



Project / Site name: 72 Marsefield Gardens, NW3 5TD

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

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.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
WS1	P+J	S	17-64780	841472	b	BTEX in soil (Monoaromatics)	L073B-PL	b
WS1	P+J	S	17-64780	841472	b	Total BTEX in soil (Poland)	L073-PL	b
WS2	P+J	S	17-64780	841474	b	BTEX in soil (Monoaromatics)	L073B-PL	b
WS2	P+J	S	17-64780	841474	b	Total BTEX in soil (Poland)	L073-PL	b



Emma Hucker Jomas Associates Ltd Lakeside House 1 Furzeground Way Stockley Park UB11 1BD



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

t: 01923 225404 f: 01923 237404 e: reception@i2analytical.com

e: Jomas Group

# Analytical Report Number : 17-64778

Project / Site name:	72 Marsfield Gardens, NW3 5TD	Samples received on:	20/10/2017
Your job number:	JJ1222	Samples instructed on:	20/10/2017
Your order number:	P1170JJ1222.3	Analysis completed by:	30/10/2017
Report Issue Number:	1	Report issued on:	30/10/2017
Samples Analysed:	6 soil samples		

Signed:

Dr Claire Stone Quality Manager 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.





### Project / Site name: 72 Marsfield Gardens, NW3 5TD Your Order No: P1170JJ1222.3

ab Sample Number				841458	841459	841460	841461	841462
Sample Reference				WS1	W/S1	WS3	W/53	W54
Sample Number				P+1	P	P+1	P	P+1
Depth (m)				0.50	1.00	0.50	1.00	0.25
Date Sampled				17/10/2017	17/10/2017	17/10/2017	17/10/2017	17/10/2017
Time Taken				None Supplied				
			Þ			FF		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	occreditation Status					
Stone Content	%	0.1	NONE	-	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	-	14	11	11	5.7
Total mass of sample received	kg	0.001	NONE	-	0.47	1.5	2.0	1.4
Asbestos in Soil	Туре	N/A	ISO 17025	Not-detected	-	Not-detected	-	-
General Inorganics	n I I I nite	NI/A	MCEDIC		7.2	7.2	7 5	74
pri - Automateu	pri Units	N/A 1	MCEDITS	-	7.5	/.5	7.5	7.4
Total Sulphate as SO	mg/kg	50	MCERTS	-	-	190	-	380
	iiig/kg	50	HELKIS			150		500
Water Soluble Sulphate as $SO_4$ 16hr extraction (2:1) Water Soluble SO4 16hr extraction (2:1) eachate	mg/kg	2.5	MCERTS	-	-	-	15	-
Equivalent)	a/l	0.00125	MCERTS	-	0.013	0.0086	0.0073	0.015
Water Soluble SO4 16hr extraction (2:1 Leachate	5/							
Equivalent)	mg/l	1.25	MCERTS	-	-	8.6	7.3	14.9
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	0.4	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	0.23	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	0.36	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	0.30	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	0.21	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	0.23	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05	-	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	ma/ka	0.8	MCERTS	-	-	1.33	-	< 0.80





#### Project / Site name: 72 Marsfield Gardens, NW3 5TD Your Order No: P1170JJ1222.3

Lab Sample Number	ab Sample Number					841460	841461	841462
Sample Reference				WS1	WS1	WS3	WS3	WS4
Sample Number				P+J	Р	P+J	Р	P+J
Depth (m)	0.50	1.00	0.50	1.00	0.25			
Date Sampled	17/10/2017	17/10/2017	17/10/2017	17/10/2017	17/10/2017			
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids					-			
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	6.2	-	13
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	0.7	-	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	< 4.0	-	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	24	-	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	17	-	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	48	-	490
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	< 0.3	-	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	5.8	-	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	41	-	89

### Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-	-	< 0.1	-	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	-	-	< 2.0	-	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	-	-	< 4.0	-	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	-	-	< 1.0	-	5.8
TPH (C21 - C40)	mg/kg	10	MCERTS	-	-	< 10	-	< 10





