

Our Ref: DE/15232/let1
Your Ref:
Contact: David Emanuel

Terra Firma (Wales) Ltd.
Consulting Geotechnical & Geo-Environmental Engineers
Site Investigation Contractors

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18th February 2019

Mr Gareth Carter, Savills

Via Email (gcarter@savills.com)

Dear Mr Carter

TRIAL PIT AND CHEMICAL INVESTIGATION OF STOCKPILED SOILS, GLYNEATH

Terra Firma Wales Ltd were retained by Savills to perform a trial pit investigation of the stockpiled soils located on Heol Y Glyn, Glyneath.

7 No. Trial Pits were performed on the top and sides of the stockpile to a maximum depth of 2.5m. All trial pits encountered sandy gravelly SILT/CLAY with cobbles (Reworked superficial). Occasional boulders were encountered and some extraneous material was encountered. Trial Pit Logs are presented in **Annex A**.

Ten samples of soil were submitted for chemical analysis for a broad suite of common determinants including metals, in-organics, petroleum hydrocarbons and polyaromatic hydrocarbons. The results are summarised in **Table 01**.

Project: 15232 Glynneath												
Client: Terra Firma (Wales) Ltd	Chemtest Job No.:				19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978
Quotation No.:	Chemtest Sample ID:				766898	766899	766900	766901	766902	766903	766904	766905
	Sample Location:				TP01	TP01	TP02	TP03	TP04	TP05	TP06	TP07
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.50	2.00	0.50	0.50	0.50	2.00	0.50	0.50
	Date Sampled:				31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		NA	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		NA	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	10	11	13	12	12	13	17	15
Soil Colour	N	2040		NA	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Other Material	N	2040		NA	Stones	Stones	Stones, Roots 10%	Stones	Stones	Stones	Stones, Roots 10%	Stones
Soil Texture	N	2040		NA	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
pH	M	2010		NA	9.8	8.4	8.6	8.4	8.3	9.0	8.4	8.7
Cyanide (Total)	M	2300	mg/kg	0.50	8	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010	0.035	0.039	0.038	0.036	0.034	0.047	0.041	0.050
Arsenic	M	2450	mg/kg	1.0	37	S4UL	13	16	20	16	19	18
Cadmium	M	2450	mg/kg	0.10	11	S4UL	0.23	0.60	0.81	0.70	0.62	0.56
Chromium	M	2450	mg/kg	1.0			78	24	31	21	40	28
Mercury Low Level	M	2450	mg/kg	0.05	40	S4UL	0.11	0.07	0.09	0.06	0.08	0.07
Copper	M	2450	mg/kg	0.50	2400	S4UL	19	27	31	23	25	26
Nickel	M	2450	mg/kg	0.50	180	S4UL	30	32	34	31	30	26
Lead	M	2450	mg/kg	0.50	200	C4SL	27	39	45	29	53	42
Selenium	M	2450	mg/kg	0.20	250	S4UL	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	3700	S4UL	66	110	130	97	100	110
Chromium (Trivalent)	N	2490	mg/kg	1.0	910	S4UL	78	24	31	21	40	28
Chromium (Hexavalent)	N	2490	mg/kg	0.50	6	S4UL	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	42	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	100	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C9-C10	M	2680	mg/kg	1.0	27	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	130	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	1100	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	65000	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	65000	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	70	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	130	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	34	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	74	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	140	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	M	2680	mg/kg	1.0	260	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	1100	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	1100	S4UL	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	2.3	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	170	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	210	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	170	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	95	S4UL	< 0.10	< 0.10	0.45	< 0.10	0.44	< 0.10
Anthracene	M	2700	mg/kg	0.10	2400	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	280	S4UL	< 0.10	< 0.10	0.46	0.15	< 0.10	0.63
Pyrene	M	2700	mg/kg	0.10	620	S4UL	< 0.10	< 0.10	0.38	0.12	< 0.10	0.60
Benzo[a]anthracene	M	2700	mg/kg	0.10	7.2	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	15	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	2.6	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	77	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	2.2	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno[1,2,3-c,d]Pyrene	M	2700	mg/kg	0.10	27	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz[ah]Anthracene	M	2700	mg/kg	0.10	0.24	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[ghi]perylene	M	2700	mg/kg	0.10	320	S4UL	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAHs	M	2700	mg/kg	2.0			< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.30	120	S4UL	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Organic Matter BS1377	N	2930	%	0.10			0.80	0.50	1.3	0.90	1.5	1.9

Table 01. Summary of Chemical Testing and GACs

Chemical Test Results are presented in **Annex B**.

