



APPENDIX 2 - Site Photographs



Photograph 1 – Western area of the site



Photograph 2 – Southern area of the site



Photograph 3 – Dense vegetation onsite



APPENDIX 3 - Exploratory Hole Logs



GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

BH4

Sheet 1 of 2

Project Name: HOLCHEM, PILSWORTH IND
ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 15/06/2022 - 16/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								MADE GROUND: Sandy cobbles of sandstone. Sand is fine to coarse.	
		0.50	D		0.50			MADE GROUND: Firm brown sandy silty clay. Sand is fine to coarse.	
		0.50	ES		0.70			MADE GROUND: Dark brown clayey slightly gravelly coarse sand. Gravel is rounded to subrounded coarse of mudstone.	1
		1.00	D						
		1.20		N=23 (1,2/5,7,4,7)					
		1.50	ES						
		2.00		N=11 (1,2/2,3,2,4)					2
		2.60	D		2.50			Medium dense brown clayey gravelly fine to coarse SAND. Gravel is subrounded to rounded fine of mudstone.	
		3.00	ES						3
		3.00		N=11 (1,1/2,2,3,4)					
		3.00 - 3.45	B						
		4.00		N=13 (1,2/3,3,3,4)					4
		5.00		N=17 (2,3/4,4,4,5)	5.10			Firm to medium strength grey brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is rounded to subrounded fine of mudstone.	5
		5.00 - 5.45	B						
		6.00 - 6.45	U						6
		6.50	D		6.40			Medium dense grey silty gravelly fine to coarse SAND. Sand is fine to coarse. Gravel is rounded to subrounded fine of mudstone and siltstone.	7
		7.00		N=18 (1,3/4,4,4,6)					
		7.00 - 7.45	B						
					7.80			Firm high strength dark brown gravelly sandy CLAY. Sand is fine. Gravel is subrounded to rounded fine mudstone and siltstone.	8
		8.50 - 8.95	U						
		9.00	D		9.00			Firm dark brown sandy slightly gravelly silty CLAY. Sand is fine. Gravel is subrounded to rounded fine of mudstone.	9
		10.00 - 10.45	B		10.00				10

Continued on next sheet

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 7.0m bgl. 4. Standpipe installed to 3.0m bgl: 1.0m plain, 2.0m slotted.





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Borehole Log

Borehole No.

BH4

Sheet 2 of 2

Project Name: HOLCHEM, PILSWORTH IND
ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 15/06/2022 - 16/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		11.50 - 11.95	U					Firm brown silty CLAY.	11
								<u>High strength at 11.5m bgl</u>	12
		13.00 13.00 - 13.45	B	N=17 (2,3/3,4,4,6)	13.00			Medium dense fine brown clayey silty SAND.	13
		14.50		N=26 (3,3/4,5,7,10)					14
		15.50 - 15.95	B		15.70				15
		17.00 17.00 - 17.45	B	N=36 (4,5/5,7,10,14)	17.00			Firm brown sandy gravelly CLAY. Sand is fine. Gravel is rounded to subrounded fine of mixed lithologies including siltstone and sandstone.	16
		18.50		N=50 (4,5/10,14,16,10)	18.50			Firm to stiff brown sandy gravelly CLAY. Sand is fine. Gravel is rounded to subrounded fine to coarse of mixed lithologies including siltstone and sandstone.	17
		19.50		N=43 (5,4/6,10,10,17)				Firm to stiff brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to rounded coarse of mixed lithologies including siltstone and sandstone.	18
					20.00			End of borehole at 20.00 m	19
									20

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 7.0m bgl. 4. Standpipe installed to 3.0m bgl: 1.0m plain, 2.0m slotted.





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Borehole Log

Borehole No.

BH5

Sheet 1 of 2

Project Name: HOLCHEM, PILSWORTH IND ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 14/06/2022 - 15/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.70	B		0.30			MADE GROUND: Brown clayey sandy topsoil. Sand is fine.	
		0.50	ES		0.70			MADE GROUND: Brown clayey gravelly fine to coarse sand with low cobble content. Gravel is rounded to subrounded fine to coarse of mixed lithologies including sandstone and brick.	
		1.20	D					MADE GROUND: Firm brown silty sandy clay. Sand is fine.	1
		1.20		N=12 (2,1/3,2,3,4)					
		1.20 - 1.65	B						
		2.00	ES						2
		2.00		N=6 (1,1/2,1,2,1)					
		2.00 - 2.45	B						
		3.00	ES		3.10			Firm to stiff high strength brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of siltstone.	3
		3.00		N=15 (2,2/3,4,4,4)					
		3.00 - 3.45	B						
		4.00	ES					Firm brown silty CLAY.	4
		4.00 - 4.45	U						
		4.50	D						
		5.00		N=14 (2,3/3,3,4,4)					5
		5.00 - 5.45	B						
		6.00		N=10 (1,2/2,2,3,3)	5.70				6
		6.00 - 6.45	B						
		7.00		N=10 (1,1/1,2,3,4)					7
		7.50 - 7.95	B		7.50			Firm brown silty slightly gravelly CLAY. Gravel is angular to subangular coarse of mixed lithologies including siltstone and sandstone.	8
		9.00		N=17 (3,3/3,4,4,6)	8.70			Firm to stiff brown sandy CLAY. Sand is fine.	9
		9.00 - 9.45	B		9.45			Firm brown gravelly CLAY with sand bands. Sand is fine. Gravel is rounded to subrounded fine to coarse of mixed lithologies including	10

Continued on next sheet

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 8.0m bgl. 4. Standpipe installed to 7.0m bgl: 3.0m plain, 4.0m slotted.





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Borehole Log

Borehole No.

BH5

Sheet 2 of 2

Project Name: HOLCHEM, PILSWORTH IND
ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

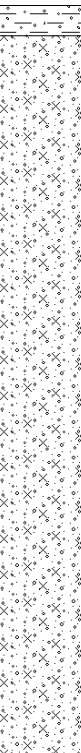
Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 14/06/2022 - 15/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50 10.50 - 10.95	B	N=17 (3,3/4,4,4,5)	10.20			siltstone and sandstone.	
								Medium dense grey silty gravelly fine to coarse SAND. Sand is fine to coarse. Gravel is rounded to subrounded fine of mudstone and siltstone.	11
		12.00 12.00 - 12.45	B	N=22 (2,2/3,4,5,10)					12
		13.50 13.50 - 13.95	B	N=25 (4,4/5,5,7,8)					13
		15.00		N=28 (4,4/5,7,8,8)	15.00			End of borehole at 15.00 m	14
									15
									16
									17
									18
									19
									20

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 8.0m bgl. 4. Standpipe installed to 7.0m bgl: 3.0m plain, 4.0m slotted.





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Borehole Log

Borehole No.

BH6

Sheet 1 of 2

Project Name: HOLCHEM, PILSWORTH IND
ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

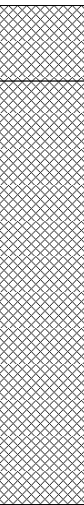
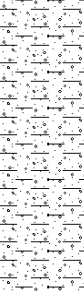
Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 17/06/2022 - 20/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	D	N=10 (1,2/3,2,2,3)	0.50			MADE GROUND: Dark brown slightly sandy topsoil. Sand is fine.	1
		0.50	ES						
		1.00	D						
		1.20							
		1.50	ES	N=9 (1,1/2,1,3,3)				MADE GROUND: Brown clayey gravelly fine to coarse sand with low cobble content. Gravel is rounded to subrounded fine to coarse of mixed lithologies including sandstone and brick.	2
		2.00							
		2.20	ES						
		3.00	B	N=15 (2,2/2,4,4,5)	3.30			MADE GROUND: Firm dark brown sandy gravelly clay. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of sandstone, siltstone and brick.	3
		3.00 - 3.45							
		4.00	B	N=13 (2,3/2,3,4,4)					4
		4.00 - 4.45							
5.00	B	N=16 (2,2/3,4,4,5)					5		
5.00 - 5.45									
6.50		N=13 (2,3/2,4,3,4)	6.50				6		
8.00	B	N=9 (1,2/1,3,2,3)					Firm dark brown sandy gravelly CLAY. Sand is coarse. Gravel is subangular to subrounded fine to coarse of mixed lithologies including sandstone and siltstone.	7	
8.00 - 8.45									
8.50 - 8.70	B			8.50					
				8.70			Brown plastic pseudo-fibrous PEAT.		
9.00 - 9.45	U						Firm to stiff high strength brown sandy CLAY. Sand is fine.	9	
9.50	D			9.50			Stiff brown mottled grey CLAY.		
							Continued on next sheet	10	

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 9.0m bgl. 4. Backfilled with arisings.





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Borehole Log

Borehole No.

BH6

Sheet 2 of 2

Project Name: HOLCHEM, PILSWORTH IND
ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

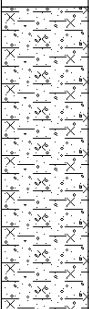
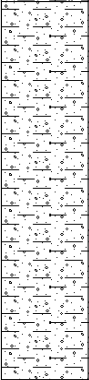
Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 17/06/2022 - 20/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		10.50 10.50 - 10.95	B	N=21 (3,5/4,4,5,8)	10.50			Stiff brown gravelly sandy silty CLAY. Sand is fine to coarse. Gravel is rounded to subrounded fine to coarse of siltstone and sandstone.	11
		12.00 - 12.45	U				<u>Medium strength at 12.0m bgl.</u>		12
		12.50	D		12.50			Firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to subangular and coarse of mixed lithologies including siltstone and sandstone.	13
		13.50 13.50 - 13.95	B	N=17 (3,4/4,4,4,5)					14
		14.50		N=21 (3,4/4,5,6,6)					
					15.00		End of borehole at 15.00 m		15
									16
									17
									18
									19
									20

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 9.0m bgl. 4. Backfilled with arisings.





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Borehole Log

Borehole No.

BH7

Sheet 1 of 2

Project Name: HOLCHEM, PILSWORTH IND ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 13/06/2022 - 14/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.25			0.25			MADE GROUND: Dark brown slightly sandy topsoil.	
		0.50	D					MADE GROUND: Firm dark brown sandy gravely clay. Sand is fine to coarse. Gravel is subangular to subrounded coarse of mixed lithologies including sandstone, siltstone and brick.	
		0.50	ES						
		1.00	D						1
		1.20		N=6 (1,2/1,2,1,2)					
		1.50	ES						
		2.00		N=9 (1,2/2,1,2,4)					2
		3.00	D						3
		3.00		N=11 (2,2/2,3,3,3)					
		4.00		N=7 (1,1/1,2,2,2)					4
		4.50	D						
		5.00		N=15 (2,3/3,4,4,4)	4.90			Medium dense clayey gravely coarse SAND. Gravel is subangular to subrounded fine to coarse of mixed lithologies including siltstone and sandstone.	5
		5.30	ES						6
		6.50		N=4 (1,0/0,1,1,2)					7
		7.30			7.30			Soft brown sandy CLAY. Sand is fine.	
		8.00		N=17 (2,3/4,4,4,5)	8.00				8
								Medium dense brown silty gravely fine SAND. Gravel is subrounded fine of mixed lithologies.	9
									10

Continued on next sheet

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 10m bgl. 4. Standpipe installed to 3.0m bgl: 1.0m plain, 2.0m slotted.





GROUNDTECH
CONSULTING

Borehole Log

Borehole No.

BH7

Sheet 2 of 2

Project Name: HOLCHEM, PILSWORTH IND ESTATE

Project No.
GRO-22216

Co-ords: -

Hole Type
CP

Location: BURY

Level:

Scale
1:50

Client: BRIAN CLANCY HIGBY PARTNERSHIP

Dates: 13/06/2022 - 14/06/2022

Logged By
JOD

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		11.00		N=15 (2,2/4,3,3,5)	10.50			Firm to stiff brown sandy gravelly CLAY. Sand is fine. Gravel is subrounded to subangular fine to coarse of mixed lithologies including siltstone and sandstone.	11
		12.50 - 12.95	U		12.50				12
		13.00	D					Firm to stiff grey mottled brown silty CLAY.	13
		14.00		N=16 (2,3/3,4,4,5)					14
		14.50		N=18 (2,3/4,4,5,5)	15.00				15
								End of borehole at 15.00 m	15
									16
									17
									18
									19
									20

Remarks

1. Location scanned for utilities. 2. Hand dug inspection pit to 1.2m bgl. 3. Groundwater encountered at 10m bgl. 4. Standpipe installed to 3.0m bgl: 1.0m plain, 2.0m slotted.



				Trial Pit Log			Trialpit No TP2 Sheet 1 of 1		
Project Name: HOLCHEM, PILSWORTH IND ESTATE				Project No. GRO-22216		Co-ords: - Level:		Date 17/06/2022	
Location: BURY				Dimensions (m): Depth 0.50				Scale 1:25 Logged JOD	
Client: BRIAN CLANCY HIGBY PARTNERSHIP									
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	ES		0.10			MADE GROUND: Brown silty sandy gravelly topsoil. Sand is fine. Gravel is rounded to subrounded fine to coarse of mixed lithologies including sandstone, siltstone and quartzite. MADE GROUND: Brown silty sandy gravel with moderate cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of mixed lithologies including siltstone, sandstone and granite. Roots present. ----- End of pit at 0.50 m		
	0.50 0.50	B ES		0.50					
							1		
							2		
							3		
							4		
							5		
Remarks: 1. Location scanned for utilities. 2. No groundwater encountered.									
Stability:									





APPENDIX 4 - Geo-Environmental Testing Results

Groundtech Consulting Limited
PO Box 499
Manchester
M28 8EE



Attention : Jod
Date : 4th July, 2022
Your reference : 22216
Our reference : Test Report 22/10340 Batch 1
Location : Holchem
Date samples received : 23rd June, 2022
Status : Final Report
Issue : 1

Twenty seven samples were received for analysis on 23rd June, 2022 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Liza Klebe

Project Co-ordinator

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 22216
Location: Holchem
Contact: Jod
EMT Job No: 22/10340

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	2,5,9	6	12,17,23	19	25,28,33	26,30,34	32	37,40,44	39,42	46,48,50	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH4	BH4	BH5	BH5	BH6	BH6	BH6	BH7	BH7	HP1			
Depth	1.50	17.00-17.45	2.00	10.50-10.95	2.20	1.50	8.00-8.95	1.50	5.30	0.50			
COC No / misc													
Containers	V J T	T	V J T	T	V J T	V J T	T	V J T	J T	V J T			
Sample Date	15/06/2022	15/06/2022	14/06/2022	14/06/2022	17/06/2022	17/06/2022	17/06/2022	13/06/2022	13/06/2022	17/06/2022			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	LOD/LOR	Units	Method No.
Arsenic #	8.8	-	8.4	-	5.9	-	-	11.2	-	4.9	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	<0.1	-	<0.1	-	-	<0.1	-	<0.1	<0.1	mg/kg	TM30/PM15
Chromium #	45.7	-	49.1	-	55.5	-	-	49.8	-	42.8	<0.5	mg/kg	TM30/PM15
Copper #	22	-	16	-	15	-	-	27	-	14	<1	mg/kg	TM30/PM15
Lead #	13	-	22	-	14	-	-	46	-	11	<5	mg/kg	TM30/PM15
Mercury #	0.1	-	0.1	-	<0.1	-	-	<0.1	-	<0.1	<0.1	mg/kg	TM30/PM15
Nickel #	35.1	-	15.6	-	14.3	-	-	17.2	-	24.6	<0.7	mg/kg	TM30/PM15
Selenium #	1	-	1	-	1	-	-	<1	-	1	<1	mg/kg	TM30/PM15
Zinc #	84	-	45	-	47	-	-	75	-	47	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	-	<0.04	-	<0.04	<0.04	-	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	<0.03	-	<0.03	<0.03	-	<0.03	-	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.05	-	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-	<0.04	-	<0.04	<0.04	-	<0.04	-	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	-	<0.03	-	0.03	<0.03	-	0.67	-	0.10	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	-	<0.04	-	<0.04	<0.04	-	0.15	-	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	-	<0.03	-	0.03	0.05	-	1.41	-	0.13	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	-	<0.03	-	0.03	0.05	-	1.16	-	0.11	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	<0.06	-	<0.06	<0.06	-	0.65	-	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	-	<0.02	-	<0.02	0.05	-	0.68	-	0.08	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-	<0.07	-	<0.07	<0.07	-	0.92	-	0.09	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	<0.04	-	<0.04	<0.04	-	0.46	-	0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	-	<0.04	-	<0.04	<0.04	-	0.41	-	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	<0.04	-	<0.04	<0.04	-	0.05	-	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	-	<0.04	-	<0.04	<0.04	-	0.37	-	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	-	-	-	-	-	<0.04	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-	<0.6	-	<0.6	-	-	6.9	-	<0.6	<0.6	mg/kg	TM4/PM8
PAH 17 Total	-	-	-	-	-	<0.64	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	<0.05	-	<0.05	<0.05	-	0.66	-	0.06	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	<0.02	-	<0.02	<0.02	-	0.26	-	0.03	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	85	-	87	-	92	86	-	92	-	92	<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	-	-	-	-	-	<30	-	-	-	-	<30	mg/kg	TM5/PM8/PM16
MTBE #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM36/PM12
Benzene #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM36/PM12
Toluene #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM36/PM12
Ethylbenzene #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM36/PM12
m/p-Xylene #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM36/PM12
o-Xylene #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM36/PM12
PCB 28 #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-	<5	-	-	-	-	<5	ug/kg	TM17/PM8

Client Name: Groundtech Consulting Limited
Reference: 22216
Location: Holchem
Contact: Jod
EMT Job No: 22/10340

Solids: V=60g VOC jar. J=250g glass jar. T=plastic tub

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name:	Groundtech Consulting Limited	Report :	Solid
Reference:	22216		
Location:	Holchem	Solids:	V=60g VOC jar, J=250g glass jar, T=plastic tub
Contact:	Jod		
EMT Job No:	22/10340		

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	58,60,62									Please see attached notes for all abbreviations and acronyms		
Sample ID	HP3											
Depth	0.50											
COC No / misc												
Containers	V J T											
Sample Date	17/06/2022											
Sample Type	Soil											
Batch Number	1											
Date of Receipt	23/06/2022									LOD/LOR	Units	Method No.
Arsenic #	8.6									<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1									<0.1	mg/kg	TM30/PM15
Chromium #	56.8									<0.5	mg/kg	TM30/PM15
Copper #	28									<1	mg/kg	TM30/PM15
Lead #	35									<5	mg/kg	TM30/PM15
Mercury #	<0.1									<0.1	mg/kg	TM30/PM15
Nickel #	22.4									<0.7	mg/kg	TM30/PM15
Selenium #	2									<1	mg/kg	TM30/PM15
Zinc #	66									<5	mg/kg	TM30/PM15
PAH MS												
Naphthalene #	<0.04									<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03									<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05									<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04									<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.12									<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04									<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.26									<0.03	mg/kg	TM4/PM8
Pyrene #	0.25									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.19									<0.06	mg/kg	TM4/PM8
Chrysene #	0.19									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.31									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.13									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.15									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.12									<0.04	mg/kg	TM4/PM8
Coronene	<0.04									<0.04	mg/kg	TM4/PM8
PAH 16 Total	1.7									<0.6	mg/kg	TM4/PM8
PAH 17 Total	1.72									<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.22									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.09									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	85									<0	%	TM4/PM8
Mineral Oil (C10-C40) (EH_CU_1D_AL)	<30									<30	mg/kg	TM5/PM8/PM16
MTBE #	<5									<5	ug/kg	TM36/PM12
Benzene #	<5									<5	ug/kg	TM36/PM12
Toluene #	<5									<5	ug/kg	TM36/PM12
Ethylbenzene #	<5									<5	ug/kg	TM36/PM12
m/p-Xylene #	<5									<5	ug/kg	TM36/PM12
o-Xylene #	<5									<5	ug/kg	TM36/PM12
PCB 28 #	<5									<5	ug/kg	TM17/PM8
PCB 52 #	<5									<5	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Client Name: Groundtech Consulting Limited
Reference: 22216
Location: Holchem
Contact: Jod
EMT Job No: 22/10340

