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UKAS TESTING
2183

Final Report

Report No.:	22-25550-1
Initial Date of Issue:	19-Jul-2022
Client	P J Thory Ltd
Client Address:	White Walls Eldernell Coates Cambridgeshire PE7 2DD
Contact(s):	Chris O'Gorman
Project	Must Farm Topsoil
Quotation No.:	Q22-28114
Order No.:	Must Farm
No. of Samples:	2
Turnaround (Wkdays):	10
Date Approved:	19-Jul-2022
Approved By:	

Date Received:	07-Jul-2022
Date Instructed:	07-Jul-2022
Results Due:	20-Jul-2022



Details: Stuart Henderson, Technical Manager

Results - Soil

Project: Must Farm Topsoil

Client: P J Thory Ltd					**Chemtest Job No.:**	22-25550	22-25550
Quotation No.: Q22-28114					**Chemtest Sample ID.:**	1463120	1463121
					Client Sample ID.:	1	2
					Sample Location:	Stockpile	Stockpile
					Sample Type:	SOIL	SOIL
					Date Sampled:	04-Jul-2022	04-Jul-2022
					Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A			-
Asbestos Identification	U	2192		N/A			No Asbestos Detected
Moisture	N	2030	%	0.020		19	19
Stones and Removed Materials	N	2030	%	0.020			< 0.020
pH	U	2010		4.0			6.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40			0.82
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010			1.1
Cyanide (Free)	U	2300	mg/kg	0.50			< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50			< 0.50
Thiocyanate	U	2300	mg/kg	5.0			26
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50			3.1
Sulphate (Total)	U	2430	%	0.010			1.8
Arsenic	U	2455	mg/kg	0.5			8.7
Cadmium	U	2455	mg/kg	0.10			< 0.10
Chromium	U	2455	mg/kg	0.5			16
Copper	U	2455	mg/kg	0.50			10
Mercury	U	2455	mg/kg	0.05			< 0.05
Nickel	U	2455	mg/kg	0.50			12
Lead	U	2455	mg/kg	0.50			7.5
Selenium	U	2455	mg/kg	0.25			0.85
Zinc	U	2455	mg/kg	0.50			31
Chromium (Hexavalent)	N	2490	mg/kg	0.50			< 0.50
Organic Matter	U	2625	%	0.40			17
Total TPH >C5-C35	N	2670	mg/kg	10			< 10
Naphthalene	U	2700	mg/kg	0.10			< 0.10
Acenaphthylene	U	2700	mg/kg	0.10			< 0.10
Acenaphthene	U	2700	mg/kg	0.10			< 0.10
Fluorene	U	2700	mg/kg	0.10			< 0.10
Phenanthrene	U	2700	mg/kg	0.10			< 0.10
Anthracene	U	2700	mg/kg	0.10			< 0.10
Fluoranthene	U	2700	mg/kg	0.10			< 0.10
Pyrene	U	2700	mg/kg	0.10			< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10			< 0.10
Chrysene	U	2700	mg/kg	0.10			< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10			< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10			< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10			< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10			< 0.10

Results - Soil

Project: Must Farm Topsoil

Client: P J Thory Ltd					**Chemtest Job No.:**	22-25550	22-25550
Quotation No.: Q22-28114					**Chemtest Sample ID.:**	1463120	1463121
					Client Sample ID.:	1	2
					Sample Location:	Stockpile	Stockpile
					Sample Type:	SOIL	SOIL
					Date Sampled:	04-Jul-2022	04-Jul-2022
					Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10			< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10			< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0			< 2.0
Total Phenols	U	2920	mg/kg	0.10			< 0.10