Project / Site name: 72 Marsfield Gardens, NW3 5TD Your Order No: P1170JJ1222.3

Lab Sample Number	b Sample Number							
Sample Reference				WEA				
Sample Number				P				
Denth (m)				2 00				
Date Sampled				17/10/2017				
Time Taken				None Supplied				
			2					
		de 🗖						
Analytical Parameter	<u>S</u>	tec	edi					
(Soil Analysis)	t,	tiof	ius tat					
		<b>_</b>	ion i					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	14				
Total mass of sample received	kg	0.001	NONE	0.44				
Asbestos in Soil	Туре	N/A	ISO 17025	-				
General Inorganics	1					1		
pH - Automated	pH Units	N/A	MCERTS	7.7				
Total Cyanide	mg/kg	1	MCERTS	-				
Total Sulphate as SO <sub>4</sub>	mg/kg	50	MCERTS	-				
		2.5						
Water Soluble Sulphate as $SO_4$ 16hr extraction (2:1) Water Soluble SO4 16hr extraction (2:1) leachate	mg/kg	2.5	MCERTS	-				
Fourivalent)	a/l	0.00125	MCERTS	0.014				
Water Soluble SO4 16hr extraction (2:1 Leachate	9/.	0.00120	HOLITO	0.011				
Equivalent)	mg/l	1.25	MCERTS	-				
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.5				
Total Phenois						1	1	
Total Phenois (monohydric)	mg/kg	1	MCERTS	-				
Speciated DAHe								
Nanhthalono	malka	0.05	MCEDTC	_				
	mg/kg	0.05	MCEDTS					
Acenaphthene	ma/ka	0.05	MCERTS	_				
Fluorene	ma/ka	0.05	MCERTS	-				
Phenanthrene	ma/ka	0.05	MCERTS	-				
Anthracene	ma/ka	0.05	MCERTS	-				
Fluoranthene	mg/kg	0.05	MCERTS	-				
Pyrene	mg/kg	0.05	MCERTS	-				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-				
Chrysene	mg/kg	0.05	MCERTS	-				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-			ļ	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-			ļ	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-			I	
		0.0	MORDER					
Speciated Total EPA-16 PAHS	mg/kg	0.8	MCERTS	-				





Project / Site name: 72 Marsfield Gardens, NW3 5TD Your Order No: P1170JJ1222.3

Lab Sample Number				841463				
Sample Reference				WS4				
Sample Number				Р				
Depth (m)	2.00							
Date Sampled				17/10/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids					-	-	-	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-				
Boron (water soluble)	mg/kg	0.2	MCERTS	-				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-				
Chromium (hexavalent)	mg/kg	4	MCERTS	-				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-				

### Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10)	mg/kg	0.1	MCERTS	-		
TPH (C10 - C12)	mg/kg	2	MCERTS	-		
TPH (C12 - C16)	mg/kg	4	MCERTS	-		
TPH (C16 - C21)	mg/kg	1	MCERTS	-		
TPH (C21 - C40)	mg/kg	10	MCERTS	-		





### Project / Site name: 72 Marsfield Gardens, NW3 5TD

\* 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 *
841458	WS1	P+J	0.50	-
841459	WS1	Р	1.00	Brown sandy clay.
841460	WS3	P+J	0.50	Brown sandy clay with gravel and vegetation.
841461	WS3	Р	1.00	Brown clay and loam with gravel and vegetation.
841462	WS4	P+J	0.25	Brown loam and sand with gravel and brick.
841463	WS4	Р	2.00	Light brown sandy clay with vegetation.





Project / Site name: 72 Marsfield Gardens, NW3 5TD

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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
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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
PRO (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-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
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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP- OES.	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
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-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.



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
WS3	P+J	S	17-64778	841460	b	PRO (Soil)	L088-PL	b
WS4	P+J	S	17-64778	841462	b	PRO (Soil)	L088-PL	b



**APPENDIX 8 – GEOTECHNICAL LABORATORY TEST RESULTS** 



# **Determination of Liquid and Plastic Limits**

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

Depth Base [m]: Not Given



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Client Address:	Jomas Associates Ltd Lakeside House 1 Furzeground Way Stockley Park UB11 1BD		Client Reference: JJ1222 Job Number: 17-64977 Date Sampled: Not Given Date Received: 20/10/2017
Contact: Site Name: Site Address:	Emma Hucker 72 Marsefield Gardens NW3 5TD 72 Marsefield Gardens NW3 5TD		Date Tested: 03/11/2017 Sampled By: Not Given
TEST RESULTS	Laboratory Reference: Sample Reference:	842536 Not Given	
Description: Location:	Dark brown slightly gravelly sandy CLAY WS1		Sample Type: D Depth Top [m]: 1.00

Sample Preparation:

Tested after washing to remove >425um

As Received	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Moisture Content [%]	[%]	[%]	[%]	BS Test Sieve
18	36	20	16	78



Remarks

Approved:

Dariusz Piotrowski PL Laboratory Manager Geotechnical Section

Date Reported:



10/11/2017

Signed:

Darren Berrill Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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# **Determination of Liquid and Plastic Limits**

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

TEST RESULTS	Laboratory Reference:	842537	
Site Address:	72 Marsefield Gardens NW3 5TD		
Site Name:	72 Marsefield Gardens NW3 5TD	Sampled By:	Not Given
Contact:	Emma Hucker	Date Tested:	03/11/2017
	UB11 1BD	Date Received:	20/10/2017
	1 Furzeground Way	Date Sampled:	Not Given
Client Address:	Lakeside House	Job Number:	17-64977
Client:	Jomas Associates Ltd	Client Reference:	JJ1222

		Sample Reference: Not Giv	en
Description:	Dark b	prown slightly gravelly sandy CLAY with rootle	ts
Location:	WS2		
Sample Preparation:		Tested after washing to remove >425um	

Sample Type: D Depth Top [m]: 0.50 Depth Base [m]: Not Given

As Received	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Moisture Content [%]	[%]	[%]	[%]	BS Test Sieve
22	40	26	14	74



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Remarks

Approved:

Dariusz Piotrowski PL Laboratory Manager Geotechnical Section



Organic

Signed:

append to classification for organic material ( eg CHO )

Darren Berrill Geotechnical General Manager

Date Reported:

10/11/2017

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# **Determination of Liquid and Plastic Limits**

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Client Address:	Jomas Associates Ltd Lakeside House 1 Furzeground Way Stockley Park UB11 1BD		Client Reference: JJ1222 Job Number: 17-64977 Date Sampled: Not Given Date Received: 20/10/2017
Contact: Site Name: Site Address:	Emma Hucker 72 Marsefield Gardens NW3 5TD 72 Marsefield Gardens NW3 5TD		Date Tested: 03/11/2017 Sampled By: Not Given
TEST RESULTS	Laboratory Reference:	842538	

		Sample Reference:	Not Given
Description:	Dark brown slight	ly gravelly very sandy CL	AY
Location:	WS4		
Sample Preparatio	n: Tested in	natural condition	

Sample Type: D Depth Top [m]: 2.00 Depth Base [m]: Not Given

As Received	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm
Moisture Content [%]	[%]	[%]	[%]	BS Test Sieve
19	31	17	14	81



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Remarks

Approved:

Dariusz Piotrowski PL Laboratory Manager Geotechnical Section



Organic

Signed:

append to classification for organic material ( eg CHO )

Darren Berrill Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

Date Reported:

10/11/2017

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### Page 1 of 1

### Summary of Classification Test Results

Client:	Jomas Associates Ltd
Client Address:	Lakeside House
	1 Furzeground Way
	Stockley Park
	UB11 1BD
Contact:	Emma Hucker
Site Name:	72 Marsefield Gardens NW3 5TD
Site Address:	72 Marsefield Gardens NW3 5TD

Test results														
			Sample		-		De	nsity	M/C		Atte	rberg	-	PD
Laboratory Reference	Hole No.	Reference	Top depth [m]	Base depth [m]	Туре	Soil Description	bulk Ma/m3	dry Ma/m3	%	% Passing 425um	LL %	PL %	PI	Ma/m3
842536	WS1	Not Given	1.00	Not Given	D	Dark brown slightly gravelly sandy CLAY		, ingine	18	78	36	20	16	
842537	WS2	Not Given	0.50	Not Given	D	Dark brown slightly gravelly sandy CLAY with rootlets			22	74	40	26	14	
842538	WS4	Not Given	2.00	Not Given	D	Dark brown slightly gravelly very sandy CLAY			19	81	31	17	14	

Comments:

Approved:

Dariusz Piotrowski PL Laboratory Manager Geotechnical Section

Date Reported: 10/11/2017

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Piotuli

The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

Signed:

Darren Berrill

Geotechnical General Manager



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



Client Reference: JJ1222 Job Number: 17-64977 Date Sampled: Not Given Date Received: 20/10/2017 Date Tested: 03/11/2017 Sampled By: Not Given

