

APPENDIX 9 - Geo-Environmental Testing Results (Imported Topsoil)

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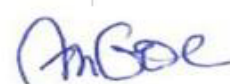
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Analytical Report Number : 24-054544

Project / Site name:	Holbeach	Samples received on:	15/11/2024
Your job number:	21400	Samples instructed on/ Analysis started on:	15/11/2024
Your order number:		Analysis completed by:	25/11/2024
Report Issue Number:	1	Report issued on:	26/11/2024
Samples Analysed:	10 soil samples		



Signed: _____

Anna Goc
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: 24-054544

Project / Site name: Holbeach

Lab Sample Number				383125	383126	383127	383128	383129
Sample Reference				TS1	TS2	TS3	TS4	TS5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	17	18	17	17
Total mass of sample received	kg	0.1	NONE	1.2	1.2	1.4	1.5	1.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA	SCA	SCA

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7	7.6	7.6	7.6	7.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	800	750	900	820	860
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	402	374	452	412	430
Organic Matter (automated)	%	0.1	MCERTS	11	11	12	11	11

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	0.06	< 0.05	0.06	0.1
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.14	0.18	0.22	0.21	0.33
Pyrene	mg/kg	0.05	MCERTS	0.13	0.15	0.24	0.19	0.31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.07	0.23	0.12	0.18
Chrysene	mg/kg	0.05	MCERTS	0.08	0.08	0.21	0.14	0.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.14	0.11	0.44	0.15	0.26
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.06	0.14	0.09	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.11	0.1	0.36	0.13	0.21
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.05	0.05	0.17	0.08	0.11
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	0.08	0.07	0.21	0.1	0.12

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	0.94	2.28	1.27	1.88
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	20	23	23	24
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	2.2	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	28	32	33	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	14	16	16	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	20	21	23	23
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	25	22	25	26	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.2	1	1.7
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	57	63	66	67

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Lab Sample Number				383125	383126	383127	383128	383129
Sample Reference				TS1	TS2	TS3	TS4	TS5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	-	< 10	-	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	-	< 0.010	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	-	< 0.020	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	-	< 2.0	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	-	< 10	-	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	10	-	< 10	-	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	10	-	< 10	-	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	-	< 8.0	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	< 5.0	-	< 5.0

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



4041



Environmental Science

Analytical Report Number: 24-054544

Project / Site name: Holbeach

Lab Sample Number				383130	383131	383132	383133	383134
Sample Reference				TS6	TS7	TS8	TS9	TS10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	17	15	18	14
Total mass of sample received	kg	0.1	NONE	1.5	1.6	1.6	1.4	1.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA	SCA	SCA

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.1	7.5	7.4	7.3	7.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	800	870	760	870	800
Water Soluble SO ₄ 16hr extraction (2:1)	mg/l	1.25	MCERTS	399	437	381	437	399
Organic Matter (automated)	%	0.1	MCERTS	12	11	11	12	11

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	0.09	0.07	< 0.05	0.09	0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.27	0.21	0.18	0.26	0.2
Pyrene	mg/kg	0.05	MCERTS	0.24	0.19	0.17	0.23	0.19
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.12	0.1	0.09	0.12	0.09
Chrysene	mg/kg	0.05	MCERTS	0.14	0.12	0.11	0.14	0.12
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.18	0.13	0.15	0.17	0.17
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.07	0.07	< 0.05	0.07	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.15	0.12	< 0.05	0.15	0.13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.08	0.07	0.06	0.07	0.07
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	0.09	0.08	0.08	0.08	0.08

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.44	1.16	0.85	1.38	1.12
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	24	23	23	22	23
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	2.1	2	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	34	36	32	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	18	16	15	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	23	22	23	22	23
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	26	26	27	25	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.3	1.5	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	91	68	69	64	66

Analytical Report Number: 24-054544

Project / Site name: Holbeach

Lab Sample Number				383130	383131	383132	383133	383134
Sample Reference				TS6	TS7	TS8	TS9	TS10
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0	-	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0	-	< 8.0	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	< 10	-	< 10	-

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	-	< 0.020	-	< 0.020	-
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	< 10	-	< 10	-
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	< 10	-	< 10	-
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-	< 10	-	< 10	-

