Client Ref:

14-261

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular



Renaissance Deansgate

Contract No:

PSL21/1855

Client Ref:

14-261

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

[illegible]

***Note** All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random



Renaissance Deansgate

Contract No:

PSL21/1855

Client Ref:

14-261



Appendix B: A2SI (2022) Factual Report



A2 Site Investigation

Renaissance, Manchester

Factual Report

April 2022

17321-A2SI-XX-XX-RP-X-0001-01





Project Name	Renaissance, Manchester
Project Number	17321
Client	BG&E
Document Name	Factual Report

This document has been prepared for the sole benefit, use and information of BG&E for the purposes set out in the document or instructions commissioning it. The liability of A2 Site Investigation Limited in respect of the information contained in this document is as per the A2-SI Terms & Conditions and will not extend to any third party. All concepts and proposals are copyright © April 2022. Issued in commercial confidence.

A2 Site Investigation Limited

One Westminster Bridge Rd
London, SE1 7XW

0207 021 0396
info@a2-si.com
www.a2-si.com

Prepared by

F. Afonso
BSc

Engineer

Checked by

R. Beaumont
BSc MSc DIC

Senior Engineer

Approved by


D. Seeley
FCMI, MAPM

Director

Document Reference	Status	Notes	Revision	Issued by	Date
17321-A2SI-XX-XX-RP-X-0001-00	First Issue		00	RB	04/02/2022
17321-A2SI-XX-XX-RP-X-0001-01	Second Issue	Including additional works	01	FA	08/04/2022



Contents

1.	Introduction	1
2.	Site Location	1
3.	Anticipated Ground Conditions.....	1
4.	Purpose and Scope of the Investigation.....	2
5.	Limitations of Report	2
6.	Standards	2
7.	Ground Investigation Summary	3
7.1.	Fieldwork Overview	3
7.2.	Rotary Rig Borehole	3
7.3.	Window Sample Boreholes	3
7.4.	Gas and Groundwater Monitoring Installations.....	4
7.4.1.	Previous Groundwater Monitoring Installations	4
7.4.2.	Gas and Groundwater Monitoring Installations	5
8.	Ground Conditions	5
8.1.	Encountered Geology	5
8.2.	Groundwater.....	6
9.	Laboratory Testing	6
9.1.	Geotechnical Testing.....	6
9.2.	Geo-environmental Testing	7
10.	Gas, Vapour and Groundwater Monitoring	8
10.1.	Ground Gas/Vapour	8
10.2.	Groundwater.....	9



Appendices

Appendix A: Exploratory Hole Location Plan

Appendix B: Exploratory Hole Logs and Photographic Record

Appendix C: Gas and Groundwater Monitoring Results

Appendix D: Geotechnical Laboratory Testing

Appendix E: Geo-Environmental Testing