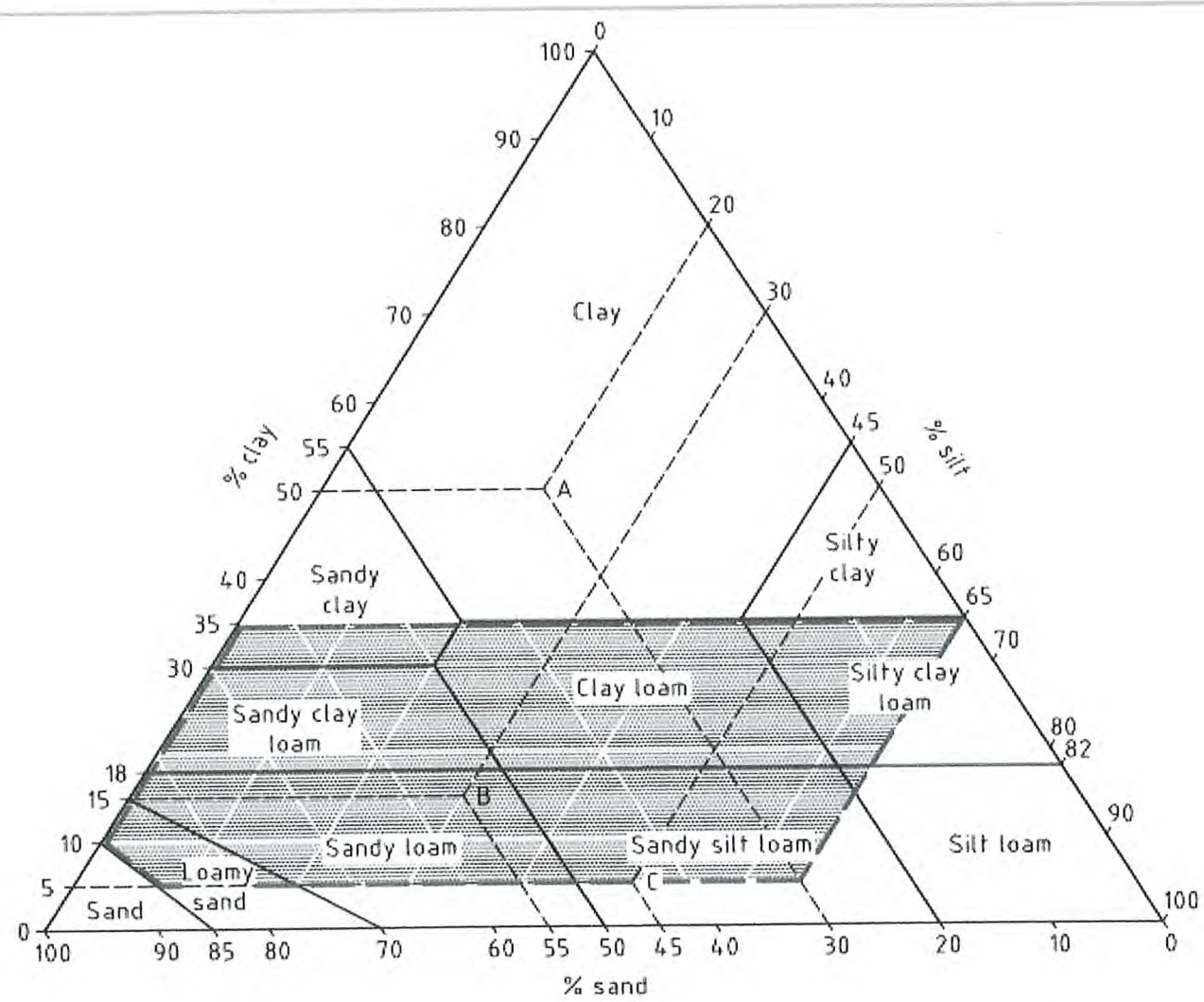
Results - Topsoil Report

BS3882:2015

Chemtest Job No.: 22-25550
Chemtest Sample ID.: 1463120
Client Sample Ref.:
Sample Location: Stockpile
Client Sample ID.: 1
Top Depth (m):
Bottom Depth (m):
Date Sampled: 04-Jul-2022
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	%				4.8				
Silt content	%				18				
Sand content	%				77				
Soil texture class		See Attached Chart			Loamy Sand	NO			
Mass Loss on Ignition									
Clay 5-20%		3.0-20			11	NO	NO	YES	NO
Clay 20-35%		5.0-20							
Stone Content	% m/m								
>2mm		0-30			25	YES			
>20mm		0-10			< 0.020	YES			
>50mm		0			< 0.020	YES			
Soil pH value		5.5-8.5			6.3	YES	NO	YES	NO
Carbonate (Calcareous only)	%				< 0.10				NO
Electrical Conductivity	µS/cm	If >3300 do ESP			2200	YES			
Available Nutrient Content									
Nitrogen %		>0.15			0.76	YES	YES		YES
Extractable phosphorus	mg/l	16-140			42	YES	YES	NO	YES
Extractable potassium	mg/l	121-1500			120	NO	NO		NO
Extractable magnesium	mg/l	51-600			49	NO	NO		NO
Carbon : Nitrogen Ratio		<20:1			8.5/1	YES	YES	YES	YES
Exchangeable sodium	%	<15			1.4				
Available Calcium	mg/l				470				
Available Sodium	mg/l				39				
Phytotoxic Contaminants (by soil pH)		**< 6.0**	**6.0-7.0**	**> 7.0**					
Zinc (Nitric Acid extract)	mg/kg	<200	<200	<300	35	YES			
Copper (Nitric Acid extract)	mg/kg	<100	<135	<200	14	YES			
Nickel (Nitric Acid extract)	mg/kg	<60	<75	<110	15	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
2010	pH Value of Soils	pH	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	Allkaline 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.
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-diphenylcarbazide.
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; Dibenz[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

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

Analytical Report Number: 22-49641

Lab Sample Number				2226487
Sample Reference				Sample 1
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				Deviating
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO
General Inorganics				
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Phenols				
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.52
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.6
Pyrene	mg/kg	0.05	MCERTS	1.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.2
Chrysene	mg/kg	0.05	MCERTS	0.88
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.7
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.64
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.71
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	10.5
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	74
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82
Monoaromatics & Oxygenates				
Benzene	µg/kg	1	MCERTS	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0

Petroleum Hydrocarbons				
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	16
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	MCERTS	21
U/S = Unsuitable Sample I/S = Insufficient Sample				

Default	Name	Position	Signature file	
	Claire Stone	Technical Reviewer		
	Rachel Bradley	Deputy Quality Manager		
	Zina Abdul Razzak	Senior Quality Specialist		
	Agnieszka Pietrowska	Laboratory Manager		
	Magdalena Herok	Deputy Labolatory Manager		
	Marzena Babik	Quality Manager		
	Mirosława Pytlik-Kratiuk	Deputy Quality Manager		
	Edyta Pichura	Quality Specialist		
	Karolina Marek	PL Head of Reporting Team		
	Agnieszka Czerwińska	Technical Reviewer (Reporting Team)		
	Joanna Wawrzeczko	Reporting Specialist		
	Ben Wilding	Technical Reviewer		
	Claire Brown-Crociquia	Group Customer Services Manager		
	Matthew O'Connell	Key Account Manager		
	Izabela Wójcik	Reporting Specialist		
	Jeanette Abbot	Technical Reviewer		
	Kathryn Gleaves	Technical Reviewer		
	Anna Goc	Junior Reporting Specialist		
	Martyna Langer	Junior Reporting Specialist		
	Adam Fenwick	Technical Reviewer		