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	-
p & m-Xylene	µg/kg	8	MCERTS	-	< 8.0	-	< 8.0	-
o-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	-

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



Analytical Report Number : 24-054544

Project / Site name: Holbeach

* 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 *
383125	TS1	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
383126	TS2	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
383127	TS3	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
383128	TS4	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation
383129	TS5	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
383130	TS6	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
383131	TS7	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
383132	TS8	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
383133	TS9	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
383134	TS10	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

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Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	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	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Analytical Report Number : 24-054544

Project / Site name: Holbeach

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TS1	N/A	S	383125	a	Asbestos identification in Soil	A001B	a
TS1	N/A	S	383125	a	Asbestos types if id positive	N/A	a
TS1	N/A	S	383125	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TS1	N/A	S	383125	a	Hexavalent chromium in soil	L080-PL	a
TS1	N/A	S	383125	a	Metals in soil by ICP-OES	L038B	a
TS1	N/A	S	383125	a	Organic matter (Automated) in soil	L009B	a
TS1	N/A	S	383125	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS1	N/A	S	383125	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS1	N/A	S	383125	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TS1	N/A	S	383125	a	pH in soil (automated)	L099-PL	a
TS10	N/A	S	383134	a	Asbestos identification in Soil	A001B	a
TS10	N/A	S	383134	a	Asbestos types if id positive	N/A	a
TS10	N/A	S	383134	a	Hexavalent chromium in soil	L080-PL	a
TS10	N/A	S	383134	a	Metals in soil by ICP-OES	L038B	a
TS10	N/A	S	383134	a	Organic matter (Automated) in soil	L009B	a
TS10	N/A	S	383134	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS10	N/A	S	383134	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS10	N/A	S	383134	a	pH in soil (automated)	L099-PL	a
TS2	N/A	S	383126	a	Asbestos identification in Soil	A001B	a
TS2	N/A	S	383126	a	Asbestos types if id positive	N/A	a
TS2	N/A	S	383126	a	Hexavalent chromium in soil	L080-PL	a
TS2	N/A	S	383126	a	Metals in soil by ICP-OES	L038B	a
TS2	N/A	S	383126	a	Organic matter (Automated) in soil	L009B	a
TS2	N/A	S	383126	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS2	N/A	S	383126	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS2	N/A	S	383126	a	pH in soil (automated)	L099-PL	a
TS3	N/A	S	383127	a	Asbestos identification in Soil	A001B	a
TS3	N/A	S	383127	a	Asbestos types if id positive	N/A	a
TS3	N/A	S	383127	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TS3	N/A	S	383127	a	Hexavalent chromium in soil	L080-PL	a
TS3	N/A	S	383127	a	Metals in soil by ICP-OES	L038B	a
TS3	N/A	S	383127	a	Organic matter (Automated) in soil	L009B	a
TS3	N/A	S	383127	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS3	N/A	S	383127	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS3	N/A	S	383127	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TS3	N/A	S	383127	a	pH in soil (automated)	L099-PL	a
TS4	N/A	S	383128	a	Asbestos identification in Soil	A001B	a
TS4	N/A	S	383128	a	Asbestos types if id positive	N/A	a
TS4	N/A	S	383128	a	Hexavalent chromium in soil	L080-PL	a
TS4	N/A	S	383128	a	Metals in soil by ICP-OES	L038B	a
TS4	N/A	S	383128	a	Organic matter (Automated) in soil	L009B	a
TS4	N/A	S	383128	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS4	N/A	S	383128	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS4	N/A	S	383128	a	pH in soil (automated)	L099-PL	a
TS5	N/A	S	383129	a	Asbestos identification in Soil	A001B	a
TS5	N/A	S	383129	a	Asbestos types if id positive	N/A	a
TS5	N/A	S	383129	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TS5	N/A	S	383129	a	Hexavalent chromium in soil	L080-PL	a
TS5	N/A	S	383129	a	Metals in soil by ICP-OES	L038B	a
TS5	N/A	S	383129	a	Organic matter (Automated) in soil	L009B	a
TS5	N/A	S	383129	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS5	N/A	S	383129	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS5	N/A	S	383129	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TS5	N/A	S	383129	a	pH in soil (automated)	L099-PL	a
TS6	N/A	S	383130	a	Asbestos identification in Soil	A001B	a
TS6	N/A	S	383130	a	Asbestos types if id positive	N/A	a
TS6	N/A	S	383130	a	Hexavalent chromium in soil	L080-PL	a
TS6	N/A	S	383130	a	Metals in soil by ICP-OES	L038B	a