Permination of Particle Size Distribution   Croadey Green Business Park   Coordey Green Business Park     441   Tested in Accordance with BS1377.Park 2:1990, dause 9.2   Client Reference: JU1222   Job Number: 17.44977     Client Address   Lakeside House   Job Number: 17.44977   Date Sampled: NOI Given     Stockley Park   Date Tested: 0311/2017   Sampled By: NOI Given     Contact:   z Marselield Gardens NW3 5TD   Sampled By: NOI Given     Este Address:   z Marselield Gardens NW3 5TD   Sampler Reference: NOI Given     Este Address:   z Marselield Gardens NW3 5TD   Sampler Reference: NOI Given     Supple:   z Marselield Gardens NW3 6TD   Sample Reference: NOI Given     Supple:   NoI Given   Sampler Merence: NOI Given     Upple:   NoI Given   Sample Reference: NOI Given     Volume   NoI Given   Sampler Merence: NOI Given     Volume   NoI Given   Sampler Merence: NOI Given     Volume   NoI Given   Sampler Merence: NOI Given     Volume   Sampler Merence: NoI Given   Sampler Merence: NOI Given     Volume   Sampler Merence: NoI Given   Sampler Merence: NOI Given     Volume   Sampler Merence: NoI Given   Sampler Me				TES	T CERTIFI	<u>CERTIFICATE</u>				i2 Analytical Ltd 7 Woodshots Meadow			
Tested in Accordance with BS1377-Part 21990, dause 9.2       Client:     Jornas Associates Ltd     Client Reference:     JJC222       Client:     Lakeside House     Job Number:     17-64977       Data Sampled:     Not Given     Data Rescription:     Values Park       UB111BD     Data Teste:     03/11/2017       Sample description:     72 Marsefield Gardens NW3 STD     Sample Reference:     Not Given       Sample description:     Yellowish brown slightly gravelly sandy CLAY     Sample Reference:     Not Given       Suppler:     Not Given     Depth Tasse (m): Not Given     Sample Reference:     Not Given       Suppler:     Not Given     Depth Tasse (m): Not Given     Sample Reference:     Not Given       Suppler:     Not Given     Clearse     Free Medum Coarse     Free Medum Coarse     routces       00     Output     0.1     Particle Size     routces     routces       10     0.01     0.1     Particle Size     200     Total     Total       10     0.01     0.1     Particle Size     Not diven     Sample Total     Sample Total <td></td> <td>KAS</td> <td>Det</td> <td>ermination o</td> <td>of Particle</td> <td>en Busines rts WD18 8</td> <td>s Park YS</td> <td>Environmental Sc</td> <td>ience</td>		KAS	Det	ermination o	of Particle					en Busines rts WD18 8	s Park YS	Environmental Sc	ience
Stockley Park UB11 18D Date Received: 2010/2017   Contact: Emma Hucker Date Received: 2010/2017   Ste Name: 72 Marsefield Gardens NW3 STD Sampled By: Not Given   Ste Address: 72 Marsefield Gardens NW3 STD Sampled By: Not Given   Sample descriptio: Yellowish brown slightly gravelly sandy CLAY Sample Afference: Not Given   Suppler: Not Given Sample Jasse (m): Not Given   Suppler: Not Given Depth Top (m): 2.00   Suppler: Not Given Base (m): Not Given   Supple: Not Given Base (m): Not Given </td <td>Clie Clie</td> <td>ent: ent A</td> <td>T ddress:</td> <td>ested in Accordanc Jomas Associa Lakeside Hous 1 Furzeground</td> <td>e with BS1377:P ites Ltd e Way</td> <td>art 2:1990, cl</td> <td>ause 9.2</td> <td></td> <td>Client Refe Job Nu</td> <td>222 64977 Ciwon</td> <td></td> <td></td>	Clie Clie	ent: ent A	T ddress:	ested in Accordanc Jomas Associa Lakeside Hous 1 Furzeground	e with BS1377:P ites Ltd e Way	art 2:1990, cl	ause 9.2		Client Refe Job Nu	222 64977 Ciwon			
Contact: Emma Hucker Emma Hucker 27 Marsefield Gardens NW3 STD Sampled By: Not Given Sample description: Vellowish brown slightly gravelity sandy CLAY Sample description: WS1 Supplie: Not Given Contact: WS1 Supplie: Not Given Supplie: Supplie: Not Given Supplie: Not Given Supplie: Supplie: Not Given Supplie: Supplie:				Stockley Park	·				Date Rec	npied. Not	0/2017		
TEST RESULTS     Laboratory Reference:     842530     Sample Reference:     Sample Reference:     Not Given       Suppler:     Not Given     Sample Address     Saddress     Sample Address     Saddres	Cor Site Site	ntact: Nar Adc	: ne: Iress:	Emma Hucker 72 Marsefield ( 72 Marsefield (	Gardens NW3 Gardens NW3	5TD 5TD			Date Rec Date T Sampl	ested: 03/1 ed By: Not	1/2017 Given		