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	58,60,62										Please see attached notes for all abbreviations and acronyms		
Sample ID	HP3												
Depth	0.50												
COC No / misc													
Containers	V J T												
Sample Date	17/06/2022												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	23/06/2022										LOD/LOR	Units	Method No.
PCB 101 #	<5										<5	ug/kg	TM17/PM8
PCB 118 #	<5										<5	ug/kg	TM17/PM8
PCB 138 #	<5										<5	ug/kg	TM17/PM8
PCB 153 #	<5										<5	ug/kg	TM17/PM8
PCB 180 #	<5										<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35										<35	ug/kg	TM17/PM8
Natural Moisture Content	9.9										<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3										<0.3	mg/kg	TM38/PM2
Sulphate as SO4 (2:1 Ext) #	0.0099										<0.0015	g/l	TM38/PM2
Total Organic Carbon #	1.85										<0.02	%	TM21/PM2
Organic Matter	3.2										<0.2	%	TM21/PM2
pH #	7.59										<0.01	pH units	TM73/PM1

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	12.9
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	88.5
Particle Size <4mm =	>95%		
EMT Job No	22/10340	Landfill Waste Acceptance Criteria Limits	
Sample No	34		
Client Sample No	BH6		
Depth/Other	1.50		
Sample Date	17/06/2022		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill
Total Organic Carbon (%)	1.06	3	5
Loss on Ignition (%)	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-
PAH Sum of 17(mg/kg)	<0.64	100	-
pH (pH Units)	-	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C ₁₀ mg/l	A ₁₀ mg/kg	
Arsenic	<0.0025	<0.025	0.5
Barium	0.013	0.13	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	0.003	<0.03	4
Chloride	1.2	12	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	1.2	12	1000
Total Dissolved Solids	49	490	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	5	50	500

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	10.2
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	90.8
Particle Size <4mm =	>95%		
EMT Job No	22/10340	Landfill Waste Acceptance Criteria Limits	
Sample No	62		
Client Sample No	HP3		
Depth/Other	0.50		
Sample Date	17/06/2022		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill
Total Organic Carbon (%)	1.85	3	5
Loss on Ignition (%)	-	-	10
Sum of BTEX (mg/kg)	<0.025	6	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-
Mineral Oil (mg/kg) (EH_CU_1D_AL)	<30	500	-
PAH Sum of 17(mg/kg)	1.72	100	-
pH (pH Units)	-	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 conc ⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C ₁₀ mg/l	A ₁₀ mg/kg	
Arsenic	<0.0025	<0.025	0.5
Barium	0.023	0.23	20
Cadmium	<0.0005	<0.005	0.04
Chromium	0.0020	0.020	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	0.002	0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	0.007	0.07	4
Chloride	1.5	15	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	0.8	8	1000
Total Dissolved Solids	47	470	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	6	60	500

Client Name: Groundtech Consulting Limited
Reference: 22216
Location: Holchem
Contact: Jod

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
22/10340	1	BH4	1.50	9	Anthony Carman	04/07/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	04/07/2022	Asbestos Fibres	NAD
					Anthony Carman	04/07/2022	Asbestos ACM	NAD
					Anthony Carman	04/07/2022	Asbestos Type	NAD
22/10340	1	BH5	2.00	23	Catherine Coles	04/07/2022	General Description (Bulk Analysis)	sand soil stones
					Catherine Coles	04/07/2022	Asbestos Fibres	NAD
					Catherine Coles	04/07/2022	Asbestos ACM	NAD
					Catherine Coles	04/07/2022	Asbestos Type	NAD
22/10340	1	BH6	1.50	30	Catherine Coles	04/07/2022	General Description (Bulk Analysis)	sand soil
					Catherine Coles	04/07/2022	Asbestos Fibres	NAD
					Catherine Coles	04/07/2022	Asbestos ACM	NAD
					Catherine Coles	04/07/2022	Asbestos Type	NAD
22/10340	1	BH6	2.20	33	Catherine Coles	04/07/2022	General Description (Bulk Analysis)	sand, stone
					Catherine Coles	04/07/2022	Asbestos Fibres	NAD
					Catherine Coles	04/07/2022	Asbestos ACM	NAD
					Catherine Coles	04/07/2022	Asbestos Type	NAD
22/10340	1	BH7	1.50	44	Anthony Carman	04/07/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	04/07/2022	Asbestos Fibres	NAD
					Anthony Carman	04/07/2022	Asbestos ACM	NAD
					Anthony Carman	04/07/2022	Asbestos Type	NAD
22/10340	1	HP1	0.50	50	Anthony Carman	04/07/2022	General Description (Bulk Analysis)	Brown Soil/Stones
					Anthony Carman	04/07/2022	Asbestos Fibres	NAD
					Anthony Carman	04/07/2022	Asbestos ACM	NAD
					Anthony Carman	04/07/2022	Asbestos Type	NAD
22/10340	1	HP3	0.50	60	Catherine Coles	04/07/2022	General Description (Bulk Analysis)	sand, stone, soil
					Catherine Coles	04/07/2022	Asbestos Fibres	NAD
					Catherine Coles	04/07/2022	Asbestos ACM	NAD
					Catherine Coles	04/07/2022	Asbestos Type	NAD

Client Name: Groundtech Consulting Limited

Reference: 22216

Location: Holchem

Contact: Jod

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/10340

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

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	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/10340

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEPA 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes

EMT Job No: 22/10340

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM170	Determination of Trace Metals by ICP-MS (Inductively Coupled Plasma – Mass Spectrometry): Modified USEPA Method 200.8, Rev. 5.4, 1994; Modified EPA Method 6020A, Rev.1, Feb 2007; Modified BS EN ISO 17294-2:2016	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified			AR	Yes
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes

EMT Job No: 22/10340

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX 5 - Geotechnical Testing Results



LABORATORY REPORT



4043

Contract Number: PSL22/4376

Report Date: 01 September 2022

Client's Reference:

Client Name: Groundtech Consulting
First Floor
Lloyd House
Orford Court
Greenfold Way
WN7 3XJ

For the attention of: Jamie Donohue

Contract Title: Holchem Laboratories, Bury

Date Received: 29/6/2022

Date Commenced: 29/6/2022

Date Completed: 21/7/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

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

Checked and Approved Signatories:

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

L Knight
(Assistant Laboratory Manager)

S Eyre
(Senior Technician)

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH4		D	2.60		Brown slightly clayey SAND.
BH5		D	4.50		Brown gravelly very sandy CLAY.
BH6		D	9.50		Brown slightly gravelly sandy CLAY.
BH7		D	3.00		Brown gravelly very sandy CLAY.
BH4		U	6.00	6.40	Firm brown very sandy CLAY.
BH4		U	8.50	8.95	Stiff brown sandy CLAY.
BH4		U	11.50	11.95	Stiff brown sandy CLAY.
BH5		U	4.00	4.45	Stiff brown sandy CLAY.
BH6		U	9.00	9.45	Stiff brown very sandy CLAY.
BH6		U	12.00		Firm brown slightly gravelly very sandy CLAY.
BH4		B	17.00	17.45	Brown slightly sandy CLAY.
BH5		B	10.50	10.95	Brown sandy clayey GRAVEL.
BH6		B	8.50	8.70	Brown gravelly very sandy CLAY.
BH4		B	3.00	3.45	Brown very gravelly clayey SAND.



4043

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SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

[illegible]

SYMBOLS : NP : Non Plastic

*** : Liquid Limit and Plastic Limit Wet Sieved.**



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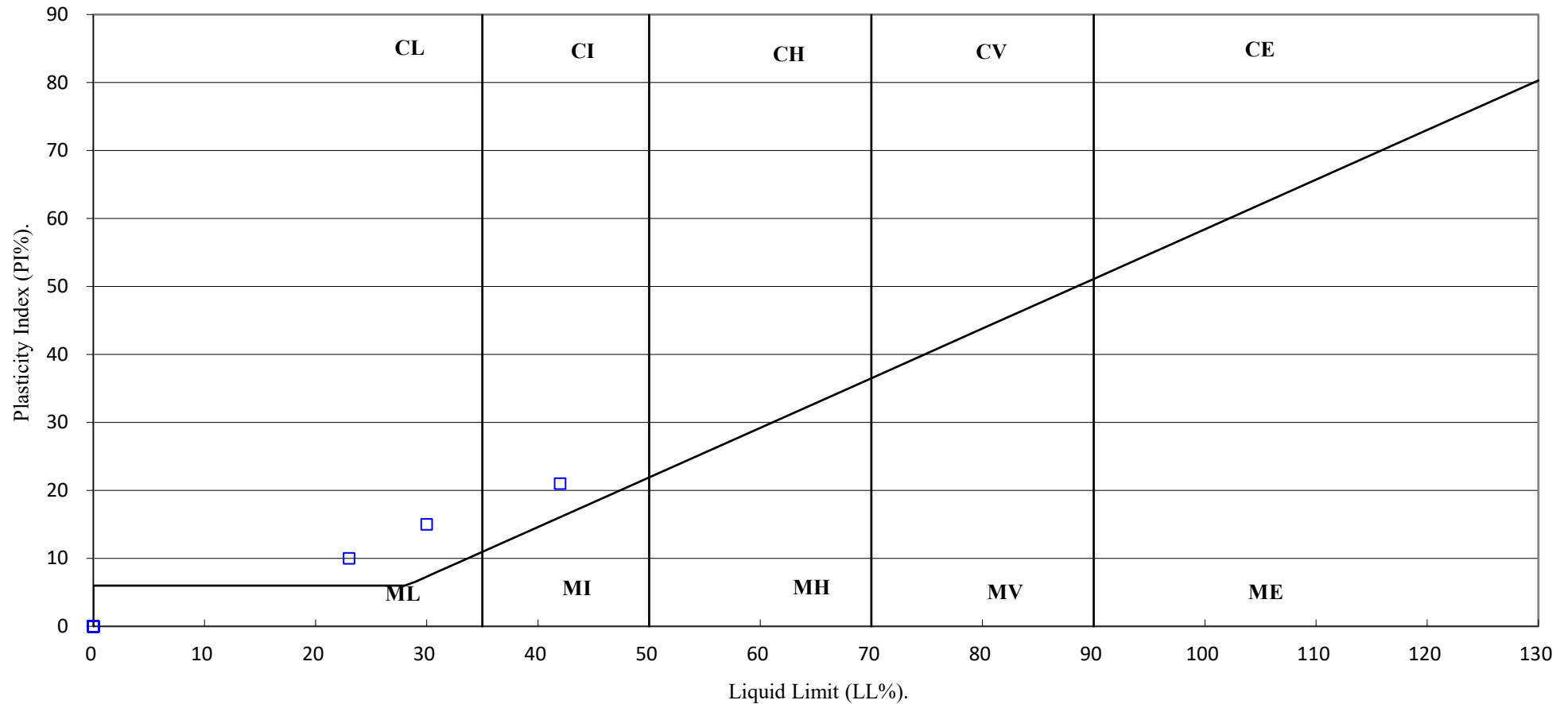
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PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



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PARTICLE SIZE DISTRIBUTION TEST

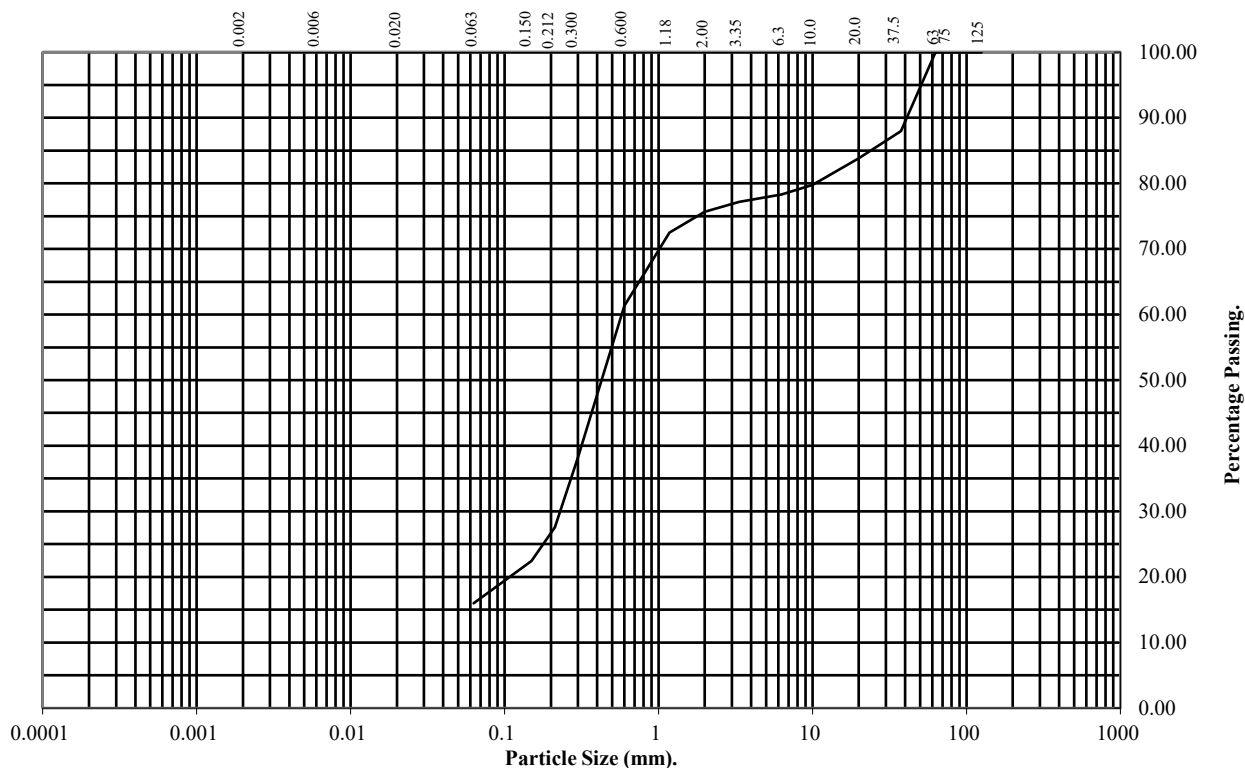
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH4 Top Depth (m): 3.00

Sample Number: Base Depth(m): 3.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	88
20	84
10	80
6.3	78
3.35	77
2	76
1.18	73
0.6	61
0.3	38
0.212	28
0.15	22
0.063	16

Soil Fraction	Total Percentage
Cobbles	0
Gravel	24
Sand	60
Silt/Clay	16

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

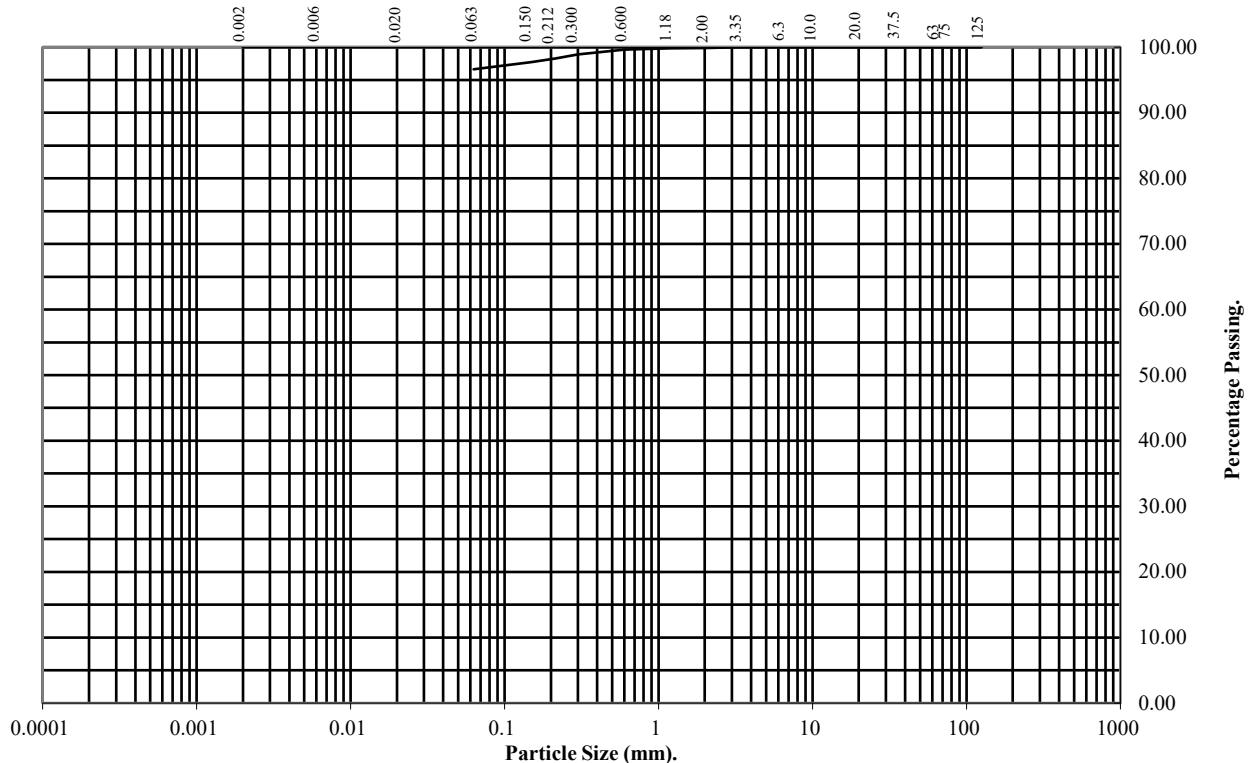
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH4 Top Depth (m): 17.00

Sample Number: Base Depth(m): 17.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	99
0.212	98
0.15	98
0.063	97