Analytical Report Number : 24-054544

Project / Site name: Holbeach

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TS6	N/A	S	383130	a	Organic matter (Automated) in soil	L009B	a
TS6	N/A	S	383130	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS6	N/A	S	383130	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS6	N/A	S	383130	a	pH in soil (automated)	L099-PL	a
TS7	N/A	S	383131	a	Asbestos identification in Soil	A001B	a
TS7	N/A	S	383131	a	Asbestos types if id positive	N/A	a
TS7	N/A	S	383131	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TS7	N/A	S	383131	a	Hexavalent chromium in soil	L080-PL	a
TS7	N/A	S	383131	a	Metals in soil by ICP-OES	L038B	a
TS7	N/A	S	383131	a	Organic matter (Automated) in soil	L009B	a
TS7	N/A	S	383131	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS7	N/A	S	383131	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS7	N/A	S	383131	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TS7	N/A	S	383131	a	pH in soil (automated)	L099-PL	a
TS8	N/A	S	383132	a	Asbestos identification in Soil	A001B	a
TS8	N/A	S	383132	a	Asbestos types if id positive	N/A	a
TS8	N/A	S	383132	a	Hexavalent chromium in soil	L080-PL	a
TS8	N/A	S	383132	a	Metals in soil by ICP-OES	L038B	a
TS8	N/A	S	383132	a	Organic matter (Automated) in soil	L009B	a
TS8	N/A	S	383132	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS8	N/A	S	383132	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS8	N/A	S	383132	a	pH in soil (automated)	L099-PL	a
TS9	N/A	S	383133	a	Asbestos identification in Soil	A001B	a
TS9	N/A	S	383133	a	Asbestos types if id positive	N/A	a
TS9	N/A	S	383133	a	BTEX and/or Volatile organic compounds in soil	L073B	a
TS9	N/A	S	383133	a	Hexavalent chromium in soil	L080-PL	a
TS9	N/A	S	383133	a	Metals in soil by ICP-OES	L038B	a
TS9	N/A	S	383133	a	Organic matter (Automated) in soil	L009B	a
TS9	N/A	S	383133	a	Speciated PAHs and/or Semi-volatile organic compounds in soil	L064B	a
TS9	N/A	S	383133	a	Sulphate, water soluble, in soil (16hr extraction)	L038B	a
TS9	N/A	S	383133	a	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	a
TS9	N/A	S	383133	a	pH in soil (automated)	L099-PL	a



Final Report

Report No.: 24-04706-1

Initial Date of Issue: 28-Feb-2024

Re-Issue Details:

Client P J Thory Ltd

Client Address: White Walls
Eldernell
Coates
Cambridgeshire
PE7 2DD

Contact(s): Chris O'Gorman

Project Star Quarry

Quotation No.: Q24-33835

Date Received: 16-Feb-2024

Order No.:

Date Instructed: 16-Feb-2024

No. of Samples: 4

Turnaround (Wkdays): 5

Results Due: 22-Feb-2024

Date Approved: 28-Feb-2024

Subcon Results Due: 08-Mar-2024

Approved By:

Details: Stuart Henderson, Technical
Manager

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: Star Quarry

Client: P J Thory Ltd		Chemtest Job No.:				24-04706	24-04706	24-04706	24-04706
Quotation No.: Q24-33835		Chemtest Sample ID.:				1767447	1767448	1767449	1767450
Order No.:		Client Sample Ref.:				BS 3822 1	PH X4	Asbestos ID X1	Envirosuite
		Sample Location:				Stock	Stock	Stock	Stock
		Sample Type:				SOIL	SOIL	SOIL	SOIL
		Date Sampled:				06-Feb-2024	06-Feb-2024	06-Feb-2024	06-Feb-2024
		Time Sampled:				10:00	10:15	10:15	10:15
		Asbestos Lab:							NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD				
ACM Type		U	2192		N/A			-	-
Asbestos Identification		U	2192		N/A			No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	23	50		27
Stones and Removed Materials		N	2030	%	0.020				< 0.020
Soil Colour		N	2040		N/A	Brown	Brown		Brown
Other Material		N	2040		N/A	Stones and Roots	Stones and Roots		Stones and Roots
Soil Texture		N	2040		N/A	Clay	Clay		Clay
pH at 20C		M	2010		4.0		7.2		7.4
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40				4.2
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010				0.017
Cyanide (Free)		M	2300	mg/kg	0.50				< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50				< 0.50
Thiocyanate		M	2300	mg/kg	5.0				< 5.0
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50				3.2
Sulphate (Total)		U	2430	%	0.010				0.17
Arsenic		M	2455	mg/kg	0.5				17
Cadmium		M	2455	mg/kg	0.10				0.26
Chromium		M	2455	mg/kg	0.5				36
Copper		M	2455	mg/kg	0.50				19
Mercury		M	2455	mg/kg	0.05				0.05
Nickel		M	2455	mg/kg	0.50				24
Lead		M	2455	mg/kg	0.50				22
Selenium		M	2455	mg/kg	0.25				1.3
Zinc		M	2455	mg/kg	0.50				83
Chromium (Hexavalent)		N	2490	mg/kg	0.50				< 0.50
Organic Matter		M	2625	%	0.40				3.2
Total TPH >C5-C35		N	2670	mg/kg	10				< 10
Naphthalene		M	2700	mg/kg	0.10				< 0.10
Acenaphthylene		M	2700	mg/kg	0.10				< 0.10
Acenaphthene		M	2700	mg/kg	0.10				< 0.10
Fluorene		M	2700	mg/kg	0.10				< 0.10
Phenanthrene		M	2700	mg/kg	0.10				< 0.10
Anthracene		M	2700	mg/kg	0.10				< 0.10
Fluoranthene		M	2700	mg/kg	0.10				< 0.10
Pyrene		M	2700	mg/kg	0.10				< 0.10