Second of the second	TE: Sar Loc Sup	ST R nple ation plier	ESULTS descriptior n: WS r: Not	Laborator n: Yellowish 1 : Given	y Reference: brown slightly	842530 gravelly san	ndy CLAY	Sa	ample Refe Sample Depth To Depth Bas	rence: Not Type: D op [m]: 2.00 se [m]: Not	Given ) Given		
Store     Store <th< td=""><td></td><td>-</td><td>CLAY</td><td>SILT ne Medium</td><td>Coarse Fine</td><td>SAND Medium</td><td>Coarse</td><td>Fine</td><td>GRAVEL Medium</td><td>Coarse</td><td>COBBLES</td><td>BOULDERS</td><td></td></th<>		-	CLAY	SILT ne Medium	Coarse Fine	SAND Medium	Coarse	Fine	GRAVEL Medium	Coarse	COBBLES	BOULDERS	
organ     static size     % Passing     Particle Size     % Passing     Particle Size     % Passing       10     00     00     0		100											Π
Note     Note <th< td=""><td></td><td>90</td><td></td><td></td><td></td><td>/</td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td></th<>		90				/							-
No     No<		80			/								-
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30   50 <td< td=""><td>б 8</td><td>60</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	б 8	60											
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20   10   10   10   10   10   10   10   10   10   10   100	centa	40											
20     0	Perc	30											-
10     0.0     0.1     1     10     100     100       Particle Size mm       125     100     Particle Size mm     Dry Mass of sample [g]:     200       125     100     0.0     0.00     0.00     Gravel     2.50       37.5     100     0.0     0.00     Gravel     2.50     Sand     36.20       50     100     0.00     0.00     Gravel     2.50     Sand     36.20       50     100     0.00     0.00     Gravel     3.6.20     Fires <0.063mm		20											-
0   0.01   0.1   1   1   10   100   100     Particle Size   mm     125   100   0		10											
0.001     0.01     0.1     1     10     100     1000       Particle Size mm       Sieving     Particle Size mm     mm     Dry Mass of sample [g]:     200       125     100		0											Ц
Sieving     Sedimentation       Particle Size mm     Particle Size mm     % Passing       125     100		0.0	001	0.01	0.1	Par	1 ticle Size	mm	10		100	100 1000	
Particle Size mm     % Passing mm     % Passing % Passing       125     100			Si	eving	Sedim	entation		Dry Mas	s of sample [	g]:	200		
125   100   Sample Proportions   % dry mass     90   100		P	Particle Size	% Passing	Particle Size mm	% Passir	ng						
90   100   0.00     75   100   0.00     63   100   0.00     37.5   100   0.00     37.5   100   0.00     20   100   0.00     14   100   0.00     5   100   0.00     3.35   99   0.00     1.18   96   0.00     0.6   95   0.15     0.15   93   0.063     0.063   61   0.063			125	125 100				Sample	mple Proportions % dry mass				
63   100   Sand   36.20     50   100   Files < 0.063			90 75	100					Irse			2.50	
37.5     100     Fines <0.063mm     61.30       28     100     Image: constraint of the second			63 50	100				Sand				36.20	
28   100     20   100     14   100     10   100     6.3   100     5   100     3.35   99     2   98     1.18   96     0.6   95     0.425   94     0.212   93     0.15   93     0.063   61			37.5	100				Fines <0	.063mm			61.30	
14   100   6.3     10   100   100     6.3   100   100     5   100   100     3.35   99   100     2   98   100     1.18   96   100     0.6   95   100     0.425   94   115     0.15   93   115     0.063   61   61			28	100 100				Grading	Analysis				
10   100   100     6.3   100   100     5   100   100     3.35   99   100     2   98   100     1.18   96   100     0.6   95   100     0.425   94   100     0.212   93   100     0.15   93   100     0.063   61   61			14	100				D100		mm		6.3	
5   100   mm     3.35   99   Image: Second		-	6.3	100				D80 D30		mm			
3.35 99   2 98   1.18 96   0.6 95   0.425 94   0.3 94   0.212 93   0.15 93   0.063 61			5	100				D10	0	mm			
1.18     96       0.6     95       0.425     94       0.3     94       0.212     93       0.15     93       0.063     61			2	99				Curvatur	e Coefficient				
0.6     95     1100000000000000000000000000000000000			1.18	96				Romarka					
0.3     94       0.212     93       0.15     93       0.063     61			0.425	94				Preparatio	, on and testing i	n accordance	with BS1377	unless noted be	low
0.15     93       0.063     61			0.3	94									
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Dariusz Piotrowski PL Laboratory Manager Geotechnical Section