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	3
Silt/Clay	97

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

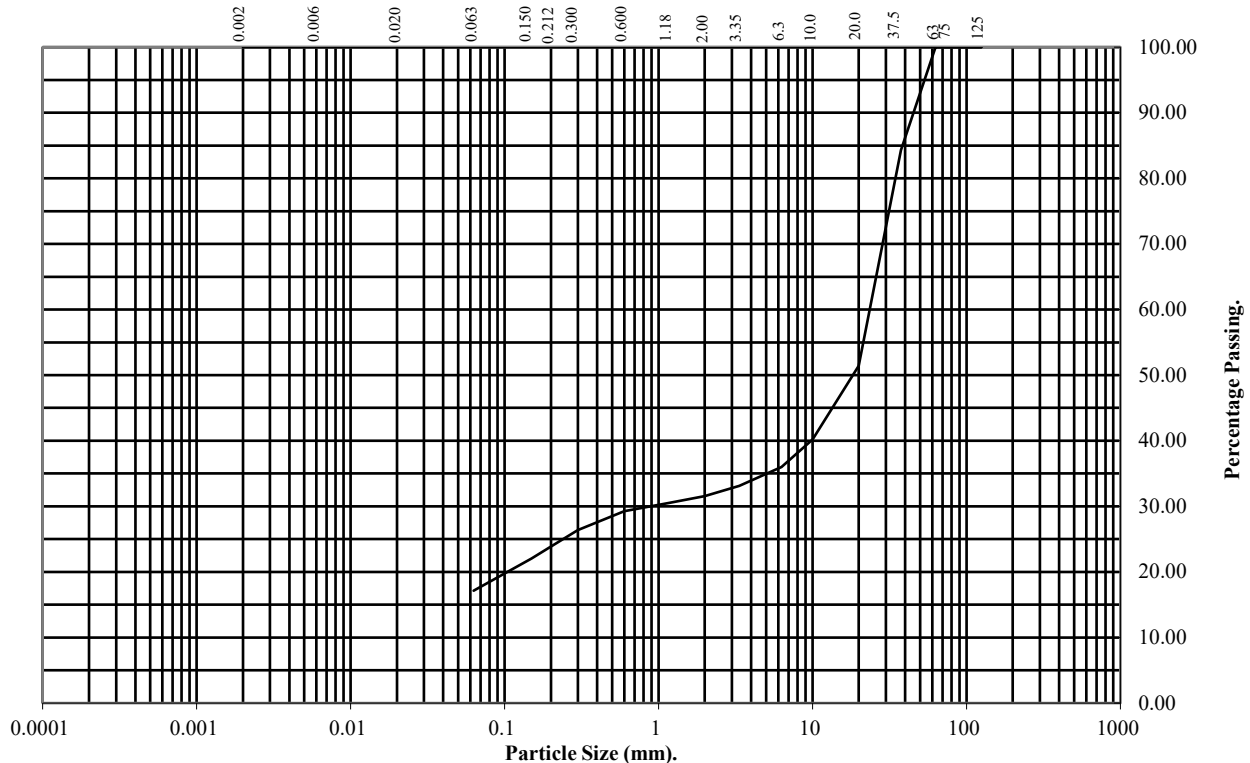
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH5 Top Depth (m): 10.50

Sample Number: Base Depth(m): 10.95

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	84
20	51
10	40
6.3	36
3.35	33
2	32
1.18	31
0.6	29
0.3	26
0.212	24
0.15	22
0.063	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	68
Sand	15
Silt/Clay	17

Remarks:

See Summary of Soil Descriptions



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PARTICLE SIZE DISTRIBUTION TEST

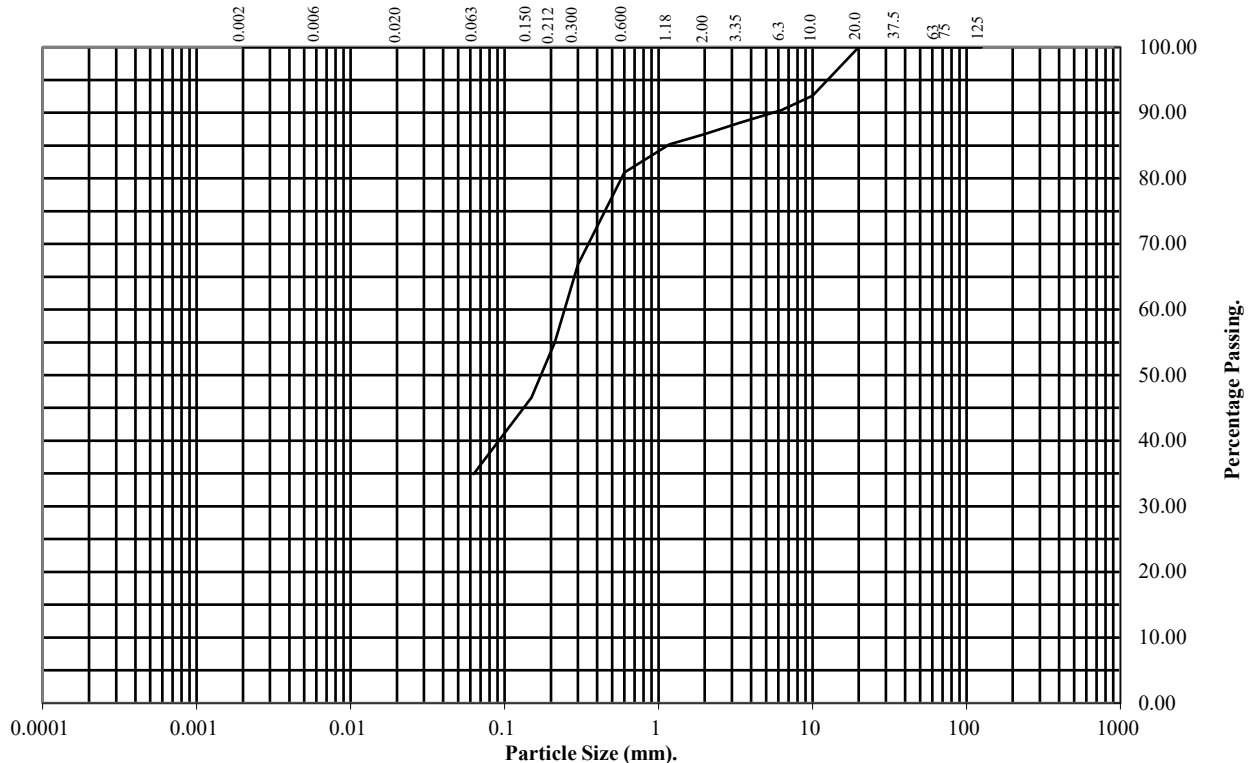
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH6 Top Depth (m): 8.50

Sample Number: Base Depth(m): 8.70

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	93
6.3	90
3.35	88
2	87
1.18	85
0.6	81
0.3	67
0.212	55
0.15	47
0.063	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	13
Sand	52
Silt/Clay	35

Remarks:

See Summary of Soil Descriptions



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Contract No:
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Client Ref:
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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

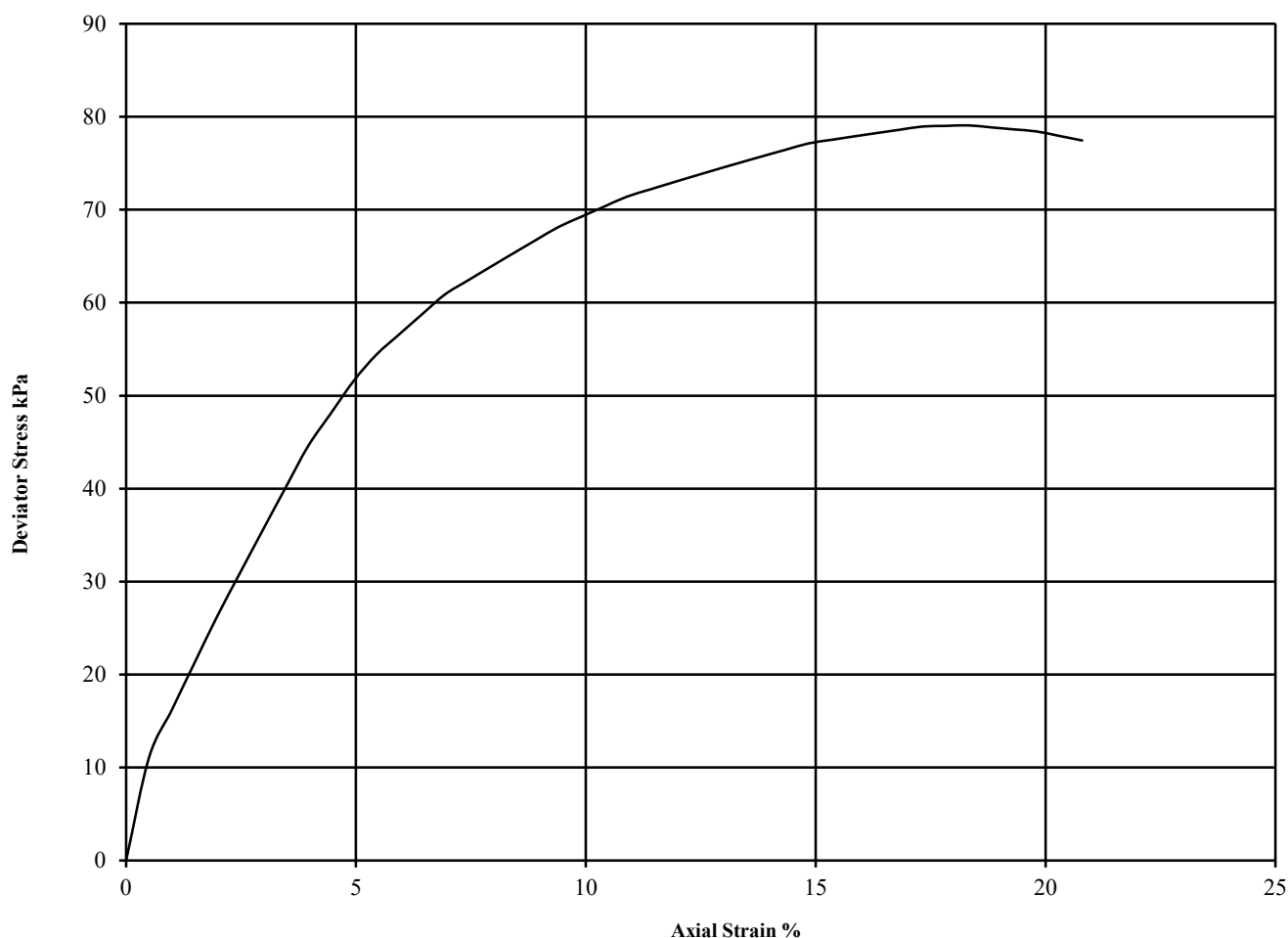
Hole Number: BH4

Top Depth (m): 6.00

Sample Number:

Base Depth (m): 6.40

Sample Type U



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	20	2.06	1.71	120	79	40	18.3	Plastic	



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Client Ref:

GRO-22118

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

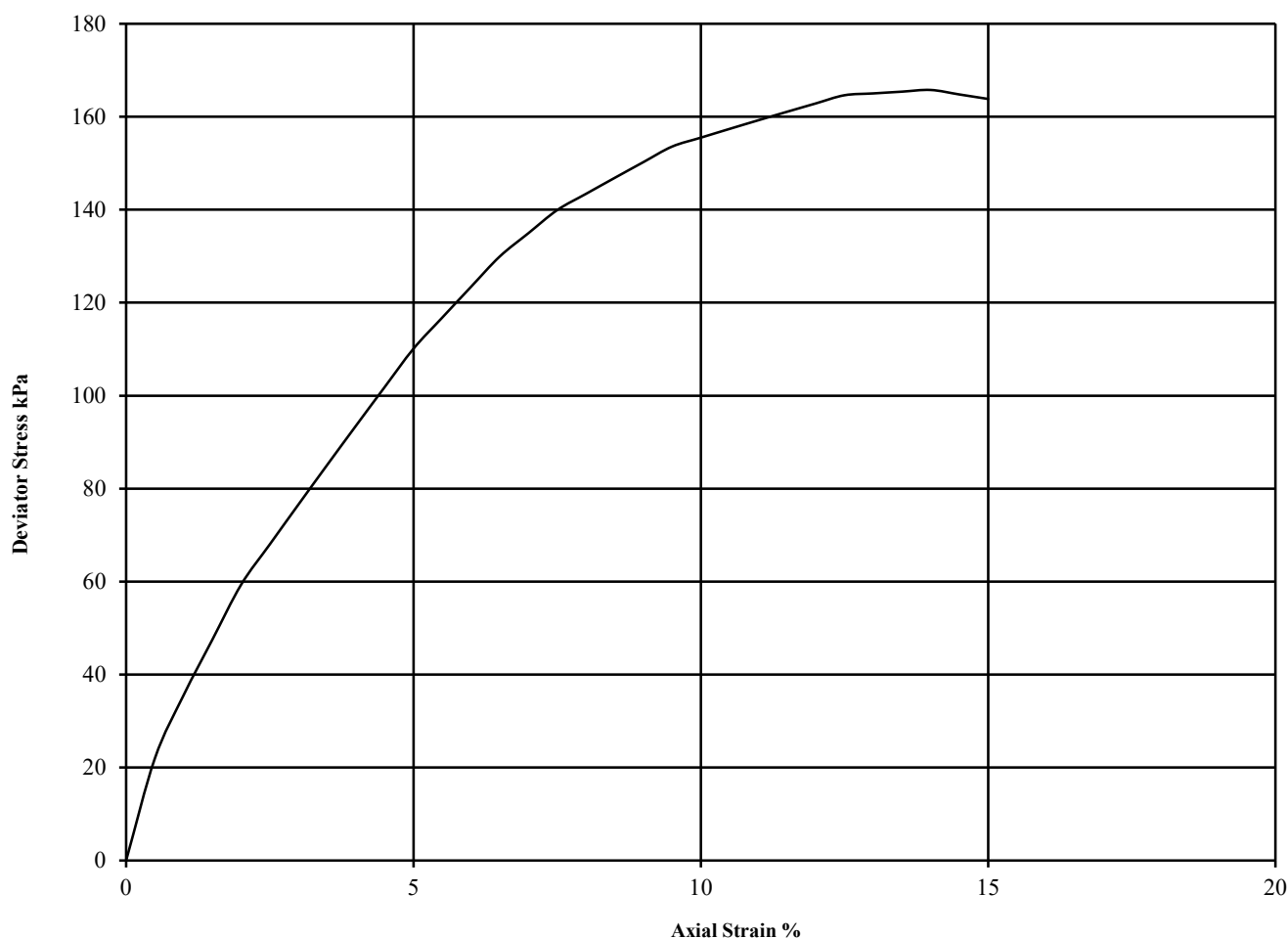
Hole Number: BH4

Top Depth (m): 8.50

Sample Number:

Base Depth (m): 8.95

Sample Type U



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.79 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	23	2.00	1.63	170	166	83	14.0	Plastic	



4043

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Professional Soils Laboratory

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Contract No:

PSL22/4376

Client Ref:

GRO-22118

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

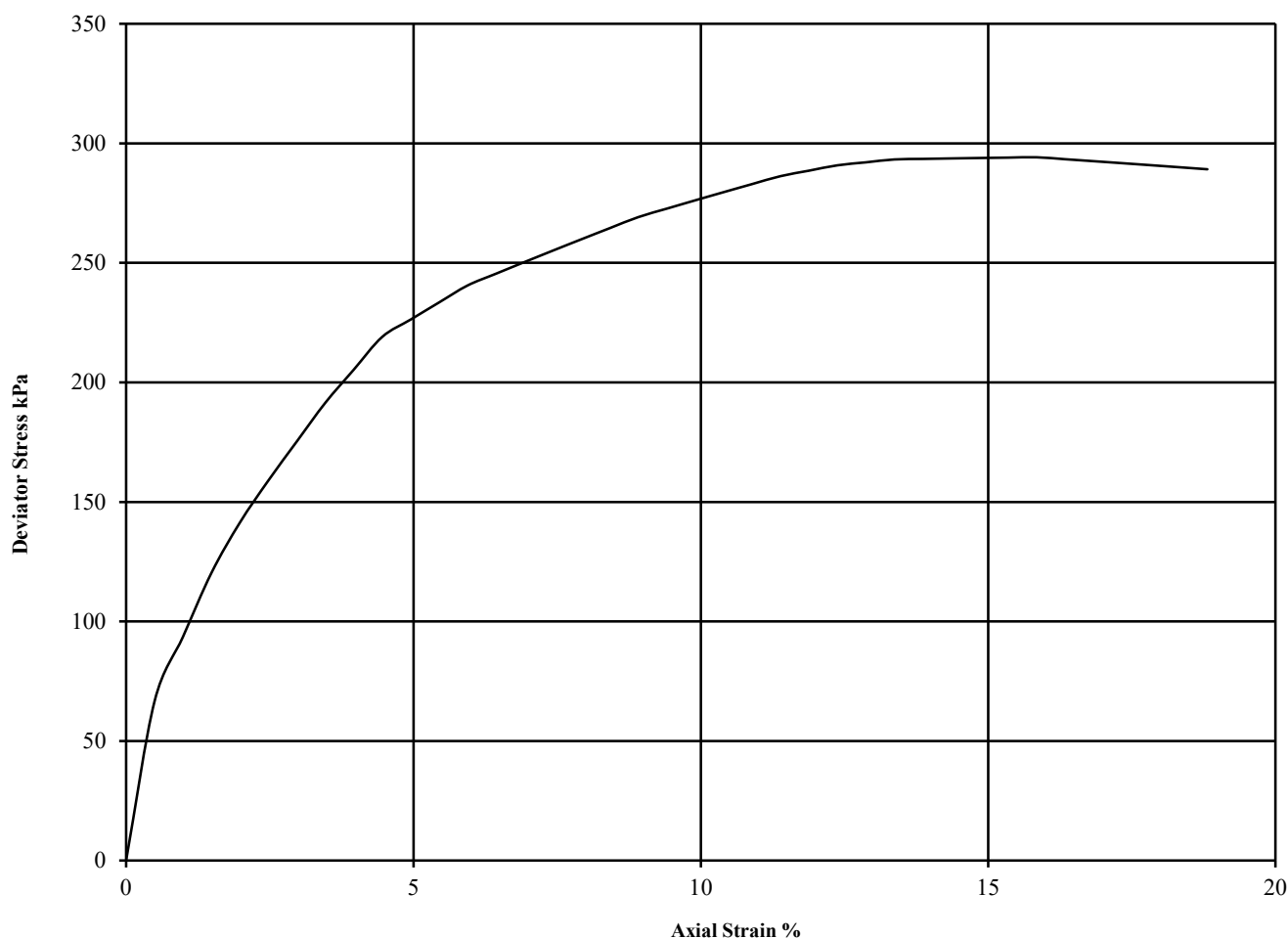
Hole Number: BH4

Top Depth (m): 11.50

Sample Number:

Base Depth (m): 11.95

Sample Type U



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	21	2.08	1.72	230	294	147	15.8	Intermediate	



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UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