Results - Soil

Project: Star Quarry

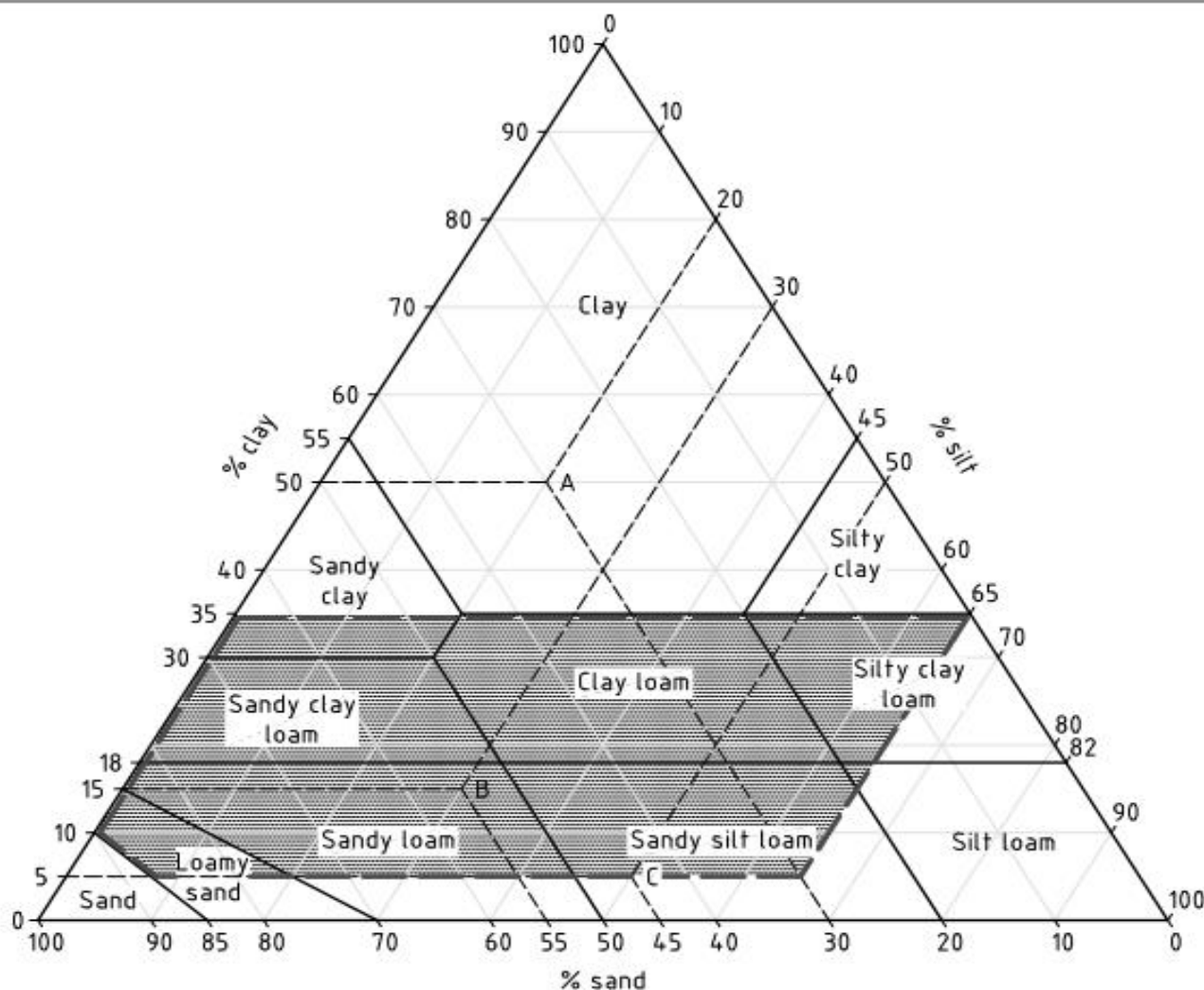
Client: P J Thory Ltd		Chemtest Job No.:	24-04706	24-04706	24-04706	24-04706
Quotation No.: Q24-33835		Chemtest Sample ID.:	1767447	1767448	1767449	1767450
Order No.:		Client Sample Ref.:	BS 3822 1	PH X4	Asbestos ID X1	Envirosuite
		Sample Location:	Stock	Stock	Stock	Stock
		Sample Type:	SOIL	SOIL	SOIL	SOIL
		Date Sampled:	06-Feb-2024	06-Feb-2024	06-Feb-2024	06-Feb-2024
		Time Sampled:	10:00	10:15	10:15	10:15
		Asbestos Lab:				NEW-ASB
Determinand	HWOL Code	Accred.	SOP	Units	LOD	
Benzol[anthracene		M	2700	mg/kg	0.10	< 0.10
Chrysene		M	2700	mg/kg	0.10	< 0.10
Benzol[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10
Benzol[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10
Benzol[a]pyrene		M	2700	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10
Benzol[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10
Total Of 16 PAH's		M	2700	mg/kg	2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10

Results - Topsoil Report

BS3882:2015

Chemtest Job No.: 24-04706
Chemtest Sample ID.: 1767447
 Client Sample Ref.: BS 3822 1
 Sample Location: Stock
Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 06-Feb-2024
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)		
Texture					Acid	Low F	Calc.
Clay content (Sub Contracted)	%		27				
Silt content (Sub Contracted)	%		33				
Sand content (Sub Contracted)	%		40				
Soil texture class		See Attached Chart	Clay Loam	YES			
Mass Loss on Ignition							
Clay 5-20%		3.0-20	8.6	YES	YES	YES	YES
Clay 20-35%		5.0-20					
Stone Content	% m/m						
>2mm (Sub Contracted)		0-30	11	YES			
>20mm (Sub Contracted)		0-10	< 0.10	YES			
>50mm (Sub Contracted)		0	< 0.10	YES			
Soil pH value		5.5-8.5	7.4	YES	NO	YES	NO
Carbonate (Calcareous only)	%		1.2				YES
Electrical Conductivity	µS/cm	If >3300 do ESP	1800	YES			
Available Nutrient Content							
Nitrogen %		>0.15	0.29	YES	YES		YES
Extractable phosphorus	mg/l	16-140	7.8	NO	NO	YES	NO
Extractable potassium	mg/l	121-1500	270	YES	YES		YES
Extractable magnesium	mg/l	51-600	65	YES	YES		YES
Carbon : Nitrogen Ratio		<20:1	17.4/1	YES	YES	YES	YES
Exchangeable sodium	%	<15	1.3				
Available Calcium	mg/l		450				
Available Sodium	mg/l		37				
Phytotoxic Contaminants (by soil pH)		< 6.0	6.0-7.0	> 7.0			
Zinc (Nitric Acid extract)	mg/kg	<200	<200	<300	150	YES	
Copper (Nitric Acid extract)	mg/kg	<100	<135	<200	35	YES	
Nickel (Nitric Acid extract)	mg/kg	<60	<75	<110	53	YES	
Visible Contaminants	% mm						
>2mm		<0.5	0.000	YES			
..... of which plastics		<0.25	0.000	YES			
..... man-made sharps		zero in 1kg	0.000	YES			