It can be seen from Table 01 that all determinants tested were below their respective Generic Assessment Criteria (GAC) for a residential setting with plant uptake.

We trust that the above is to your satisfaction, however, if you have any queries or require any further information please do not hesitate to contact us.

In the meantime I await your further instructions.

Yours sincerely
for: Terra Firma (Wales) Ltd

David Emanuel

ANNEX A – Trial Pit Logs



Tel: 02920 735354
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Terra Firma (Wales) Limited
5 Deryn Court, Wharfedale Road
Pentwyn, Cardiff
CF23 7HA

Trial Pit No:

TP02

Sheet 1 of 1

Project Name: Glynneath

Project No:
15232

Co-ords: -
Level:

Date:
31/01/2019

Location:

Dimensions:

Depth
2.50



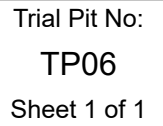
Scale:
1:25
Logged:

Client:

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				2.50			MADE GROUND: Brown to grey, very gravelly, sandy SILT/CLAY with occasional cobble and boulder. Contains very rare coal fragments, brick fragments and plastic fragment.	1
							End of Pit at 2.500m	2
								3
								4
								5

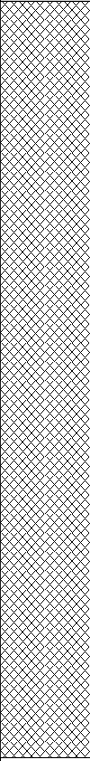
Stability:

Remarks: Trial Pit Dry



Date:
31/01/2019

1:25
Logged:

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				2.50			MADE GROUND: Brown to grey, very gravelly, sandy SILT/CLAY with occasional cobble and boulder. Contains very rare coal fragments, brick fragments and plastic fragment. End of Pit at 2.500m

Remarks: Trial Pit Dry

ANNEX B – Chemical Test Results



Final Report

Report No.: 19-03978-1
Initial Date of Issue: 12-Feb-2019
Client Terra Firma (Wales) Ltd

Client Address: 5 Deryn Court
Wharfedale Road
Pentwyn
Cardiff
CF23 7HA

Contact(s): Dave Emanuel

Project 15232 Glynneath

Quotation No.: **Date Received:** 04-Feb-2019

Order No.: **Date Instructed:** 04-Feb-2019

No. of Samples: 10

Turnaround (Wkdays): 5 **Results Due:** 08-Feb-2019

Date Approved: 12-Feb-2019

Approved By:

Details: Robert Monk, Technical Manager

Results - Soil

Project: 15232 Glynneath

Client: Terra Firma (Wales) Ltd	Chemtest Job No.:				19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978
Quotation No.:	Chemtest Sample ID.:				766898	766899	766900	766901	766902	766903	766904	766905	766906
	Sample Location:				TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.50	2.00	0.50	0.50	0.50	2.00	0.50	0.50	0.50
	Date Sampled:				31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	10	11	13	12	12	13	17	15	13
Soil Colour	N	2040		N/A	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Other Material	N	2040		N/A	Stones	Stones	Stones, Roots 10%	Stones	Stones	Stones	Stones, Roots 10%	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay
pH	M	2010		N/A	9.8	8.4	8.6	8.4	8.3	9.0	8.4	8.4	8.7
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010	0.035	0.039	0.038	0.036	0.034	0.047	0.041	0.050	0.067
Arsenic	M	2450	mg/kg	1.0	13	16	20	16	19	18	27	22	16
Cadmium	M	2450	mg/kg	0.10	0.23	0.60	0.81	0.70	0.62	0.56	1.1	1.6	0.46
Chromium	M	2450	mg/kg	1.0	78	24	31	21	40	48	28	48	55
Mercury Low Level	M	2450	mg/kg	0.05	0.11	0.07	0.09	0.05	0.06	0.08	0.07	0.11	0.05
Copper	M	2450	mg/kg	0.50	19	27	31	23	25	26	41	35	21
Nickel	M	2450	mg/kg	0.50	30	32	34	31	30	26	37	33	26
Lead	M	2450	mg/kg	0.50	27	39	45	29	53	42	52	67	26
Selenium	M	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	66	110	130	97	100	110	140	170	93
Chromium (Trivalent)	N	2490	mg/kg	1.0	78	24	31	21	40	48	28	48	55
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: 15232 Glynneath

Client: Terra Firma (Wales) Ltd	Chemtest Job No.:				19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978	19-03978
Quotation No.:	Chemtest Sample ID.:				766898	766899	766900	766901	766902	766903	766904	766905	766906
	Sample Location:				TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.50	2.00	0.50	0.50	0.50	2.00	0.50	0.50	0.50
	Date Sampled:				31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019	31-Jan-2019
	Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD									
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.45	< 0.10	< 0.10	0.44	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.46	0.15	< 0.10	0.63	< 0.10	0.22	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	0.38	0.12	< 0.10	0.60	< 0.10	0.30	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Organic Matter BS1377	N	2930	%	0.10	0.80	0.50	1.3	0.90	1.5	1.9	1.7	0.90	0.90

Results - Soil

Client: Terra Firma (Wales) Ltd	Chemtest Job No.:				19-03978
Quotation No.:	Chemtest Sample ID.:				766907
	Sample Location:				TP07
	Sample Type:				SOIL
	Top Depth (m):				1.00
	Date Sampled:				31-Jan-2019
	Asbestos Lab:				DURHAM
Determinand	Accred.	SOP	Units	LOD	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-
Moisture	N	2030	%	0.020	14
Soil Colour	N	2040		N/A	Grey
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Clay
pH	M	2010		N/A	8.5
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50
Sulphate (Acid Soluble)	M	2430	%	0.010	0.048
Arsenic	M	2450	mg/kg	1.0	16
Cadmium	M	2450	mg/kg	0.10	0.74
Chromium	M	2450	mg/kg	1.0	17
Mercury Low Level	M	2450	mg/kg	0.05	0.05
Copper	M	2450	mg/kg	0.50	23
Nickel	M	2450	mg/kg	0.50	27
Lead	M	2450	mg/kg	0.50	37
Selenium	M	2450	mg/kg	0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	130
Chromium (Trivalent)	N	2490	mg/kg	1.0	17
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0

Project: 15232 Glynneath

Results - Soil

Client: Terra Firma (Wales) Ltd	Chemtest Job No.:		19-03978		
Quotation No.:	Chemtest Sample ID.:		766907		
	Sample Location:		TP07		
	Sample Type:		SOIL		
	Top Depth (m):		1.00		
	Date Sampled:		31-Jan-2019		
	Asbestos Lab:		DURHAM		
Determinand	Accred.	SOP	Units	LOD	
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10
Naphthalene	M	2700	mg/kg	0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	0.71
Anthracene	M	2700	mg/kg	0.10	0.29
Fluoranthene	M	2700	mg/kg	0.10	0.72
Pyrene	M	2700	mg/kg	0.10	0.58
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	2.3
Total Phenols	M	2920	mg/kg	0.30	< 0.30
Organic Matter BS1377	N	2930	%	0.10	0.90

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
2930	Organic Matter	Organic Matter	Acid Dichromate digestion/Titration

Report Information

Key

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

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

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

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

All Asbestos testing is performed at the indicated laboratory

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

Sample Deviation Codes

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

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

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

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com