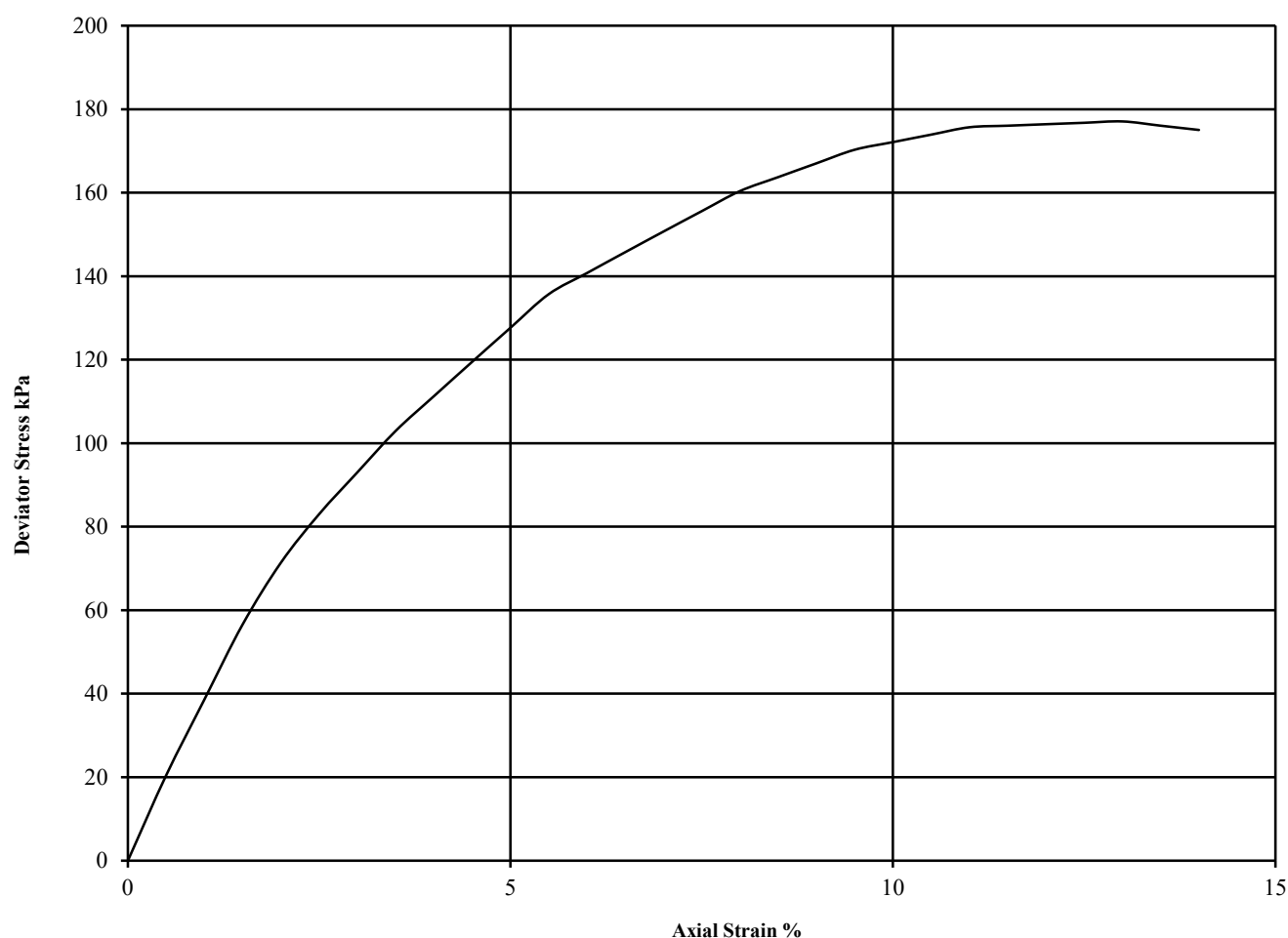
Hole Number: BH5

Top Depth (m): 4.00

Sample Number:

Base Depth (m): 4.45

Sample Type U



Diameter (mm):		38		Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.81 See summary of soil descriptions	
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$				
1	17	2.09	1.79	80	177	89	13.0	Plastic		



4043

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Holchem Laboratories, Bury

Contract No:

PSL22/4376

Client Ref:

GRO-22118

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

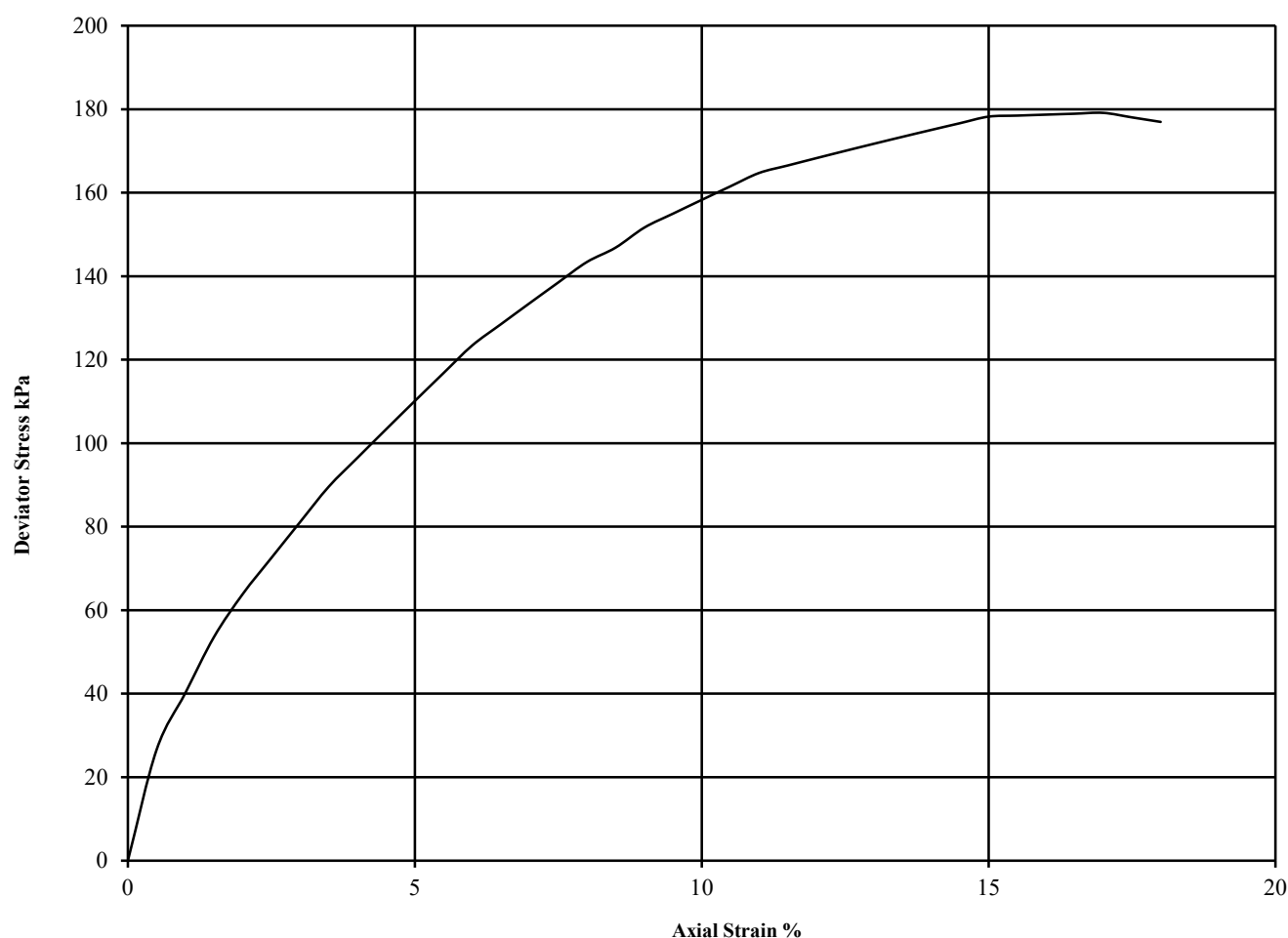
Hole Number: BH6

Top Depth (m): 9.00

Sample Number:

Base Depth (m): 9.45

Sample Type U



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.74 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	14	2.13	1.87	180	179	90	17.0	Plastic	



4043

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Holchem Laboratories, Bury

Contract No:

PSL22/4376

Client Ref:

GRO-22118

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

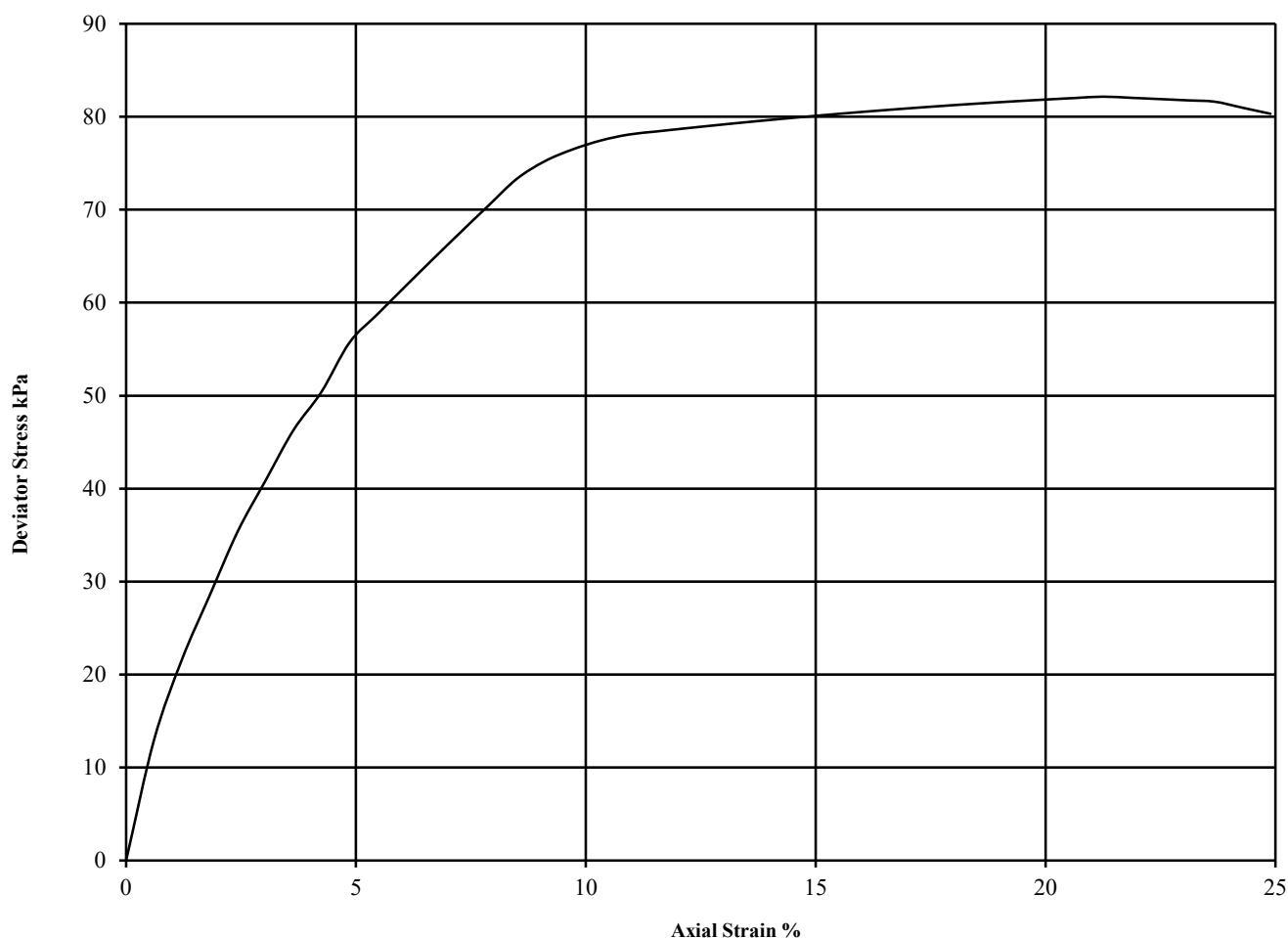
Hole Number: BH6

Top Depth (m): 12.00

Sample Number:

Base Depth (m):

Sample Type U



Diameter (mm):		102	Height (mm):		168	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33 See summary of soil descriptions
				θ_3	$(\theta_1 - \theta_3)_f$	$\frac{1}{2}(\theta_1 - \theta_3)_f$			
1	14	2.19	1.93	240	82	41	21.3	Plastic	



4043

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Contract No:

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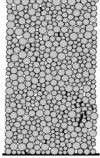
Client Ref:

GRO-22118

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details  <i>sketch showing specimen location in original sample</i>	Depth	8.50-8.95m		
	Description Type	See summary of soil descriptions. Undisturbed, vertical orientation.		
Initial Sample Length		L ₀	(mm)	211.1
Initial Sample Diameter		D ₀	(mm)	104.7
Initial Sample Weight		W ₀	(gr)	3601.0
Initial Bulk Density		ρ ₀	(Mg/m ³)	1.98
Particle Density		ρ _s	(Mg/m ³)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ _{3i}	(kPa)	885	970	1140	
Initial Back Pressure	U _{bi}	(kPa)	800	800	800	
Membrane Thickness	m _b	(mm)	0.600			
Displacement Input	L _{IP}	(mm)	CH 2			
Load Input	N _{IP}	(N)	CH 4			
Pore Water Pressure Input	u _{pwp}	(kPa)	CH 5			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω _i	(%)	24			
Initial Dry Density	ρ _{di}	(Mg/m ³)	1.60			
Initial Voids Ratio	e _i	.	0.661			
Initial Degree of Saturation	S _i	(%)	95			
B Value	B	.	1.00			

Final Conditions			Stage 1	2	3	4
Final Moisture	ω _f	(%)	19			
Final Dry Density	ρ _{df}	(Mg/m ³)	1.71			
Final Voids Ratio	e _f	.	0.554			
Final Degree of Saturation	S _f	(%)	91.8			
Failure Criteria	.		Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε _f	(%)	3.94	6.68	11.73	
Stress At Failure	(σ ₁ - σ ₃)	(kPa)	123.4	241.0	430.4	
Minor Stress At Failure	σ ₃ '	(kPa)	52.2	112.7	237.1	
Major Stress At Failure	σ ₁ '	(kPa)	175.6	353.7	667.4	
Principal Stress Ratio At Failure	σ ₁ ' / σ ₃ '		3.365	3.138	2.816	

Notes	

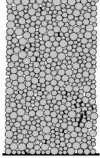
Plastic

	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH4 8.50-8.95m
			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH4
	Client	Groundtech Consulting	Sample	8.50-8.95m
			Depth	8.50-8.95m

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details  <i>sketch showing specimen location in original sample</i>	Depth	4.00-4.45m		
	Description Type	See summary of soil descriptions. Undisturbed, vertical orientation.		
	Initial Sample Length	L ₀	(mm)	211.0
	Initial Sample Diameter	D ₀	(mm)	106.2
	Initial Sample Weight	W ₀	(gr)	3903.0
	Initial Bulk Density	ρ ₀	(Mg/m ³)	2.09
	Particle Density	ρ _s	(Mg/m ³)	2.66

Initial Conditions		Stage 1	2	3	4
Initial Cell Pressure	σ _{3i} (kPa)	590	630	710	
Initial Back Pressure	U _{bi} (kPa)	550	550	550	
Membrane Thickness	m _b (mm)	0.600			
Displacement Input	L _{IP} (mm)	CH 2			
Load Input	N _{IP} (N)	CH 4			
Pore Water Pressure Input	u _{pwp} (kPa)	CH 3			
Sample Volume	V (cc)	CH 6			
Initial Moisture	ω _i (%)	17			
Initial Dry Density	ρ _{di} (Mg/m ³)	1.79			
Initial Voids Ratio	e _i	0.489			
Initial Degree of Saturation	S _i (%)	92			
B Value	B	0.96			

Final Conditions		Stage 1	2	3	4
Final Moisture	ω _f (%)	16			
Final Dry Density	ρ _{df} (Mg/m ³)	1.83			
Final Voids Ratio	e _f	0.456			
Final Degree of Saturation	S _f (%)	94.6			
Failure Criteria		Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	ε _f (%)	2.18	3.34	12.03	
Stress At Failure	(σ ₁ - σ ₃) (kPa)	93.3	157.2	333.7	
Minor Stress At Failure	σ ₃ ' (kPa)	31.5	56.9	173.6	
Major Stress At Failure	σ ₁ ' (kPa)	124.8	214.1	507.3	
Principal Stress Ratio At Failure	σ ₁ ' / σ ₃ '	3.965	3.764	2.923	

Notes	

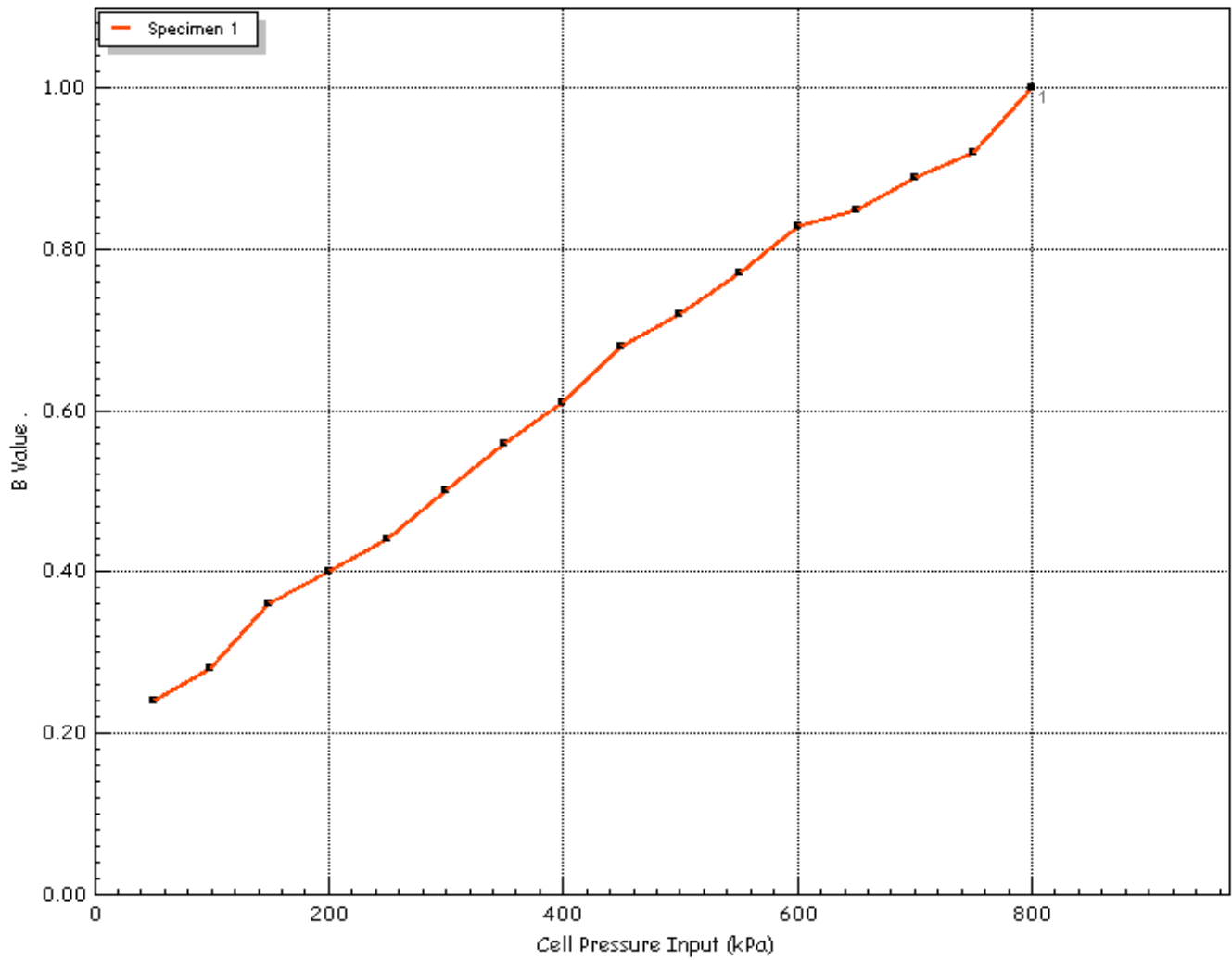
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			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH5
	Client	Groundtech Consulting	Sample	4.00-4.45m
			Depth	4.00-4.45m