Texture Classification Chart**Key**

Area within which the texture of topsoil is required to fall

NOTE Examples of textural classification are as follows.

- Soil A with 30% sand, 20% silt and 50% clay is in the "clay" textural class.
- Soil B with 55% sand, 30% silt and 15% clay is in the "sandy loam" textural class.
- Soil C with 45% sand, 50% silt and 5% clay is in the "sandy silt loam" textural class.

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Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2020	Electrical Conductivity	Electrical conductivity (EC) of aqueous extract or calcium sulphate solution for topsoil	Measurement of the electrical resistance of a 2:1 water/soil extract.	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2115	Total Nitrogen in Soils	Nitrogen	Determination by elemental analyser	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2260	Carbonate	Carbonate	Titration	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2400	Cations	Cations	ICP-MS	
2420	Phosphate	Phosphate	Spectrophotometry - Discrete analyser	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2620	LOI 440	LOI 440 Trommel Fines	Determination of the proportion by mass that is lost from a soil by ignition at 440°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable
- PL - Prepared Leachate
- PW - Processed Water

Report Information

RE - Recreational Water

SA - Saline Water

SW - Surface Water

TE - Treated Effluent

TS - Treated Sewage

UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up

MC - Mathematical Clean Up

FC - Florisil Clean Up

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com



Final Report

Report No.: 24-17338-1

Initial Date of Issue: 13-Jun-2024

Re-Issue Details:

Client P J Thory Ltd

Client Address: White Walls
Eldernell
Coates
Cambridgeshire
PE7 2DD

Contact(s): Chris O'Gorman

Project Chittering Petronia

Quotation No.: Q24-34998

Date Received: 03-Jun-2024

Order No.:

Date Instructed: 03-Jun-2024

No. of Samples: 1

Turnaround (Wkdays): 5

Results Due: 07-Jun-2024

Date Approved: 12-Jun-2024

Subcon Results Due: 24-Jun-2024

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: Chitering Petronia

Client: P J Thory Ltd		Chemtest Job No.:		24-17338	
Quotation No.: Q24-34998		Chemtest Sample ID.:		1815509	
		Sample Location:		Stockpile	
		Sample Type:		SOIL	
		Date Sampled:		29-May-2024	
		Time Sampled:		10:30	
		Asbestos Lab:		DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD
ACM Type		U	2192		N/A
Asbestos Identification		U	2192		N/A
					No Asbestos Detected
Moisture		N	2030	%	0.020
Stones and Removed Materials		N	2030	%	0.020
Soil Colour		N	2040		N/A
Other Material		N	2040		N/A
Soil Texture		N	2040		N/A
pH at 20C		M	2010		4.0
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010
Cyanide (Free)		M	2300	mg/kg	0.50
Cyanide (Total)		M	2300	mg/kg	0.50
Thiocyanate		M	2300	mg/kg	5.0
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50
Sulphate (Total)		U	2430	%	0.010
Arsenic		M	2455	mg/kg	0.5
Cadmium		M	2455	mg/kg	0.10
Chromium		M	2455	mg/kg	0.5
Copper		M	2455	mg/kg	0.50
Mercury		M	2455	mg/kg	0.05
Nickel		M	2455	mg/kg	0.50
Lead		M	2455	mg/kg	0.50
Selenium		M	2455	mg/kg	0.25
Zinc		M	2455	mg/kg	0.50
Chromium (Hexavalent)		N	2490	mg/kg	0.50
Organic Matter		M	2625	%	0.40
Total TPH >C5-C35		N	2670	mg/kg	10
Naphthalene		M	2700	mg/kg	0.10
Acenaphthylene		M	2700	mg/kg	0.10
Acenaphthene		M	2700	mg/kg	0.10
Fluorene		M	2700	mg/kg	0.10
Phenanthrene		M	2700	mg/kg	0.10
Anthracene		M	2700	mg/kg	0.10
Fluoranthene		M	2700	mg/kg	0.10
Pyrene		M	2700	mg/kg	0.10
Benzofluranthracene		M	2700	mg/kg	0.10
Chrysene		M	2700	mg/kg	0.10
Benzofluranthene		M	2700	mg/kg	0.10