Piotuli

Date Reported:

10/11/2017

Signed:

Darren Berrill Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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			TES		CATE			i2 Analytical Ltd 7 Woodshots Mead	ow	alytical
	KAS	Det	ermination o	of Particle S	Size Di	stributi	ion	Watford Herts WD1	ness Park 8 8YS	Environmental Science
18	sting 1041	T	ested in Accordanc	e with BS1377:Pa	art 2:1990	, clause 9.2	2			
Clie	ent:		Jomas Associa	tes Ltd				Client Reference: J	J1222	
Clie	ent Ad	ddress:	Lakeside Hous	e Wav				Job Number: 1	7-64977	
			Stockley Park	way				Date Sampled: N	lot Given	
			UB11 1BD					Date Received: 2	0/10/2017	
Cor	ntact:		Emma Hucker					Date Tested: 0	3/11/2017	
Site	Nan	ne:	72 Marsefield (	Gardens NW3 5	5TD			Sampled By: N	lot Given	
TES	ST RI	ESULTS	Laborator	v Reference:	842531			Sample Reference: N	ot Given	
Sar	nple	description	: Yellowish	brown very cla	yey SAN	D		Sample Type: D		
Loc	ation	: WS	51					Depth Top [m]: 3	.00	
Sup	plier	: Not	Given					Depth Base [m]: N	lot Given	
	_	CLAY	SILT Nodium	Coorco Eino	SAN			GRAVEL	COBBLES	BOULDERS
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	0.0	01	0.01	0.1	F	Particle Size	e m	m	100	1000
		Si	eving	Sedim	entation		D	ry Mass of sample [g]:		176
	P	mm	% Passing	Particle Size mm	% Pas	ssing				
		125	100				S	ample Proportions		% dry mass
		90 75	100				G	ery coarse Gravel		0.00
		63 50	100				S	and		77.20
		37.5	100				Fi	ines <0.063mm		22.80
		28	100					rading Analysis		
		14	100				D	100 n	im	2
		10	100				D	60 n 30 n	im m	0.0968
		5	100				D	10 n	im	0.0000
		3.35	100				U	niformity Coefficient		
		1.18	99				2		1	
		0.6	99				R	emarks	Ce with RS12	77 unless noted below
		0.3	99							
	-	0.212	99 98							
		0.063	23							
	·		-	•						

Dariusz Piotrowski PL Laboratory Manager Geotechnical Section

Piotuli

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for and on behalf of i2 Analytical Ltd

Signed:

Manager

Darren Berrill

Geotechnical General

Clier Clier	AS MING 041 nt:	<u>D</u> e	<u>IEST CERTIFICATE</u> <u>Determination of Particle Size Distribu</u> Tested in Accordance with BS1377:Part 2:1990, clause														7	Wo	ods	shot	s M	eac	101 inc	N	D	ork			nalyti	2	
40 Clier Clier	041 nt:			nina	ation	of F	Part	ticle	e Si	ze	Dis	trik	out	tio	n		W	atfo	ord	Her	ts V	VD'	18	8Y	Ϋ́S	ark		Envir	onmer	ital S	cience
Clier	· · · ·		Teste	ed in A	Accorda	nce wi	th BS	61377	:Part	2:19	990, c	laus	e 9.	2			C	lion	t R	ofor	enc	Δ.	LI	122	22						
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		125		1	00										<b>Sa</b> Ve	mpl rv ce	e Pi oars	rop se	orti	ons							% (	dry n 0.00	nass )	3	
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		0.063			41																										

Dariusz Piotrowski PL Laboratory Manager **Geotechnical Section** 

Pistuli

Date Reported:

10/11/2017

Darren Berrill Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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	₽¶ KAS	<u>Dete</u>	ermination o	of Partic	le Siz	e Dis	tribu	utio	n	Croxley Watford	/ Gree d Herts	n Bus s WD	sines 188	ss Pa SYS	ark	Envir	E	al Science
4	511NG 4041	Τe	ested in Accordanc	e with BS13	77:Part 2	2:1990, d	clause	9.2										
Clie	ent:		Jomas Associa	ites Ltd						Client I	Refere	ence:	JJ12	222				
Clie	ent A	ddress:	1 Furzeground	e Way						Jo	b Num	nber:	17-6	5497 Civ	7 00			
			Stockley Park	,						Date	e Sam	piea:	INOL	Give	en			
~			UB11 1BD							Date	Recei	ived:	20/1	0/20	017			
Site	ntact: e Nar	ne:	72 Marsefield C	Gardens NV	V3 5TE	)				Da Sa	ate Tes ampleo	sted: d By:	Not	Give	en			
Site	e Add	Iress:	72 Marsefield C	Gardens NV	V3 5TE	)						,						
TES	ST R	ESULTS	Laborator	y Referenc	e: 84	42533				Sample I	Refere	ence:	Not	Giv	en			
Sar	nple ation	description: n: WS	2 Yellowish	brown very	/ clayey	/ SAND				Sar Dept	nple I th Top	ype: [m]:	4.00	)				
Sup	oplier	: Not	Given							Depth	n Base	[m]:	Not	Giv	en			
	_		SILT			SAND				GR	AVEL			COBI	BLES	BOU	LDERS	8
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		125 90	100 100						Sa Ve	ample Proport ery coarse	tions				9	6 dry n 0.00	nass )	
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		0.063	39															

Dariusz Piotrowski PL Laboratory Manager Geotechnical Section

Piotuli

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Signed:

Darren Berrill Geotechnical General Manager



PL Laboratory Manager Geotechnical Section

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Geotechnical General

Manager



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4	1041	1	este	d in /	Accordan	ce with	n BS	5137	77:Pa	rt 2:'	1990	), cla	ause	e 9.2	2																		
Clie	ent:		Jo	mas	s Associ	ates L	td											CI	ien	t R	efe	ren	ce:	ار ا	J12	222	2						
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Dariusz Piotrowski PL Laboratory Manager Geotechnical Section

Piotuli

Date Reported:

10/11/2017

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Darren Berrill

Geotechnical General

Signed:

Manager



**APPENDIX 9 – SOIL GAS MONITORING TEST RESULTS** 

	GAS AN	ID GROUNDWATER MONITORIN	IG BOREHOLE R	ECORD	SHEET	
Site: Marsfield Gardens	Operative(s): AM	Date: 26/10/17	Time: 12:14		Round: 1	Page: 1
		MONITORING EQ	UIPMENT			
Instrument Type	Instrument Make		Serial No.		Date Last Calibrated	
Analox	GA5000				19/06/2017	
PID	Phocheck tiger				20/05/2016	
Dip Meter	GeoTech					
		MONITORING CO	NDITIONS		-	
Weather Conditions: Overcast	t	Ground Conditions: Wet		Temper	ature: 10°C	
Barometric Pressure (mbar):	1014	Barometric Pressure Trend (24hr):	Rising	Ambien	t Concentration: 0.0%CH <sub>4</sub> ,	0.1%CO <sub>2</sub> , 20.6%O <sub>2</sub>

						MONITO	RING RESU	LTS						
Monitoring	F	low	Atmospheric					voc	(ppm)*			Depth to	Depth to	Depth to
Point Location	Peak	Steady	Pressure (mbar)	CH₄ %	LEL	CO₂ %	O2 %	Peak	Steady	п <sub>2s</sub> (ppm)	CO (ppm)	product (mbgl)	water (mbgl)	Base of well (mbgl)
WS1	+0.2	+0.2	1014	0.0	/	1.5	19.6	-	-	0	0	/	Dry	3.43
WS2	+0.1	+0.1	1014	0.0	/	5.1	17.0	-	-	0	0	/	3.83	3.96
WS3	+0.1	+0.1	1014	0.0	/	2.0	19.0	-	-	0	0	/	3.68	3.83