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method		Stepped
Cell Pressure Input	σ (kPa)	800
Pore Water Pressure Input	u_{pwp} (kPa)	793
B Value	B	1.00



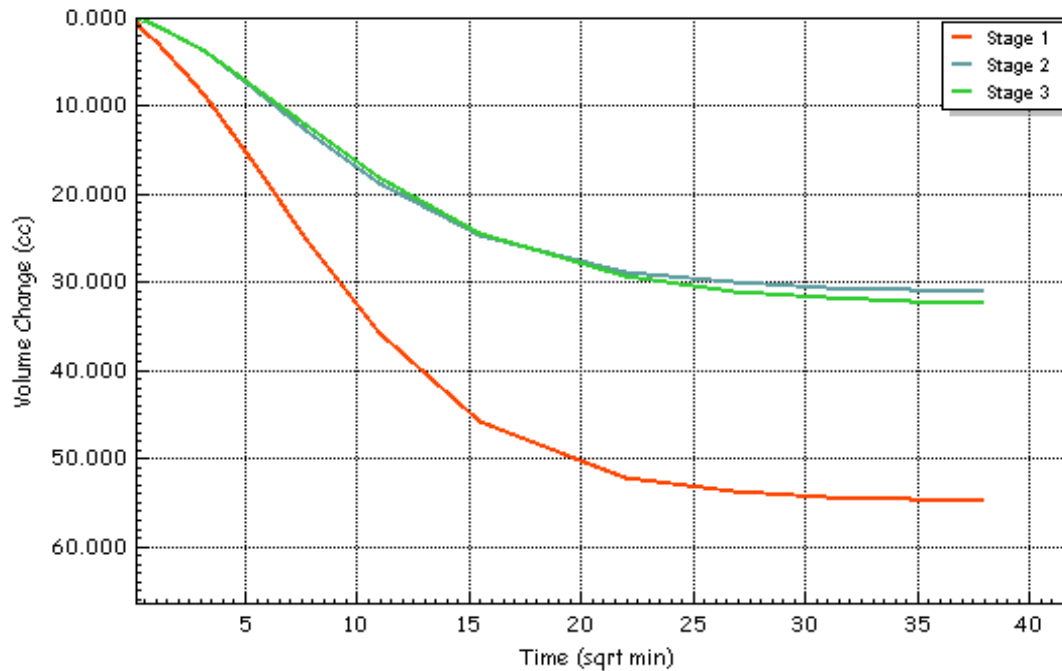
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			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH4
	Client	Groundtech Consulting	Sample	8.50-8.95m
			Depth	8.50-8.95m

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	885	970	1140
Initial Back Pressure	u_{bi}	(kPa)	800	800	800
Pore Water Pressure Input	u_{pwp}	(kPa)	877	933	1052
Drainage Method	Radial+One End				
Final Conditions			Stage 1	2	3
PWP Dissipation %	$U\%$	(%)	100.00	100.00	100.00
Volumetric Strain	$\epsilon_v\%$	(%)	3.02	4.72	6.50
Corrected Length	L_c	(mm)	209.0	197.6	186.1
Corrected Area	A_c	(cm ²)	84.36	84.96	86.91
Corrected Volume	V_c	(cc)	1762.672	1731.687	1699.320
T100 Time to Failure	t_{100}	(min)	269.48	266.58	318.09
Consolidation	c_v	(m ² /year)	0.840	0.849	0.712
Compressibility	m_v	(m ² /MN)	0.394	0.356	0.258
Test Time	t_F	(h:m:s)	08:05:03	07:59:50	09:32:33
Estimated Strain to Failure	$\epsilon\%$	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.02154	0.02154	0.02154
Notes					

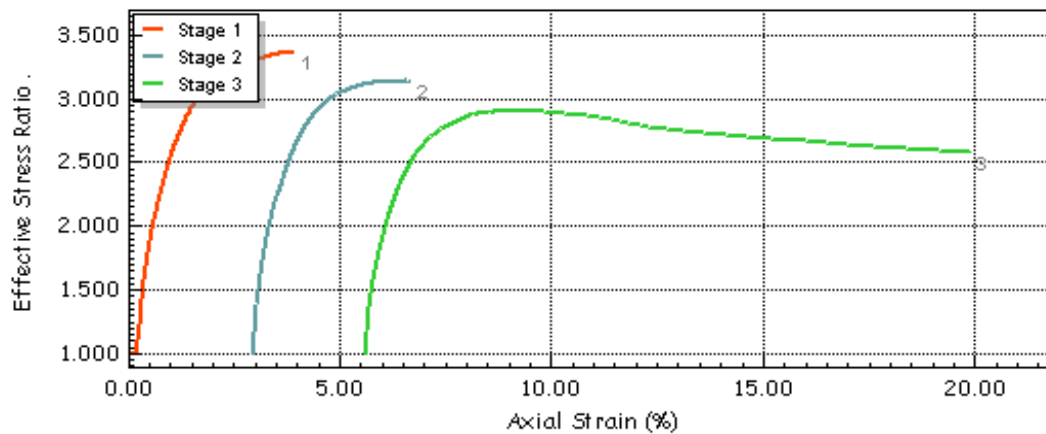
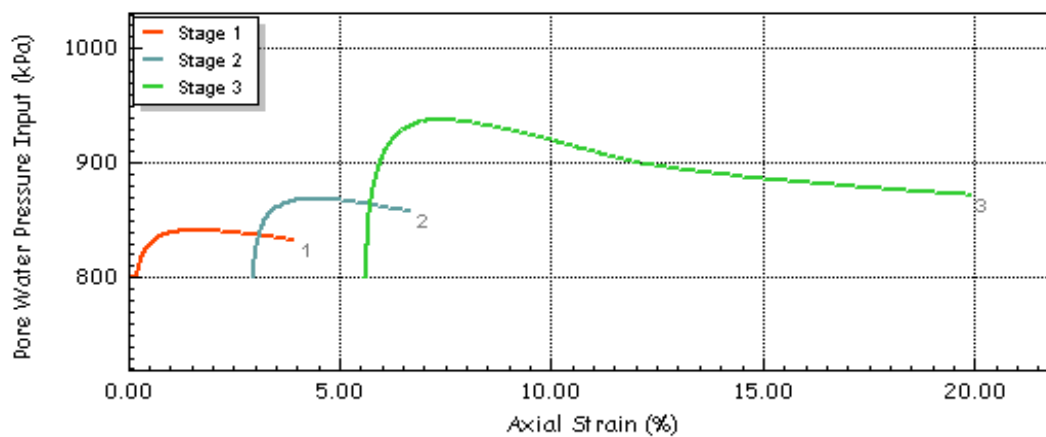
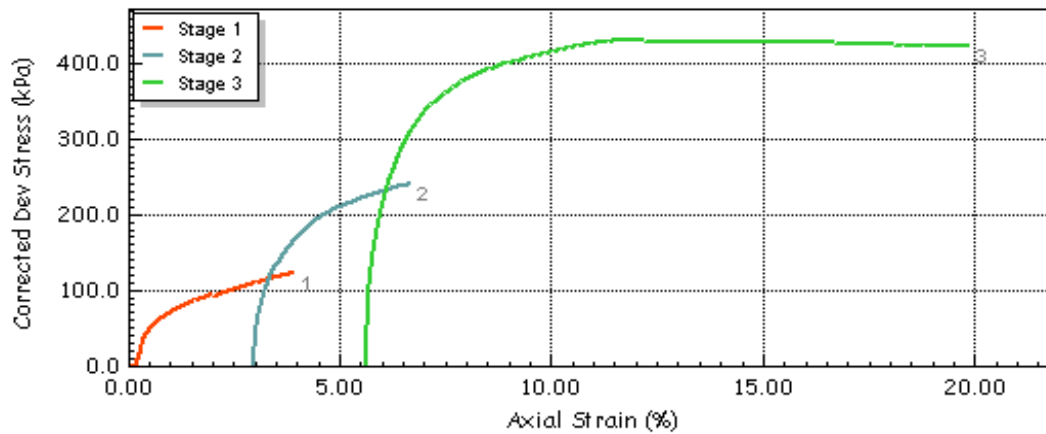


	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH4 8.50-8.95m
			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH4
	Client	Groundtech Consulting	Sample	8.50-8.95m
			Depth	8.50-8.95m

Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots



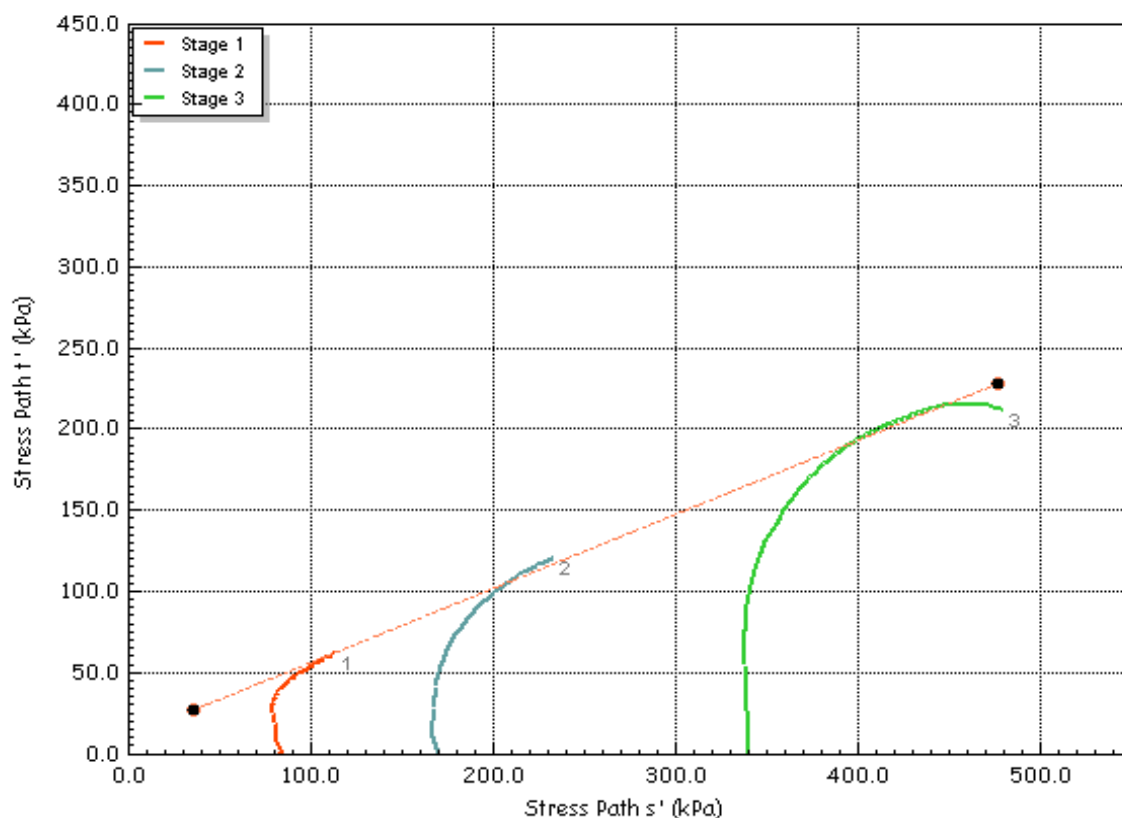
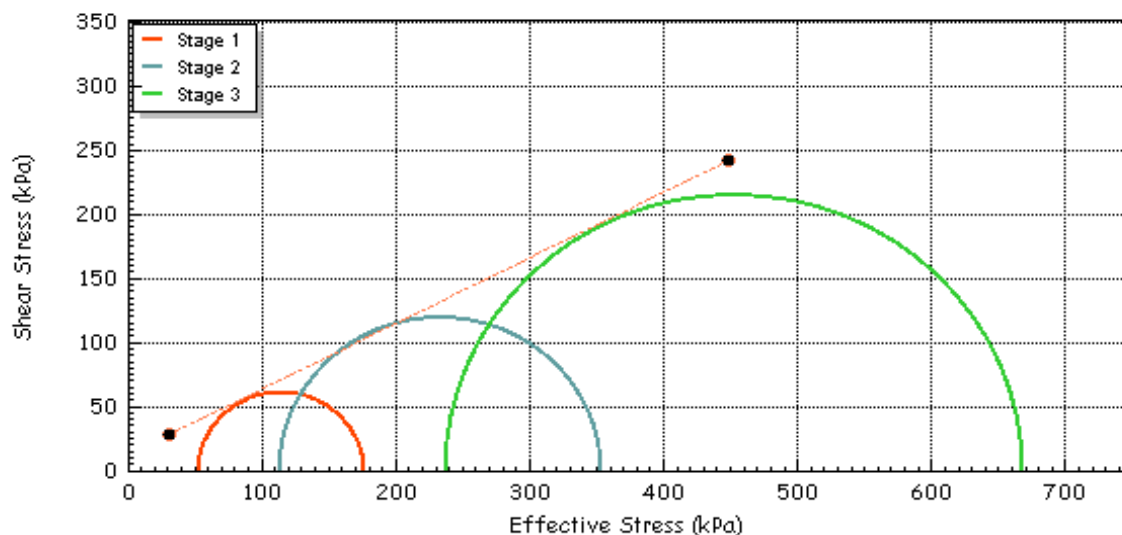
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			Test Date	27/07/2022
Jobfile Client	Holchem Laboratories, Bury Groundtech Consulting		Borehole	BH4
			Sample	8.50-8.95m
			Depth	8.50-8.95m

Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	12.03	Effective Cohesion c'	(kPa)	12.03
Effective Friction	ϕ'	(deg)	27.2	Effective Friction ϕ'	(deg)	27.2



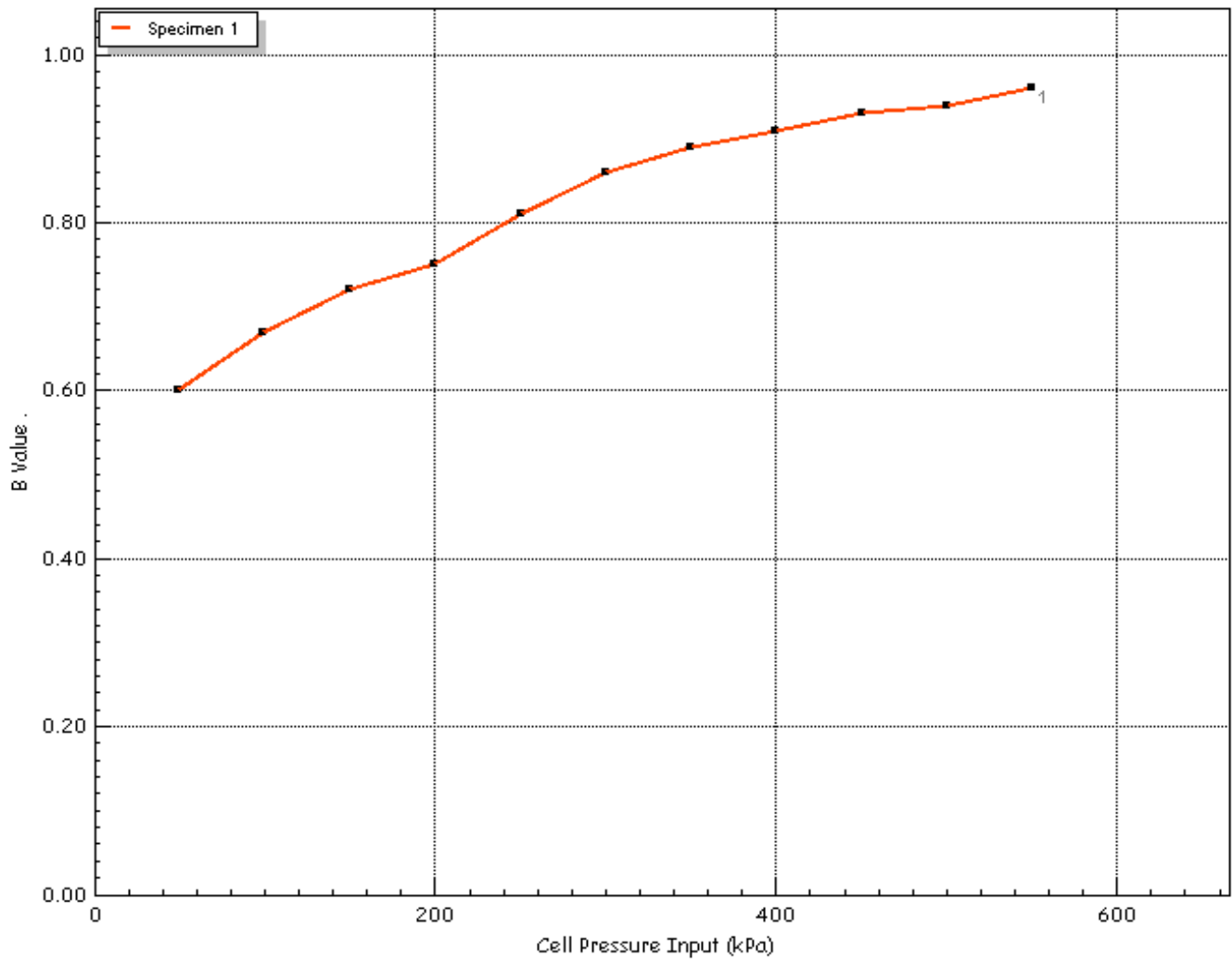
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			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH4
	Client	Groundtech Consulting	Sample	8.50-8.95m
			Depth	8.50-8.95m

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method		Stepped
Cell Pressure Input	σ (kPa)	550
Pore Water Pressure Input	u_{pwp} (kPa)	530
B Value	B	0.96



	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH5 4.00-4.45m
			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH5
	Client	Groundtech Consulting	Sample	4.00-4.45m
			Depth	4.00-4.45m

Effective Stress Triaxial Compression

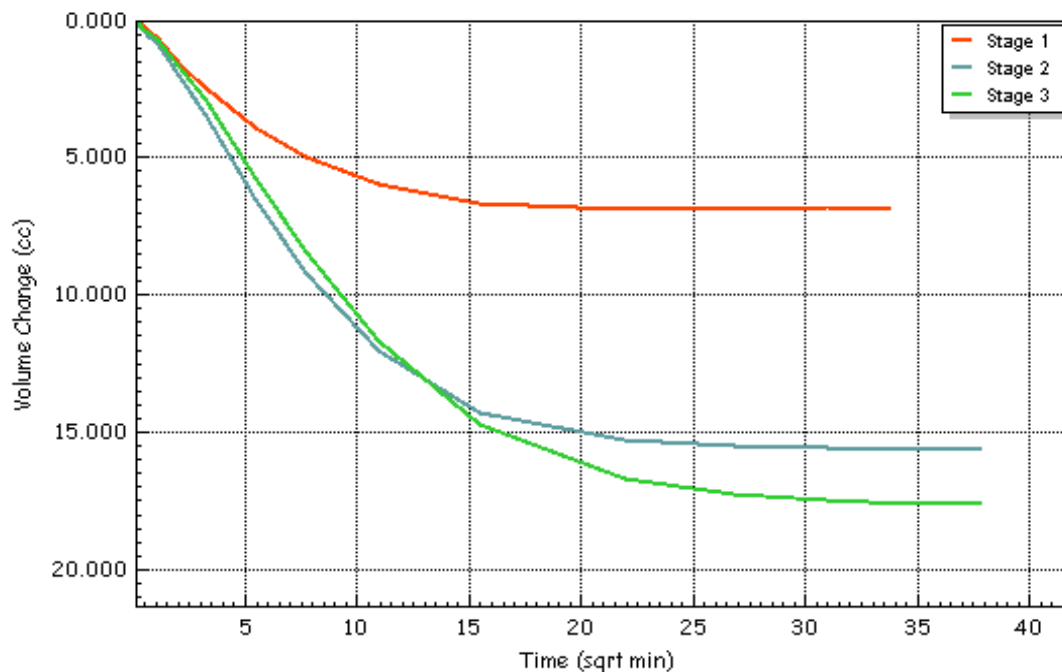
Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	590	630	710
Initial Back Pressure	u_{bi}	(kPa)	550	550	550
Pore Water Pressure Input	u_{pwp}	(kPa)	565	601	656
Drainage Method	Radial+One End				