Results - Soil

Project: Chittering Petronia

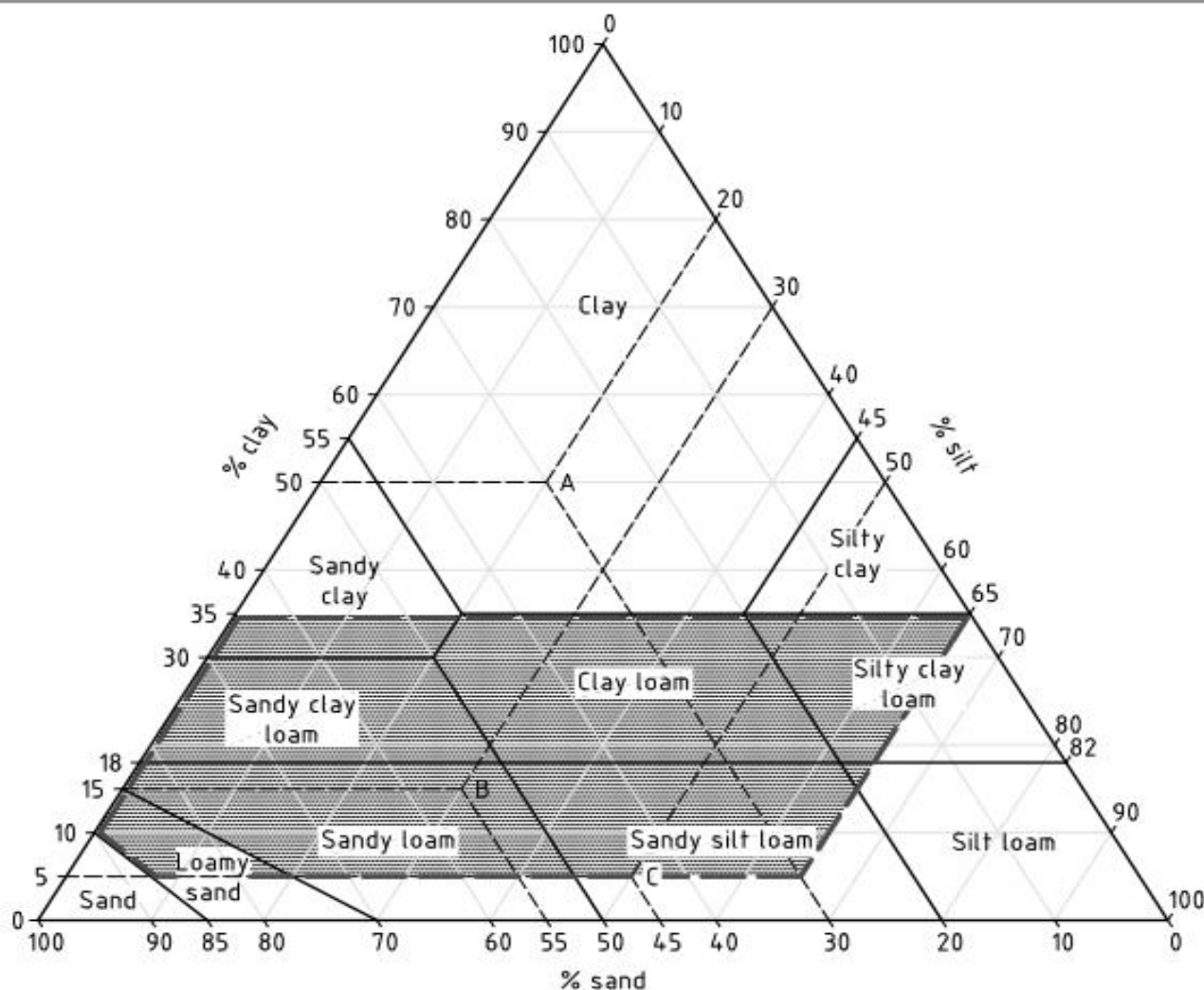
Client: P J Thory Ltd		Chemtest Job No.: 24-17338			
Quotation No.: Q24-34998		Chemtest Sample ID.:	1815509		
		Sample Location:	Stockpile		
		Sample Type:	SOIL		
		Date Sampled:	29-May-2024		
		Time Sampled:	10:30		
		Asbestos Lab:	DURHAM		
Determinand	HWOL Code	Accred.	SOP	Units	LOD
Benzol[k]fluoranthene		M	2700	mg/kg	0.10
Benzol[a]pyrene		M	2700	mg/kg	0.10
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10
Benzofg,h,ijperylene		M	2700	mg/kg	0.10
Total Of 16 PAH's		M	2700	mg/kg	2.0
Total Phenols		M	2920	mg/kg	0.10