\*VOC's not recorded due to faulty PID

	GAS AN	ID GROUNDWATER MONITORIN	IG BOREHOLE R	ECORD	SHEET	
Site: Marsfield Gardens	Operative(s): AM	Date: 01/11/17	Time: 10:30		Round: 2	Page: 1
			UIPMENT			
Instrument Type	Instrument Make		Serial No.		Date Last Calibrated	
Analox	GA5000				19/06/2017	
PID	Phocheck tiger				20/05/2016	
Dip Meter	GeoTech					
		MONITORING CO	NDITIONS		-	
Weather Conditions: Overcast	t	Ground Conditions: Dry		Temper	ature: 10°C	
Barometric Pressure (mbar):	1009	Barometric Pressure Trend (24hr)	Falling	Ambien	t Concentration: 0.0%CH <sub>4</sub> ,	0.1%CO <sub>2</sub> , 20.9%O <sub>2</sub>

						MONITO	RING RESU	LTS						
Monitoring	F	low	Atmospheric					voc	(ppm)*			Depth to	Depth to	Depth to
Point Location	Peak	Steady	Pressure (mbar)	CH₄ %	LEL	CO₂ %	O2 %	Peak	Steady	H2S (ppm)	CO (ppm)	product (mbgl)	water (mbgl)	Base of well (mbgl)
WS1	+0.1	+0.1	1009	0.0	/	1.5	20.2	5	2	0	0	/	3.17	3.43
WS2	+0.2	+0.2	1009	0.0	/	5.0	18.1	3	1	0	0	/	3.80	3.96
WS3	+0.1	+0.1	1009	0.0	/	1.9	19.8	2	1	0	1	/	3.70	3.83

	GAS AN	D GROUNDWATER MONITORIN	IG BOREHOLE R	ECORD	SHEET	
Site: Marsfield Gardens	Operative(s): AM	Date: 07/11/17	Time: 12.47		Round: 3	Page: 1
		MONITORING EQ	UIPMENT			
Instrument Type	Instrument Make		Serial No.		Date Last Calibrated	
Analox	GA5000				19/06/2017	
PID	Phocheck tiger				20/05/2016	
Dip Meter	GeoTech					
		MONITORING CO	NDITIONS		-	
Weather Conditions: Light rain	1	Ground Conditions: Dry		Temper	ature: 11°C	
Barometric Pressure (mbar):	1005	Barometric Pressure Trend (24hr):	Falling	Ambien	t Concentration: 0.0%CH <sub>4</sub> ,	0.0%CO <sub>2</sub> , 20.9%O <sub>2</sub>

						MONITO	RING RESU	LTS						
Monitoring	F	low	Atmospheric					voc	(ppm)*			Depth to	Depth to	Depth to
Point Location	Peak	Steady	Pressure (mbar)	CH₄ %	LEL	CO₂ %	O <sub>2</sub> %	Peak	Steady	н₂5 (ppm)	CO (ppm)	product (mbgl)	water (mbgl)	Base of well (mbgl)
WS1	+0.3	+0.3	1005	0.1	-	1.4	20.2	4	2	0	0	-	3.16	3.43
WS2	+0.3	+0.3	1006	0.0	-	5.4	18.0	3	2	0	0	-	3.83	3.96
WS3	+0.2	+0.2	1006	0.0	-	1.7	19.8	2	1	0	0	-	Damp	3.83

	GAS AI	ND GROUNDWATER MONITORI	NG BOREHOLE F	RECORD	SHEET	
Site: Marsfield Gardens	Operative(s): AM	Date: 30/01/18	Time: 10.30		Round: 4	Page: 1
			UIPMENT			
Instrument Type	Instrument Make		Serial No.		Date Last Calibrated	
Analox	GA5000				19/06/2017	
PID	Phocheck tiger				20/05/2016	
Dip Meter	GeoTech					
		MONITORING CO	NDITIONS		-	
Weather Conditions:		Ground Conditions: -		Temper	ature: -	
Barometric Pressure (mbar):		Barometric Pressure Trend (24hr)	:	Ambien	t Concentration: -	

						MONITO	RING RESU	LTS						
Monitoring	F	low	Atmospheric					voc	(ppm)*			Depth to	Depth to	Depth to
Point Location	Peak	Steady	Pressure (mbar)	CH₄ %	CH₄ % LEL	CO <sub>2</sub> %	O2 %	Peak	Steady	H₂S (ppm)	CO (ppm)	product (mbgl)	water (mbgl)	Base of well (mbgl)
WS1	-	-	-	-	-	-	-	-	-	-	-	-	3.02	3.35
WS2	-	-	-	-	-	-	-	-	-	-	-	-	3.56	3.94
WS3	-	-	-	-	-	-	-	-	-	-	-	-	3.40	3.74