Final Conditions			Stage 1	2	3
PWP Dissipation %	$U\%$	(%)	100.00	100.00	100.00
Volumetric Strain	$\epsilon_v\%$	(%)	0.37	1.20	2.14
Corrected Length	L_c	(mm)	210.7	205.3	200.1
Corrected Area	A_c	(cm ²)	88.36	89.61	90.31
Corrected Volume	V_c	(cc)	1862.208	1846.574	1828.961
T100 Time to Failure	t_{100}	(min)	78.24	151.73	226.63
Consolidation	c_v	(m ² /year)	3.008	1.551	1.039
Compressibility	m_v	(m ² /MN)	0.240	0.236	0.202
Test Time	t_F	(h:m:s)	02:20:49	04:33:06	06:47:56
Estimated Strain to Failure	$\epsilon\%$	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.07482	0.07482	0.07482

Notes					

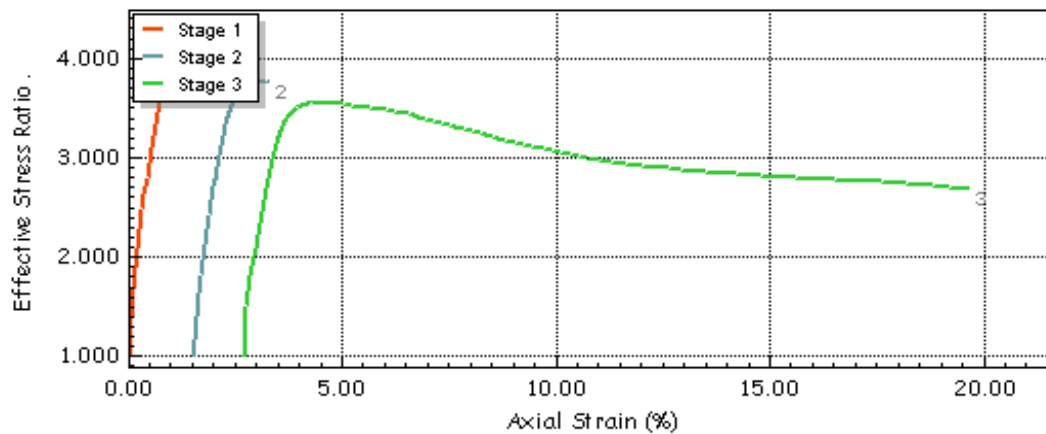
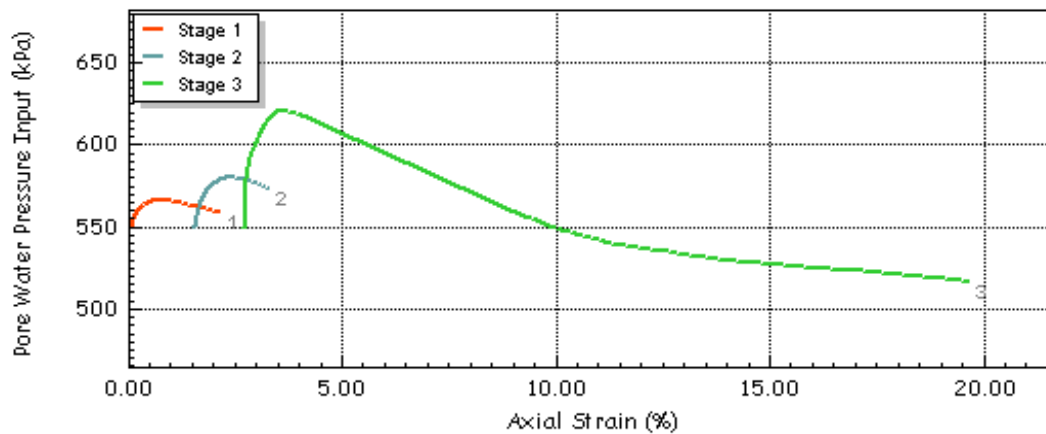
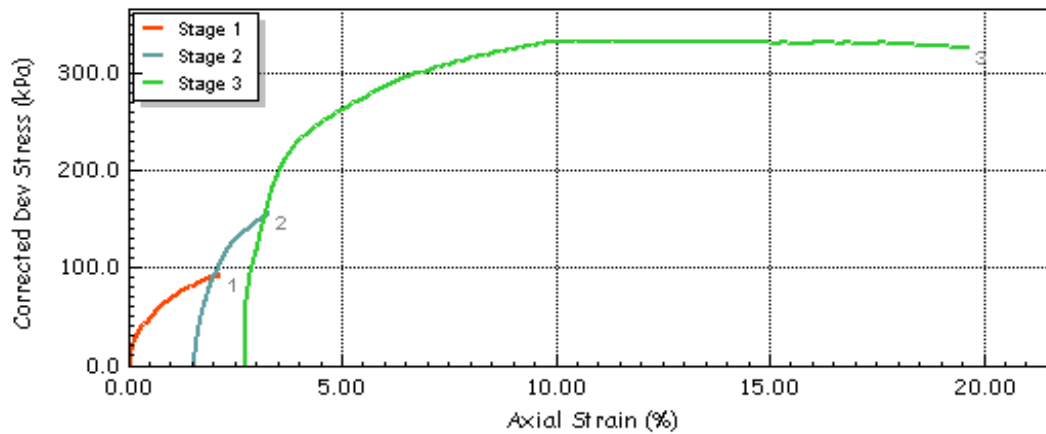


	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH5 4.00-4.45m
			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH5
	Client	Groundtech Consulting	Sample	4.00-4.45m
			Depth	4.00-4.45m

Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots



Test Method BS1377-8 : 1990 : Clause 7

Test Name BH5 4.00-4.45m
Test Date 27/07/2022

Jobfile Holchem Laboratories, Bury
Client Groundtech Consulting

Borehole BH5
Sample 4.00-4.45m
Depth 4.00-4.45m

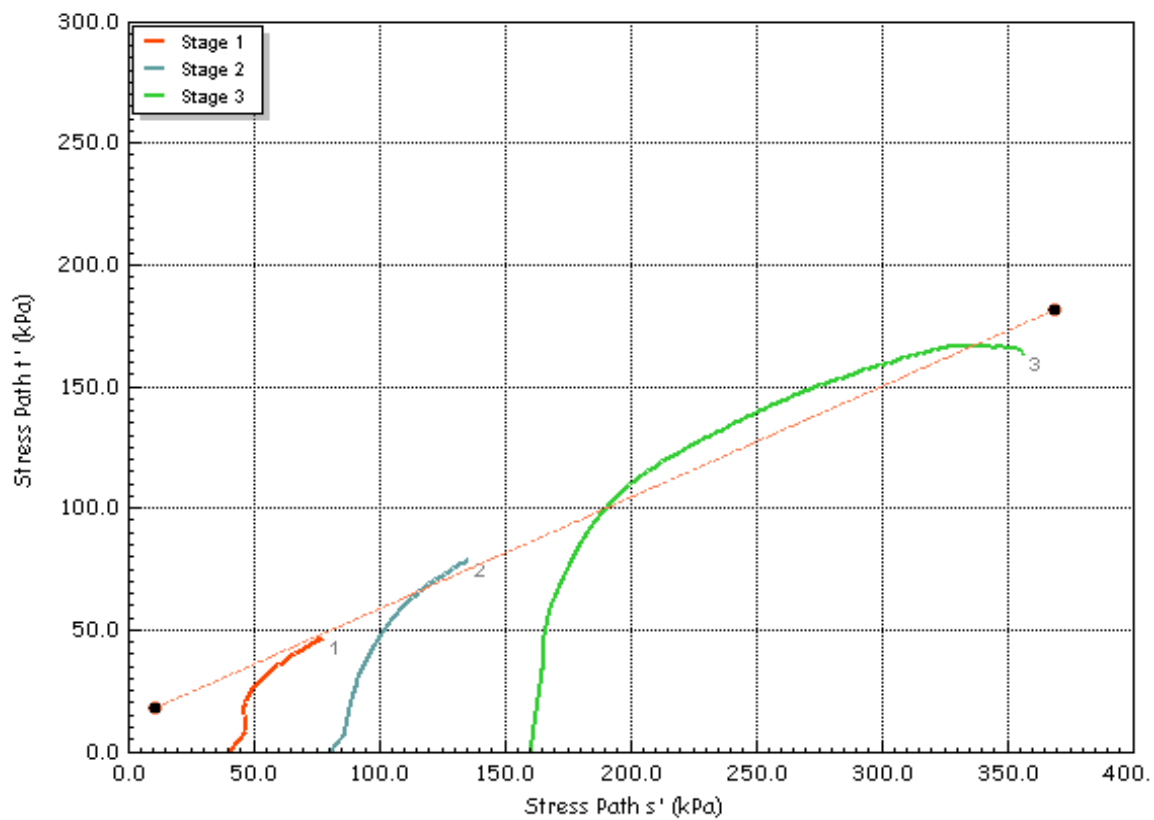
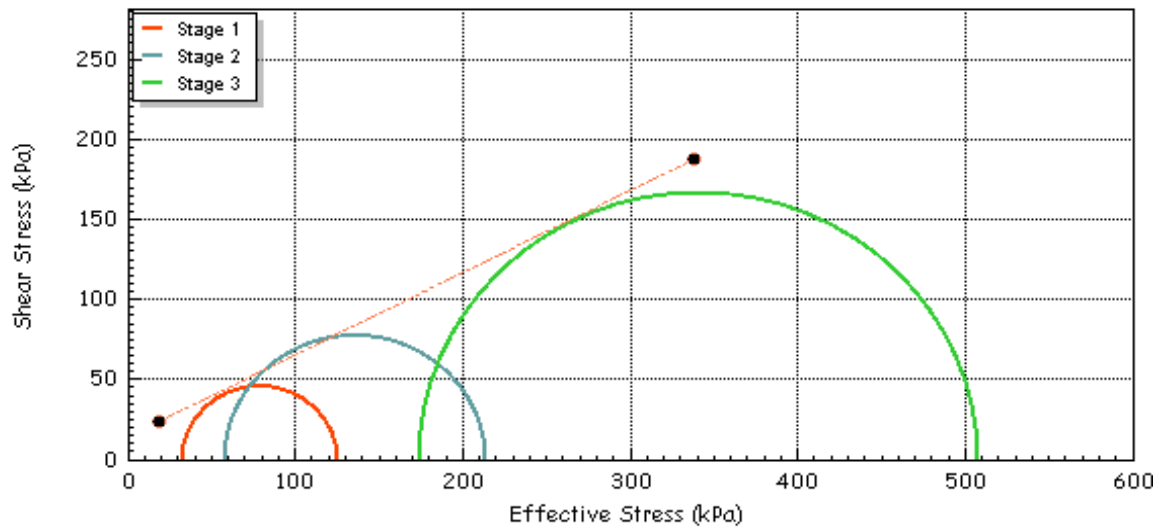


Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	14.91	Effective Cohesion c'	(kPa)	14.91
Effective Friction	ϕ'	(deg)	27.2	Effective Friction ϕ'	(deg)	27.2



	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH5 4.00-4.45m
			Test Date	27/07/2022
	Jobfile	Holchem Laboratories, Bury	Borehole	BH5
	Client	Groundtech Consulting	Sample	4.00-4.45m
			Depth	4.00-4.45m



APPENDIX 6 - Interim Permanent Gas Monitoring Results

SITE NAME:		HOLCHEM, PILSWORTH INDUSTRIAL ESTATE				ENGINEER:		William Sandiford Mitchell				
CLIENT:		HOLCHEM LABRATORIES				DATE:		28/07/2022				
JOB NO:		GRO-22216										
Pressure Trend:		Steady	Weather:	Overcast			Equipment:		GFM 436			
Ambient:		O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)					
Start		20.8	0.0	0.0	0.0	0.0	0.0					
Finish		20.8	0.0	0.0	0.0	0.0	0.0					

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH04	0.0	0.0	0.00	17.5	17.3	350.0	3.1	3.1	6.4	6.5	0.0	0.0	0.0	0.0	0.0031	0.0175	1007	-	N	N/A	N/A	NGW
BH05	0.0	0.0	0.00	0.0	0.0	0.0	4.4	4.4	12.8	13.1	0.0	0.0	0.0	0.0	0.0044	0.0000	1007	-	N	N/A	N/A	NGW
BH07	0.0	0.0	0.00	41.2	41.0	824.0	5.3	5.3	1.4	1.5	0.0	0.0	0.0	0.0	0.0053	0.0412	1007	-	N	N/A	N/A	NGW
Notes:																						

SITE NAME:		HOLCHEM, PILSWORTH INDUSTRIAL ESTATE				ENGINEER:		William Sandiford Mitchell				
CLIENT:		HOLCHEM LABRATORIES				DATE:		18/08/2022				
JOB NO:		GRO-22216										
Pressure Trend:		Steady	Weather:	Overcast			Equipment:		GFM 436			
Ambient:		O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)					
Start		20.8	0.0	0.0	0.0	0.0	0.0					
Finish		20.8	0.0	0.0	0.0	0.0	0.0					

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH04	0.0	0.0	0.00	20.3	19.7	406.0	3.6	3.6	3.7	4.1	0.0	0.0	0.0	0.0	0.0036	0.0203	1003	-	N	N/A	N/A	NGW
BH05	0.0	0.0	0.00	0.0	0.0	0.0	5.8	5.7	12.0	12.1	0.0	0.0	0.0	0.0	0.0058	0.0000	1004	-	N	N/A	N/A	NGW
BH07	0.0	0.0	0.00	46.4	46.0	928.0	6.3	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0063	0.0464	1002	-	N	N/A	N/A	4.79

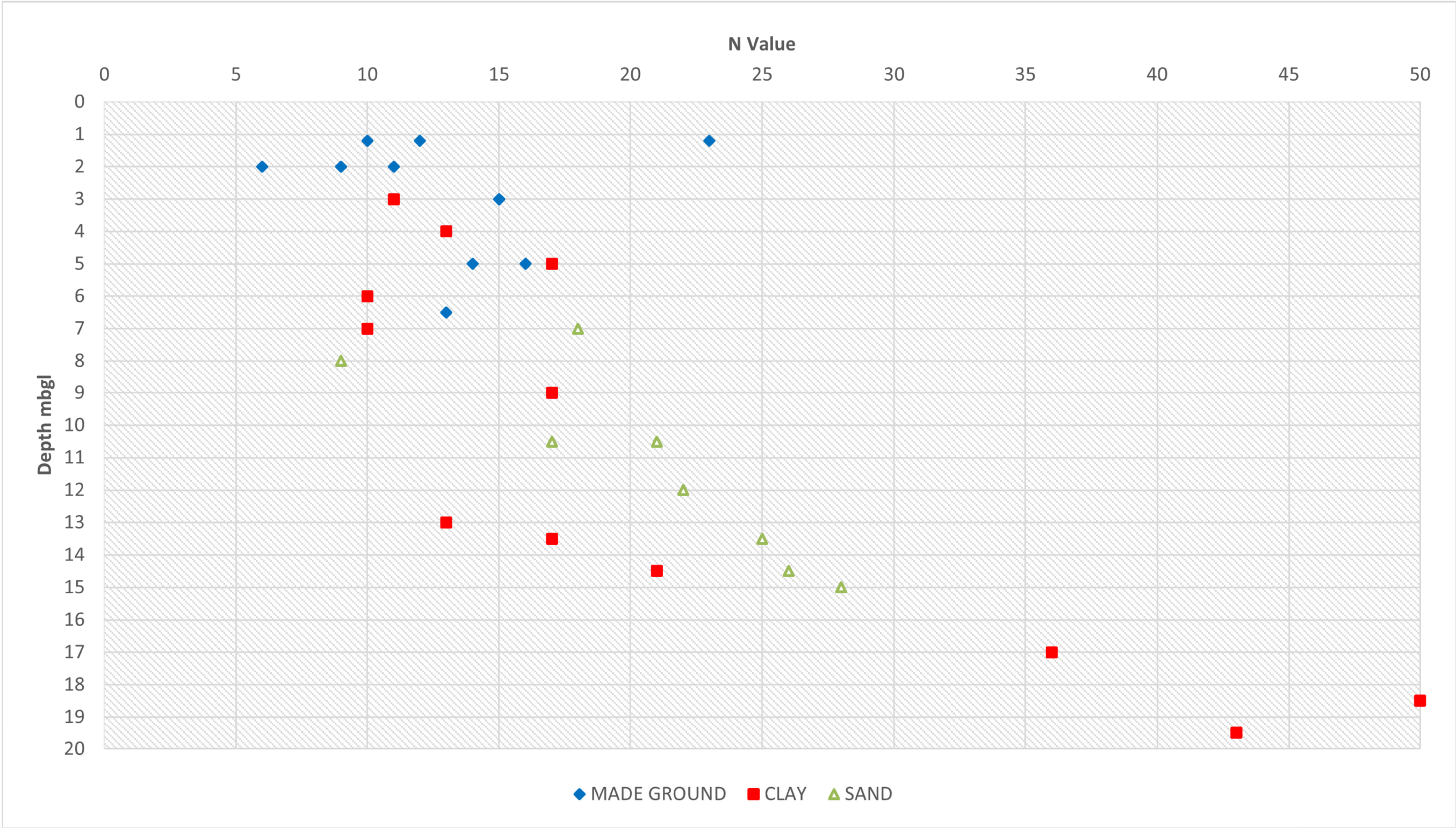
Notes:

SITE NAME:		HOLCHEM, PILSWORTH INDUSTRIAL ESTATE				ENGINEER:		William Sandiford Mitchell				
CLIENT:		HOLCHEM LABRATORIES				DATE:		07/09/2022				
JOB NO:		GRO-22216										
Pressure Trend:		Falling	Weather:	Overcast			Equipment:		GFM 436			
Ambient:		O ₂ (%v/v)	CH ₄ (%v/v)	CO ₂ (%v/v)	LEL	H ₂ S (ppm)	CO (ppm)					
Start		20.9	0.0	0.0	0.0	0.0	0.0					
Finish		20.9	0.0	0.0	0.0	0.0	0.0					

BH Ref.	Gas Flow Rate (l/hr)		Borehole Pressure (mb)	Methane (%v/v)			Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)		Carbon Monoxide (ppm)		Q _{hg} CO ₂ (l/hr)	Q _{hg} CH ₄ (l/hr)	Atmos Press (mb)	PID (ppm)	Sheen (Y/N)	LNAPL (Y/N)	DNAPL (Y/N)	Depth to Water (m bgl)
	Peak	Steady		Peak	Steady	LEL	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady								
BH04	0.0	0.0	0.00	28.7	29.2	574.0	3.6	3.9	1.0	0.1	0.0	0.0	0.0	0.0	0.0036	0.0287	996	-	N	N/A	N/A	NGW
BH05	0.0	0.0	0.00	0.0	0.0	0.0	7.0	7.1	8.7	8.6	0.0	0.0	0.0	0.0	0.0070	0.0000	997	-	N	N/A	N/A	NGW
BH07	1.8	1.8	0.11	45.9	46.3	918.0	6.1	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1098	0.8262	995	-	N	N/A	N/A	NGW