Results - Topsoil Report

BS3882:2015

Chemtest Job No.: 24-17338
 Chemtest Sample ID.: 1815509
 Client Sample Ref.:
 Sample Location: Stockpile
 Client Sample ID.:
 Top Depth (m):
 Bottom Depth (m):
 Date Sampled: 29-May-2024
 Time Sampled:

Parameter	Units	Multipurpose Range	Result	Compliant with Multipurpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)		
Texture					Acid	Low F	Calc.
Clay content (Sub Contracted)	%		22				
Silt content (Sub Contracted)	%		31				
Sand content (Sub Contracted)	%		47				
Soil texture class		See Attached Chart	Clay Loam	YES			
Mass Loss on Ignition							
Clay 5-20%		3.0-20	11	YES	YES	YES	YES
Clay 20-35%		5.0-20					
Stone Content	% m/m						
>2mm (Sub Contracted)		0-30	6.2	YES			
>20mm (Sub Contracted)		0-10	< 0.10	YES			
>50mm (Sub Contracted)		0	< 0.10	YES			
Soil pH value		5.5-8.5	7.7	YES	NO	YES	YES
Carbonate (Calcareous only)	%		3.0				YES
Electrical Conductivity	µS/cm	If >3300 do ESP	2600	YES			
Available Nutrient Content							
Nitrogen %		>0.15	0.61	YES	YES		YES
Extractable phosphorus	mg/l	16-140	24	YES	YES	NO	YES
Extractable potassium	mg/l	121-1500	720	YES	YES		YES
Extractable magnesium	mg/l	51-600	130	YES	YES		YES
Carbon : Nitrogen Ratio		<20:1	10.1/1	YES	YES	YES	YES
Exchangeable sodium	%	<15	0.90				
Available Calcium	mg/l		930				
Available Sodium	mg/l		55				
Phytotoxic Contaminants (by soil pH)		< 6.0	6.0-7.0	> 7.0			
Zinc (Nitric Acid extract)	mg/kg	<200	<200	<300	34	YES	
Copper (Nitric Acid extract)	mg/kg	<100	<135	<200	9.4	YES	
Nickel (Nitric Acid extract)	mg/kg	<60	<75	<110	14	YES	
Visible Contaminants	% mm						
>2mm		<0.5	0.000	YES			
..... of which plastics		<0.25	0.000	YES			
..... man-made sharps		zero in 1kg	0.000	YES			

Texture Classification Chart**Key**

Area within which the texture of topsoil is required to fall

NOTE Examples of textural classification are as follows.

- Soil A with 30% sand, 20% silt and 50% clay is in the "clay" textural class.
- Soil B with 55% sand, 30% silt and 15% clay is in the "sandy loam" textural class.
- Soil C with 45% sand, 50% silt and 5% clay is in the "sandy silt loam" textural class.

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Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2020	Electrical Conductivity	Electrical conductivity (EC) of aqueous extract or calcium sulphate solution for topsoil	Measurement of the electrical resistance of a 2:1 water/soil extract.	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2115	Total Nitrogen in Soils	Nitrogen	Determination by elemental analyser	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2260	Carbonate	Carbonate	Titration	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2400	Cations	Cations	ICP-MS	
2420	Phosphate	Phosphate	Spectrophotometry - Discrete analyser	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2620	LOI 440	LOI 440 Trommel Fines	Determination of the proportion by mass that is lost from a soil by ignition at 440°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com