Notes:

APPENDIX 7 - Generalised Ground Model



GROUNDTECH CONSULTING 	CLIENT	DATE			Status		Notes
	HOLCHEM LABORATORIES LTD	SEPTEMBER 2022			Preliminary		
	PROJECT TITLE	SCALE			Draft	☒	
	HOLCHEM, PILSWORTH IND ESTATE	NTS			Issued		
	PLAN TITLE	PLAN NUMBER			For Comment		
	GENERALISED GROUND MODEL	GRO-22216-P03	Rev.	Details	Date	Approved	





APPENDIX 8 - Generic Screening Values (Commercial)



Proposed End Use	Unit	Residential with Plant Uptake			Commercial			Source
SOM	%	1	2.5	6	1	2.5	6	
Arsenic	mg/kg	32	32	32	640	640	640	SGVs
Beryllium	mg/kg	1.7	1.7	1.7	12	12	12	LQM S4ULs
Boron (water soluble)	mg/kg	290	290	290	240000	240000	240000	LQM S4ULs
Cadmium	mg/kg	10	10	10	230	230	230	SGVs
Chromium (Total)	mg/kg	910	910	910	8600	8600	8600	LQM S4ULs
Chromium (VI)	mg/kg	21	21	21	49	49	49	DEFRA C4SLs
Copper	mg/kg	2400	2400	2400	68000	68000	68000	LQM S4ULs
Lead	mg/kg	200	200	200	2300	2300	2300	DEFRA C4SLs
Mercury	mg/kg	1	1	1	26	26	26	SGVs
Nickel	mg/kg	130	130	130	1800	1800	1800	SGVs
Selenium	mg/kg	350	350	350	13000	13000	13000	SGVs
Vanadium	mg/kg	410	410	410	9000	9000	9000	LQM S4ULs
Zinc	mg/kg	3700	3700	3700	730000	730000	730000	LQM S4ULs
Aliphatic EC 5 - 6	mg/kg	42	78	160	3200 (304) ^{sol}	5900 (558) ^{sol}	12000 (1150) ^{sol}	LQM S4ULs
Aliphatic EC 6 - 8	mg/kg	100	230	530	7800 (144) ^{sol}	17000 (322) ^{sol}	40000 (736) ^{sol}	LQM S4ULs
Aliphatic EC 8 - 10	mg/kg	27	65	150	2000 (78) ^{sol}	4800 (190) ^{sol}	11000 (451) ^{vap}	LQM S4ULs
Aliphatic EC 10 - 12	mg/kg	130 (48) ^{vap}	330 (118) ^{vap}	760 (283) ^{vap}	9700 (48) ^{sol}	23000 (118) ^{vap}	47000 (283) ^{vap}	LQM S4ULs
Aliphatic EC 12 - 16	mg/kg	1100 (24) ^{sol}	2400 (59) ^{sol}	4300 (142) ^{sol}	59000 (24) ^{sol}	82000 (59) ^{sol}	90000 (142) ^{sol}	LQM S4ULs
Aliphatic EC 16 - 35	mg/kg	65000 (8.48) ^{f, sol}	92000 (21) ^{f, sol}	110000 ^f	1600000 ^f	1700000 ^f	1800000 ^f	LQM S4ULs
Aliphatic EC 35 - 44	mg/kg	65000 (8.48) ^{f, sol}	92000 (21) ^{f, sol}	110000 ^f	1600000 ^f	1700000 ^f	1800000 ^f	LQM S4ULs
Aromatic EC 5 - 7	mg/kg	70	140	300	26000 (1220) ^{sol}	46000 (2260) ^{sol}	86000 (4710) ^{sol}	LQM S4ULs
Aromatic EC 7 - 8	mg/kg	130	290	660	56000 (869) ^{vap}	110000 (1920) ^{sol}	180000 (4360) ^{sol}	LQM S4ULs
Aromatic EC 8 - 10	mg/kg	34	83	190	3500 (613) ^{vap}	8100 (1500) ^{vap}	17000 (3580) ^{vap}	LQM S4ULs
Aromatic EC 10 - 12	mg/kg	74	180	380	16000 (364) ^{sol}	28000 (899) ^{sol}	34000 (2150) ^{sol}	LQM S4ULs
Aromatic EC 12 - 16	mg/kg	140	330	660	36000 (169) ^{sol}	37000	38000	LQM S4ULs
Aromatic EC 16 - 21	mg/kg	260 ^f	540 ^f	930 ^f	28000 ^f	28000 ^f	28000 ^f	LQM S4ULs
Aromatic EC 21 - 35	mg/kg	1100 ^f	1500 ^f	1700 ^f	28000 ^f	28000 ^f	28000 ^f	LQM S4ULs
Aromatic EC 35 - 44	mg/kg	1100 ^f	1500 ^f	1700 ^f	28000 ^f	28000 ^f	28000 ^f	LQM S4ULs
Benzene	mg/kg	0.33	0.33	0.33	95	95	95	SGVs
Toluene	mg/kg	610	610	610	4400	4400	4400	SGVs
Ethyl Benzene	mg/kg	350	350	350	2800	2800	2800	SGVs
Xylene - o	mg/kg	250	250	250	2600	2600	2600	SGVs
Xylene - m	mg/kg	240	240	240	3500	3500	3500	SGVs
Xylene - p	mg/kg	230	230	230	3200	3200	3200	SGVs
MTBE (methyl tert-butyl ether)	mg/kg	49	84	160	7900	13000	24000	CL:AIRE 2010
Acenaphthene	mg/kg	210	510	1100	84000 (57) ^{sol}	97000 (141) ^{sol}	100000	LQM SAULs
Acenaphthylene	mg/kg	170	420	920	83000 (86.1) ^{sol}	97000 (212) ^{sol}	100000	LQM S4ULs
Anthracene	mg/kg	2400	5400	11000	520000	540000	540000	LQM S4ULs
Benz(a)anthracene	mg/kg	7.2	11	13	170	170	180	LQM S4ULs
Benzo(a)pyrene	mg/kg	2.2	2.7	5*	35	35	77*	DEFRA C4SL / LQM S4UL
Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	44	44	45	LQM S4ULs
Benzo(ghi)perylene	mg/kg	320	340	350	3900	4000	4000	LQM S4ULs
Benzo(k)fluoranthene	mg/kg	77	93	100	1200	1200	1200	LQM S4ULs
Chrysene	mg/kg	15	22	27	350	350	350	LQM S4ULs
Dibenz(ah)anthracene	mg/kg	0.24	0.28	0.3	3.5	3.6	3.6	LQM S4ULs
Fluoranthene	mg/kg	280	560	890	23000	23000	23000	LQM S4ULs
Fluorene	mg/kg	170	400	860	63000 (30.9) ^{sol}	68000	71000	LQM S4ULs
Indeno(123-cd)pyrene	mg/kg	27	36	41	500	510	510	LQM S4ULs
Naphthalene	mg/kg	2.3 ^f	5.6 ^f	13 ^f	190 ^f (76.4) ^{sol}	460 ^f (183) ^{sol}	1100 ^f (432) ^{sol}	LQM S4ULs
Phenanthrene	mg/kg	95	220	440	22000	22000	23000	LQM S4ULs
Pyrene	mg/kg	620	1200	2000	54000	54000	54000	LQM S4ULs



Proposed End Use	Unit	Residential with Plant Uptake			Commercial			Source
SOM	%	1	2.5	6	1	2.5	6	
Phenol	mg/kg	420	420	420	3200	3200	3200	SGVs
Chlorophenols	mg/kg	0.87 ^g	2	4.5	3500	4000	4300	LQM S4ULs
Pentachlorophenol	mg/kg	0.22	0.52	1.2	400	400	400	LQM S4ULs
Carbon disulphide	mg/kg	0.14	0.29	0.62	11	22	47	LQM S4ULs
Hexachlorobutadiene	mg/kg	0.29	0.7	1.6	31	66	120	LQM S4ULs
1,1,1,2-Tetrachloroethane	mg/kg	1.6	3.4	7.5	270	550	1100	LQM S4ULs
1,1,1-Trichloroethane	mg/kg	8.8	18	39	660	1300	3000	LQM S4ULs
Trichloroethene	mg/kg	0.016	0.034	0.075	1.2	2.6	5.7	LQM S4ULs
Tetrachloromethane	mg/kg	0.026	0.056	0.13	2.9	6.3	14	LQM S4ULs
(Carbon Tetrachloride)	mg/kg	0.0071	0.011	0.019	0.67	0.97	1.7	LQM S4ULs
1,2-Dichloroethane	mg/kg	0.00064	0.00087	0.0014	0.059	0.077	0.12	LQM S4ULs
Chloroethene (vinyl chloride)	mg/kg	0.91	1.7	3.4	99	170	350	LQM S4ULs
Tetrachloromethane (chloroform)	mg/kg	0.18	0.39	0.9	19	42	95	LQM S4ULs
Tetrachloroethene	mg/kg	1.8 (0.2) ^{vap}	3.3 (0.5) ^{vap}	4.9	110 (0.2) ^{vap}	120	120	LQM S4ULs
Hexachlorobenzene	mg/kg	5.8	12	22	640 (43) ^{sol}	770 (107) ^{sol}	830	LQM S4ULs
Pentachlorobenzene	mg/kg	0.33	0.77	1.6	42 (19.7) ^{sol}	72 (49.1) ^{sol}	96	LQM S4ULs
1,2,4,5-Tetrachlorobenzene	mg/kg	0.66	1.69	3.7	49 (39.4) ^{vap}	120 (98.1) ^{vap}	240 (235) ^{vap}	LQM S4ULs
1,2,3,5-Tetrachlorobenzene	mg/kg	15	36	78	1700 (122) ^{vap}	3080 (304) ^{vap}	4400 (728) ^{vap}	LQM S4ULs
1,2,3,4-Tetrachlorobenzene	mg/kg	0.33	0.81	1.9	23	55	130	LQM S4ULs
1,3,5-Trichlorobenzene	mg/kg	2.6	6.4	15	220	530	1300	LQM S4ULs
1,2,4-Trichlorobenzene	mg/kg	1.5	3.6	8.6	102	250	590	LQM S4ULs
1,2,3-Trichlorobenzene	mg/kg	61 ^f	150 ^f	350 ^f	4400 ^f (224) ^{vap}	10000 ^f (540) ^{vap}	25000 ^f (1280) ^{vap}	LQM S4ULs
1,4-dichlorobenzene	mg/kg	0.4	1	2.3	30	73	170	LQM S4ULs
1,3-dichlorobenzene	mg/kg	23	55	130	2000 (571) ^{sol}	4800 (1370) ^{sol}	11000 (3240) ^{sol}	LQM S4ULs
1,2-Dichlorobenzene	mg/kg	0.46	1	2.4	56	130	290	LQM S4ULs
Chlorobenzene	mg/kg	0.06	0.14	0.33	67	69	70	LQM S4ULs
Gamma-Hexachlorocyclopentadiene	mg/kg	0.085	0.2	0.46	65	65	65	LQM S4ULs
Beta-Hexachlorocyclopentadiene	mg/kg	0.23	0.55	1.2	170	180	180	LQM S4ULs
Alpha-Hexachlorocyclopentadiene	mg/kg	7	17	39	6500 (0.00007) ^{vap}	7800 (0.0002) ^{vap}	8700	LQM S4ULs
Beta-Endosulfan	mg/kg	7.4	18	41	5600 (0.0003) ^{vap}	7400 (0.0007) ^{vap}	8400 (0.016) ^{vap}	LQM S4ULs
Alpha-Endosulfan	mg/kg	0.032	0.066	0.14	140	140	140	LQM S4ULs
Dichlorvos	mg/kg	3.3	7.6	17.4	9300	9400	9400	LQM S4ULs
Atrazine	mg/kg	0.97	2	3.5	170	170	170	LQM S4ULs
Dieldrin	mg/kg	5.7	6.6	7.1	170	170	170	LQM S4ULs
Aldrin	mg/kg	5.7	13	26	110000	110000	110000	LQM S4ULs
HMX	mg/kg	1.6	3.7	8.1	1000	1000	1000	LQM S4ULs
2,4,6-Trinitrotoulene	mg/kg	120	250	540	210000	210000	210000	LQM S4ULs
RDX	mg/kg							

^{sol} S4UL exceeds the solubility saturation limit (which is presented in brackets)

^{vap} S4ULs presented exceeds the vapour saturation limit, which is presented in brackets

^f For naphthalene, the S4UL is based on a comparison of inhalation exposure with the TDI_{inhal} for localised affects

^f S4UL based on comparison of inhalation exposure with inhalation TDI for localised effects

^{dir} S4ULs based on a threshold protective direct skin contact with phenol (guideline in brackets based on health effects following long term exposure provided for illustration only)

APPENDIX 9 - CIRIA Risk Assessment Methodology

Contaminated Land Risk Assessment

Contaminated Land Risk Assessment is a technique that identifies and considers the associated risk, determines whether the risks are significant and whether action needs to be taken. The four main stages of risk assessment are:

Hazard Identification ➡ Hazard Assessment ➡ Risk Estimation ➡ Risk Evaluation

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. The starting point of the risk assessment is to identify the context of the problem and the objectives of the process.

Formulating and developing a conceptual model for the site is an important requirement of risk assessment, this supports the identification and assessment of pollutant linkages. Development of the conceptual model forms the main part of preliminary risk assessment, and the model is subsequently refined or revised as more information and understanding is obtained through the risk assessment process.

Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk.

The risk assessment process needs to take into account the degree of confidence required in decisions. Identification of uncertainties is an essential step in risk assessment.

The likelihood of an event is classified on a four-point system using the following terms and definitions from CIRIA C552:

- **High likelihood:** There is a pollution linkage and an event appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution;
- **Likely:** There is a pollution linkage and all the elements are present and in the right place, which means it is probable that an event will occur. Circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term;
- **Low likelihood:** There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain even over a longer period such event would take place, and is less likely in the short term;
- **Unlikely:** There is a pollution linkage but circumstances are such that it is improbable the event would occur even in the long term.

The severity is also classified using a system based on CIRIA C552. The terms and definitions are:

- **Severe:** Short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
Examples – High concentrations of contaminant on surface of recreation area, major spillage of contaminants from site into controlled waters, explosion causing building to collapse;

- **Medium:** Chronic damage to human health ('significant harm' as defined in DETR 2000). Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000);
Examples - Concentrations of contaminants exceed the generic assessment criteria, leaching of contaminants from a site to a Principal or Secondary Aquifer, death of species within a designated nature reserve;
- **Mild:** Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures, services or the environment;
Examples – Pollution of non-classified groundwater or damage to buildings rendering it unsafe to occupy.
- **Minor:** harm, not necessarily significant harm, which may result in financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by use of personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.
Examples – Presence of contaminants at such concentrations PPE is required during site work, loss of plants in landscaping scheme or discolouration of concrete.

Once the likelihood and severity have been determined, a risk category can be assigned using the table below.

		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very Low	Very low

Definitions of the risk categories obtained from the above table are as follows together with an assessment of the further work that might be required:

- **Very high:** There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability. Urgent investigation and remediation are likely to be required;
- **High:** Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term;
- **Moderate:** It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it would be more likely to be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term;
- **Low:** It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild;
- **Very Low:** There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

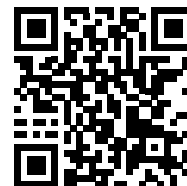


APPENDIX 10 - Waste Classification Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



MF5FI-BU0J3-2IDSG

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Job name

EMT-22-10340-Batch-1-202207041243 (2)

Description/Comments

Project

GRO-22212

Site

Holchem

Classified by

Name: **Bradley Massey**
Date: **07 Sep 2022 13:37 GMT**
Telephone: **01618 201368**
Company: **Groundtech Consulting Limited**
First Floor, Lloyd House, Orford Court,
Greenfold Way
Leigh
WN7 3XJ

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

Course: **Hazardous Waste Classification**

Date

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH4-15/06/2022-1.50m		Non Hazardous		2
2	BH4-15/06/2022-17.00-17.45m		Non Hazardous		4
3	BH5-14/06/2022-2.00m		Non Hazardous		5
4	BH5-14/06/2022-10.50-10.95m		Non Hazardous		7
5	BH6-17/06/2022-1.50m		Non Hazardous		8
6	BH6-17/06/2022-2.20m		Non Hazardous		10
7	BH6-17/06/2022-8.00-8.95m		Non Hazardous		12
8	BH7-13/06/2022-1.50m		Non Hazardous		13
9	BH7-13/06/2022-5.30m		Non Hazardous		15
10	HP1-17/06/2022-0.50m		Non Hazardous		16
11	HP3-17/06/2022-0.50m		Non Hazardous		18

Related documents

#	Name	Description
1	EMT-22-10340-Batch-1-202207041243 (2).HWOL	Element .hwol file used to populate the Job

Report

Created by: Bradley Massey

Created date: 07 Sep 2022 13:37 GMT

Appendices

	Page
Appendix A: Classifier defined and non GB MCL determinands	20
Appendix B: Rationale for selection of metal species	21
Appendix C: Version	22

Classification of sample: BH4-15/06/2022-1.50m

 **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH4-15/06/2022-1.50m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
13.2%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13.2% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				8.8	mg/kg	1.895	14.728	mg/kg	0.00147 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				22	mg/kg	3.929	76.36	mg/kg	0.00764 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	13	mg/kg	1.57	18.029	mg/kg	0.00115 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				0.1	mg/kg	1.419	0.125	mg/kg	0.0000125 %	✓	
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				35.1	mg/kg	5.324	165.091	mg/kg	0.0165 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				1	mg/kg	2.554	2.256	mg/kg	0.000226 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				84	mg/kg	4.398	326.348	mg/kg	0.0326 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-581-5	85-01-8									
15	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									
16	fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-912-4	206-44-0									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
19	chrysene	601-048-00-0	205-923-4		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
26	pH		PH		6.89 pH		6.89 pH	6.89 pH		
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		45.7 mg/kg	1.462	59.005 mg/kg	0.0059 %	✓	
Total:								0.0657 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
•	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 1: Explosive "waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included"

Force this Hazardous property to non hazardous because Non explosive at this concentration

Hazard Statements hit:

Unst. Expl.; H200 "Unstable explosives"

Because of determinand:

mercury difulminate: (compound conc.: 0.00001%)

Classification of sample: BH4-15/06/2022-17.00-17.45m



Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH4-15/06/2022-17.00-17.45m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	• pH		PH		8.79 pH		8.79 pH	8.79 pH		
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH5-14/06/2022-2.00m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH5-14/06/2022-2.00m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
21.4%	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(dry weight correction)	Entry:

Hazard properties

None identified

Determinands

Moisture content: 21.4% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				8.4	mg/kg	1.895	13.109	mg/kg	0.00131 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				16	mg/kg	3.929	51.783	mg/kg	0.00518 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	22	mg/kg	1.57	28.45	mg/kg	0.00181 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				0.1	mg/kg	1.419	0.117	mg/kg	0.0000117 %	✓	
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				15.6	mg/kg	5.324	68.418	mg/kg	0.00684 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				1	mg/kg	2.554	2.104	mg/kg	0.00021 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				45	mg/kg	4.398	163.02	mg/kg	0.0163 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		201-581-5	85-01-8									
15	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									
16	fluoranthene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-912-4	206-44-0									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
17	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
19	chrysene	601-048-00-0	205-923-4		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	indeno[123-cd]pyrene		205-893-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
23	benzo[ghi]perylene		205-883-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
26	pH		PH		6.59 pH		6.59 pH	6.59 pH			
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				49.1 mg/kg	1.462	59.112 mg/kg	0.00591 %		✓	
		215-160-9	1308-38-9								
Total:									0.0377 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 1: Explosive "waste which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic waste, explosive organic peroxide waste and explosive self-reactive waste is included"

Force this Hazardous property to non hazardous because Non explosive at this concentration

Hazard Statements hit:

Unst. Expl.; H200 "Unstable explosives"

Because of determinand:

mercury difulminate: (compound conc.: 0.00001%)

Classification of sample: BH5-14/06/2022-10.50-10.95m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH5-14/06/2022-10.50-10.95m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	● pH				8.56 pH		8.56	pH	8.56 pH		
			PH								
Total:									0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH6-17/06/2022-1.50m



Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH6-17/06/2022-1.50m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
12.7%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12.7% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	naphthalene				<40 µg/kg		<0.04 mg/kg		<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
2	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg		<0.000003 %		<LOD
		205-917-1	208-96-8								
3	acenaphthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-469-6	83-32-9								
4	fluorene				<0.04 mg/kg		<0.04 mg/kg		<0.000004 %		<LOD
		201-695-5	86-73-7								
5	phenanthrene				<0.03 mg/kg		<0.03 mg/kg		<0.000003 %		<LOD
		201-581-5	85-01-8								
6	anthracene				<0.04 mg/kg		<0.04 mg/kg		<0.000004 %		<LOD
		204-371-1	120-12-7								
7	fluoranthene				0.05 mg/kg		0.0444 mg/kg		0.00000444 %	✓	
		205-912-4	206-44-0								
8	pyrene				0.05 mg/kg		0.0444 mg/kg		0.00000444 %	✓	
		204-927-3	129-00-0								
9	benzo[a]anthracene				<0.06 mg/kg		<0.06 mg/kg		<0.000006 %		<LOD
	601-033-00-9	200-280-6	56-55-3								
10	chrysene				0.05 mg/kg		0.0444 mg/kg		0.00000444 %	✓	
	601-048-00-0	205-923-4	218-01-9								
11	benzo[a]pyrene; benzo[def]chrysene				<0.04 mg/kg		<0.04 mg/kg		<0.000004 %		<LOD
	601-032-00-3	200-028-5	50-32-8								
12	indeno[123-cd]pyrene				<0.04 mg/kg		<0.04 mg/kg		<0.000004 %		<LOD
		205-893-2	193-39-5								
13	dibenz[a,h]anthracene				<0.04 mg/kg		<0.04 mg/kg		<0.000004 %		<LOD
	601-041-00-2	200-181-8	53-70-3								
14	benzo[ghi]perylene				<0.04 mg/kg		<0.04 mg/kg		<0.000004 %		<LOD
		205-883-8	191-24-2								
15	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2								
16	benzo[k]fluoranthene				<0.02 mg/kg		<0.02 mg/kg		<0.000002 %		<LOD
	601-036-00-5	205-916-6	207-08-9								
17	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	603-181-00-X	216-653-1	1634-04-4								
18	benzene				<5 µg/kg		<0.005 mg/kg		<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
19	toluene									
	601-021-00-3	203-625-9	108-88-3		<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
20	ethylbenzene									
	601-023-00-4	202-849-4	100-41-4		<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
21	polychlorobiphenyls; PCB									
	602-039-00-4	215-648-1	1336-36-3		<35 µg/kg		<0.035 mg/kg	<0.0000035 %		<LOD
22	coronene									
		205-881-7	191-07-1		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	xylene									
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.00007 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
■	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: BH6-17/06/2022-2.20m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH6-17/06/2022-2.20m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
11.5% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 11.5% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				5.9	mg/kg	1.895	10.025	mg/kg	0.001 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				15	mg/kg	3.929	52.857	mg/kg	0.00529 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	14	mg/kg	1.57	19.712	mg/kg	0.00126 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				<0.1	mg/kg	1.419	<0.142	mg/kg	<0.0000142 %		<LOD
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				14.3	mg/kg	5.324	68.285	mg/kg	0.00683 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				1	mg/kg	2.554	2.29	mg/kg	0.000229 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				47	mg/kg	4.398	185.383	mg/kg	0.0185 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.03	mg/kg		0.0269	mg/kg	0.00000269 %	✓	
		201-581-5	85-01-8									
15	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									
16	fluoranthene				0.03	mg/kg		0.0269	mg/kg	0.00000269 %	✓	
		205-912-4	206-44-0									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	pyrene	204-927-3	129-00-0		0.03 mg/kg		0.0269 mg/kg	0.00000269 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
19	chrysene	601-048-00-0	205-923-4	218-01-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
26	pH		PH		8.08 pH		8.08 pH	8.08 pH		
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		55.5 mg/kg	1.462	72.75 mg/kg	0.00728 %	✓	
Total:								0.0406 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH6-17/06/2022-8.00-8.95m



Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH6-17/06/2022-8.00-8.95m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	● pH		PH		6.59 pH		6.59 pH	6.59 pH		
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH7-13/06/2022-1.50m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH7-13/06/2022-1.50m	Chapter:
Moisture content:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
9.8%	Entry:
(dry weight correction)	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.8% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				11.2	mg/kg	1.895	19.325	mg/kg	0.00193 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				27	mg/kg	3.929	96.616	mg/kg	0.00966 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	46	mg/kg	1.57	65.77	mg/kg	0.00419 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				<0.1	mg/kg	1.419	<0.142	mg/kg	<0.0000142 %		<LOD
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				17.2	mg/kg	5.324	83.404	mg/kg	0.00834 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				75	mg/kg	4.398	300.405	mg/kg	0.03 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.67	mg/kg		0.61	mg/kg	0.000061 %	✓	
		201-581-5	85-01-8									
15	anthracene				0.15	mg/kg		0.137	mg/kg	0.0000137 %	✓	
		204-371-1	120-12-7									
16	fluoranthene				1.41	mg/kg		1.284	mg/kg	0.000128 %	✓	
		205-912-4	206-44-0									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	pyrene	204-927-3	129-00-0		1.16 mg/kg		1.056 mg/kg	0.000106 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.65 mg/kg		0.592 mg/kg	0.0000592 %	✓	
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.68 mg/kg		0.619 mg/kg	0.0000619 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.46 mg/kg		0.419 mg/kg	0.0000419 %	✓	
21	indeno[123-cd]pyrene		205-893-2	193-39-5	0.41 mg/kg		0.373 mg/kg	0.0000373 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.05 mg/kg		0.0455 mg/kg	0.00000455 %	✓	
23	benzo[ghi]perylene		205-883-8	191-24-2	0.37 mg/kg		0.337 mg/kg	0.0000337 %	✓	
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.66 mg/kg		0.601 mg/kg	0.0000601 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.26 mg/kg		0.237 mg/kg	0.0000237 %	✓	
26	pH		PH		6.4 pH		6.4 pH	6.4 pH		
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9	49.8 mg/kg	1.462	66.289 mg/kg	0.00663 %	✓	
Total:								0.0618 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH7-13/06/2022-5.30m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH7-13/06/2022-5.30m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	● pH				7.43 pH		7.43	pH	7.43 pH		
			PH								
Total:									0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: HP1-17/06/2022-0.50m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HP1-17/06/2022-0.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.8% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.8% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				4.9	mg/kg	1.895	8.455	mg/kg	0.000845 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				14	mg/kg	3.929	50.097	mg/kg	0.00501 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	11	mg/kg	1.57	15.728	mg/kg	0.001 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				<0.1	mg/kg	1.419	<0.142	mg/kg	<0.0000142 %		<LOD
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				24.6	mg/kg	5.324	119.288	mg/kg	0.0119 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				1	mg/kg	2.554	2.326	mg/kg	0.000233 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				47	mg/kg	4.398	188.254	mg/kg	0.0188 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.1	mg/kg		0.0911	mg/kg	0.00000911 %	✓	
		201-581-5	85-01-8									
15	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									
16	fluoranthene				0.13	mg/kg		0.118	mg/kg	0.0000118 %	✓	
		205-912-4	206-44-0									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	pyrene	204-927-3	129-00-0		0.11 mg/kg		0.1 mg/kg	0.00001 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.08 mg/kg		0.0729 mg/kg	0.00000729 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.04 mg/kg		0.0364 mg/kg	0.00000364 %	✓	
21	indeno[123-cd]pyrene		205-893-2	193-39-5	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	benzo[ghi]perylene		205-883-8	191-24-2	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.06 mg/kg		0.0546 mg/kg	0.00000546 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.03 mg/kg		0.0273 mg/kg	0.00000273 %	✓	
26	pH			PH	7.39 pH		7.39 pH	7.39 pH		
27	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9	42.8 mg/kg	1.462	56.971 mg/kg	0.0057 %	✓	
Total:								0.0437 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: HP3-17/06/2022-0.50m

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
HP3-17/06/2022-0.50m	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
9.9% (dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.9% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	arsenic { arsenic acid and its salts with the exception of those specified elsewhere in this Annex }				8.6	mg/kg	1.895	14.825	mg/kg	0.00148 %	✓	
	033-005-00-1											
2	cadmium { cadmium sulfate }				<0.1	mg/kg	1.855	<0.185	mg/kg	<0.0000185 %		<LOD
	048-009-00-9	233-331-6	10124-36-4									
3	copper { copper sulphate pentahydrate }				28	mg/kg	3.929	100.103	mg/kg	0.01 %	✓	
	029-023-00-4	231-847-6	7758-99-8									
4	lead { lead di(acetate) }			1	35	mg/kg	1.57	49.997	mg/kg	0.00318 %	✓	
	082-005-00-8	206-104-4	301-04-2									
5	mercury { mercury difulminate }				<0.1	mg/kg	1.419	<0.142	mg/kg	<0.0000142 %		<LOD
	080-005-00-2	211-057-8	628-86-4									
6	nickel { nickel diiodide }				22.4	mg/kg	5.324	108.521	mg/kg	0.0109 %	✓	
	028-029-00-4	236-666-6	13462-90-3									
7	selenium { nickel selenate }				2	mg/kg	2.554	4.648	mg/kg	0.000465 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
8	zinc { zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2] }				66	mg/kg	4.398	264.116	mg/kg	0.0264 %	✓	
	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]									
9	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.3	mg/kg	2.27	<0.681	mg/kg	<0.0000681 %		<LOD
	024-017-00-8											
10	naphthalene				<40	µg/kg		<0.04	mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
11	acenaphthylene				<0.03	mg/kg		<0.03	mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8									
12	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
13	fluorene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		201-695-5	86-73-7									
14	phenanthrene				0.12	mg/kg		0.109	mg/kg	0.0000109 %	✓	
		201-581-5	85-01-8									
15	anthracene				<0.04	mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
		204-371-1	120-12-7									
16	fluoranthene				0.26	mg/kg		0.237	mg/kg	0.0000237 %	✓	
		205-912-4	206-44-0									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
17	pyrene	204-927-3	129-00-0		0.25 mg/kg		0.227 mg/kg	0.0000227 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.19 mg/kg		0.173 mg/kg	0.0000173 %	✓	
19	chrysene	601-048-00-0	205-923-4	218-01-9	0.19 mg/kg		0.173 mg/kg	0.0000173 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.13 mg/kg		0.118 mg/kg	0.0000118 %	✓	
21	indeno[123-cd]pyrene	205-893-2	193-39-5		0.15 mg/kg		0.136 mg/kg	0.0000136 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		0.12 mg/kg		0.109 mg/kg	0.0000109 %	✓	
24	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.22 mg/kg		0.2 mg/kg	0.00002 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.09 mg/kg		0.0819 mg/kg	0.00000819 %	✓	
26	pH		PH		7.59 pH		7.59 pH	7.59 pH		
27	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4	<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
28	benzene	601-020-00-8	200-753-7	71-43-2	<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
29	toluene	601-021-00-3	203-625-9	108-88-3	<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
30	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
31	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<35 µg/kg		<0.035 mg/kg	<0.0000035 %		<LOD
32	coronene	205-881-7	191-07-1		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }	215-160-9	1308-38-9		56.8 mg/kg	1.462	75.538 mg/kg	0.00755 %	✓	
Total:								0.0603 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

• **lead di(acetate)** (EC Number: 206-104-4, CAS Number: 301-04-2)

GB MCL index number: 082-005-00-8

Description/Comments: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2.

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

• **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

▪ **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

▪ **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

▪ **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

▪ **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: <http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en>
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

arsenic {arsenic acid and its salts with the exception of those specified elsewhere in this Annex}

Worst case scenario

cadmium {cadmium sulfate}

Worst case scenario

copper {copper sulphate pentahydrate}

Worst case scenario

lead {lead di(acetate)}

Worst case scenario

mercury {mercury difulminate}

Worst case scenario

nickel {nickel diiodide}

Worst case scenario

selenium {nickel selenate}

Worst case scenario

zinc {zinc sulphate (hydrous) (mono-, hexa- and hepta hydrate); [1] zinc sulphate (anhydrous) [2]}

Worst case scenario

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case scenario

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case scenario

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**
HazWasteOnline Classification Engine Version: 2022.245.5317.9942 (02 Sep 2022)
HazWasteOnline Database: 2022.245.5317.9942 (02 Sep 2022)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

APPENDIX 11 - Relevant Legislative Background

Legislative Background

Environmental liabilities and risks have been evaluated in terms of a source -pathway - target relationship in accordance with the approach set out in:

- The 1995 Environment Act;
- The Contaminated Land (England) Regulations 2000;
- The DETR circular 02/2000 Environmental Protection Act 1990: Part IIA Contaminated Land.

Contaminated land is defined within the legislative framework as land which is in such condition by reason of substances in, on or under the land that:

- 1) Significant harm is being caused or there is a significant possibility of such harm being caused;
- 2) Significant pollution of controlled waters is being or is likely to be caused.

The potential for harm is based on the presence of three factors:

- **Source** - substances that are potential contaminants or pollutants that may cause harm;
- **Pathway** - a potential route by which contaminants can move from the source to the receptor;
- **Receptor** - a receptor that may be harmed, for example the water environment, humans and water.

Where a source, pathway and target are all present a pollutant linkage exists and there is potential for harm to be caused. The presence of a source does not automatically imply that a contamination problem exists, since contamination must be defined in terms of pollutant linkages and unacceptable risk of harm. The nature and importance of both pathways and receptors are site specific and will vary according to the intended end use of the site, its characteristics and its surroundings.

The key principle which supports the SPR approach is 'suitable for use' criteria. This requires remedial action only where contamination is considered to pose unacceptable actual or potential risks to health or the environment and, taking into account the proposed use of the site.

Relevant Guidance Documents

This report has been prepared in accordance with the list of guidance below however the list is not exhaustive:

- LCRM – Model Procedures;
- Contamination and Environmental Matters - Their implications for Property Professionals (2nd Edition RICS Nov 2003);
- Brownfields – Managing the development of previously developed land – A client's guide, CIRIA 2002;
- DEFRA and Environment Agency publications CLR7 – 10, supported by the TOX guides and SGV guides, dated March 2002;
- DETR Circular 02/2000, Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990;
- Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the EPA1990, May 2002;

Relevant Legislative Documents

The following is a non-exhaustive list of legislative framework documents that has been considered in the production of this report:

- The Environment Act (1995);
- The Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (2012);
- The Environment Protection Act (1990);
- The Contaminated Land (England) Act (2000);
- Contaminated Land (England) Regulations (2012);
- The Water Resources Act (1991);
- The Pollution Prevention and Control (England and Wales) Regulations (2000);
- The Landfill Regulations (England and Wales) Regulations (2002);
- The Landfill (England and Wales) (Amendment) Regulations (2004);
- Health and Safety at Work Act;



APPENDIX 12 - Limitations

Limitations

This report (Report) forms part of the Services and if applicable Additional Services undertaken by Groundtech Consulting Ltd pursuant to a written contract (Agreement) which contains detailed provisions including express limitations of the liability of Groundtech Consulting Ltd.

This Report was prepared using reasonable skill and care as stated in the Agreement for the purpose including intended end use stated by the Client (Purpose) and the liability of Groundtech Consulting Ltd in respect of the form and content of this Report is no greater than its liability under the Agreement. All records, measurements notes, or any other data (Data) obtained by or for the benefit of the Consultant were obtained at a specific point in time and it may not be assumed by the Client or any person relying on this Report that the Data will remain unaffected by the passage of time, the seasons, weather conditions, changes in the water table or the carrying out and completion of works at the Site.

Unless otherwise agreed this Report has been prepared exclusively for the use and reliance of the Client and may not be relied upon, by any other party except as provided for in the Agreement. A third party who relies on this Report, does so at their own and sole risk and Groundtech Consulting Ltd has no liability to such parties.

Groundtech Consulting Ltd that this Report is to be used for the Purpose. The Purpose was instrumental in determining the scope and of the Services provided. If the Purpose should change, the Client may not be able to rely on the Report without the separate agreement of Groundtech Consulting Ltd.

Since the Report was written, later changes in legislation, statutory requirements and industry best practices have not been considered and this should be allowed for. Ground conditions can also change (see below) and should be investigated if there is any significant delay in acting on the findings of this Report. The period of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions in this Report should not be relied upon in the future without written confirmation from Groundtech Consulting Ltd that it is safe to do so.

The observations and conclusions outlined in this Report are based exclusively on the services that were provided as set out in the agreement between the client and Groundtech Consulting Ltd.

Groundtech Consulting Ltd is not liable for the existence of any condition, the discovery of which would require additional investigation outside the agreed scope of works or core competency. The Report is based upon Groundtech Consulting Ltd's observations of existing physical conditions at the Site gained from site reconnaissance together with interpretation of information including documentation, obtained from third parties and from the Client on the history and usage of the Site. The findings and recommendations contained in this Report are based in part upon information provided by third parties, and Groundtech Consulting Ltd have relied upon such information assuming it to be correct.

Groundtech Consulting Ltd accepts no responsibility for errors or inaccuracies in third party information presented in this Report. Groundtech Consulting Ltd was not authorised to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services or Additional Services. Groundtech Consulting Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, which may inform the scope of investigation undertaken by Groundtech Consulting Ltd and forms the contract with the client.



Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions may also vary due to the ground's heterogeneous properties and because investigation exploratory locations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this Report, particularly between exploratory holes. The extent of the limited area depends on the soil and groundwater conditions, together with other constraints such as the position of any existing structures and underground utilities. If so stipulated in the Agreement, geo-environmental testing was carried out for a limited number of parameters based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

Any groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The groundwater level often has not had time to reach equilibrium and a monitoring period is required. Furthermore, groundwater levels are subject to seasonal variation or changes in local drainage conditions and groundwater levels may occur at other times of the year which are higher than were recorded during this investigation.

Any site drawings provided in this Report are preliminary and used to present the general relative locations of features on, and surrounding, the Site.

