

PHASE 2, DALEFIELD WAY, GRAVESEND

PILING RISK ASSESSMENT

KEADY CONSTRUCTION

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1.0 Introduction

- a) Manhire Associates have been instructed on behalf of Keady Construction to prepare a Piling Risk Assessment for the development known as Phase 2, Dalefield Way Gravesend Ltd to demonstrate that the proposed piling works will have no unacceptable risk to ground water addressing Planning Condition 17

- b) Planning Condition 17 states:-

“Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated by a piling risk assessment that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details.

REASON: To ensure that the development does not contribute to, or is not put at unacceptable risk from, or adversely affected by, unacceptable levels of water pollution caused by mobilised contaminants in accordance with paragraph 180 of the National Planning Policy Framework”

- c) This report is prepared for the use of Keady Construction in connection with the development.
- d) The report is not intended for, and should not be relied upon by any third party, and no responsibility is undertaken to any third party, without the express written agreement of Manhire Associates Ltd.

2.0 The Site

The development is located in Gravesend, northwest Kent, DA12 2JH. The existing site, on Dalefield Way is known as Dalefield Way Industrial Estate; which includes the offices, workshops and storage areas used by B&T plant hire, O'Halloran & O'Brien & Keady Construction. The site is generally flat at around 3.10 m OD.

Proposals are to erect two new buildings within the existing storage areas :-

- a) A new office building of three stories, Use Class E (g) (i); (Total Floor Area 1,170m²) and installation of solar panels to roof.
- b) A storage building of one storey, Use Class B8 (Total Floor Area 234m²) with integral roof lights and associated parking and landscaping.



Figure 1 – Arial Image of site.

3.0 Site Assumptions and Constraints

3.1 Geotechnical data

A Phase I Geo-Environmental & Phase II Geotechnical Investigation has been undertaken for the wider development site and was completed in 2016 by Geo-Environmental Services Ltd. A Report was prepared dated March 2016 summarising the findings.

The report summarises investigations undertaken for water monitoring and geotechnical & environmental testing, along with design parameters for foundation, earthworks and temporary works. It also contains a descriptive record of the investigations and testing, together with an engineering interpretation of the data and observations.

For the site, three cable percussive boreholes were drilled to a depth of 20.0m (or maximum achievable depth). In addition, a series of trial pits to a maximum depth of 3.0 m and a day's window sampling with window sampler boreholes to a maximum depth of 4.0 m was undertaken. The window sample boreholes were installed with dual purpose gas and water monitoring standpipes.

Reference to the British Geological Survey indicates that the site is underlain by Alluvium overlying Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation.

The underlying Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation was proved to the limit of the investigation and typically comprised structureless chalk composed of sub-angular to rounded gravel.

Made Ground was encountered at variable thickness up to a maximum of 2.3m depth. The Made Ground generally comprised grey sandy silt, silty clay with frequent chalk fragments, rare brick, plastic, limestone cobbles, concrete & flint.

Alluvium was encountered beneath Made Ground in all but one location, and was encountered to a depth of 20.80 m bgl. It generally comprised extremely low to high strength silty clay with peat. Flint gravel and flint cobbles were encountered at depth within the Alluvium within the cable percussive bores.

From the investigations taken on the development site, the ground can be described as follows:

Table 1 - Geotechnical strata

Geotechnical Strata		
Geological Unit	Description	Estimated thickness (m)
Made Ground	See Above	0.3 – 2.3m
Alluvium	Yellow brown fine to medium sand and fine to medium gravel	18.5 – 20.80m
Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation	Sandy clay over clay	15.65 - ...m

3.2 Existing building

The proposed office building is to be located to the east of an existing office building. The existing three storey structure rests on driven piled foundations, estimated to have been driven 1-1.5 m into the chalk strata, which, according to BH1, is approximately 21.8 – 22.3 m below ground level.

3.3 Buried utilities

The pavement & road to the south of the site will contain a number of buried services. However, these are suitably far from the new proposed building. There are existing buried services entering the site along the main site access road.

There are existing private surface water & foul water drainage systems on site that the proposed development will tie into.

The surface water drainage network comprises a number of separate drainage systems. Surface water collected from roads and storage areas in the yard are routed through full retention fuel /oil separators before discharging into the watercourse and flood levee corridors. Rainwater collected from the roofs of the buildings is relatively uncontaminated and is discharged through a separate system which discharges to the watercourses without going through the separator's – the new building will tie into this existing system.

Foul water from the site is collected separately and routed to a private package pumping station to the south of the site adjacent to the site access road. From here it is pumped to a private chamber before discharging via gravity into a Southern Water Foul Manhole.

3.4 Contamination

The statistical analysis has found that for all of the determinands tested the null hypothesis can be rejected with > 95% confidence. Additional testing was undertaken for Asbestos, and no asbestos was identified within the samples tested. Samples were analysed for speciated TPH, and all reported concentrations within normal limits for the proposed end use.

Analysis Organo Chlorine Pesticides was undertaken as part of the investigation, all concentrations were below laboratory detection limits. Therefore no further action is deemed necessary with regards to soil contamination.

Groundwater samples were taken from the monitoring wells during the first monitoring visit. All results were compared against EQS Saltwater standards although these standards are highly conservative. All concentrations were within normal limits with the exception of marginally elevated concentrations for Copper (WS1), Mercury (WS3), Nickel (WS5) and elevated concentrations for PAHs. No standards were available for comparison of TPH.

No on-site sources of contamination were noted on-site whilst elevated concentrations are unlikely to affect end users. Elevated concentrations are likely to be from surrounding sources including the River Thames, the water treatment works, historical landfill and commercial businesses. Therefore, no further action is deemed necessary with regards to groundwater.

Two samples of water were taken from the ditch bounding the north-western portion of the site, one up stream outside of the site area, and one downstream within the site area. All results were compared against EQS Saltwater standards although these standards are highly conservative. All concentrations were within normal limits with the

exception of marginally elevated concentrations for PAHs. No standards were available for comparison of TPH.

No on-site sources of contamination were noted on-site whilst elevated concentrations are unlikely to affect end users. Elevated concentrations are likely to be from surrounding sources including the River Thames, the water treatment works, historical landfill and commercial businesses. Therefore, no further action is deemed necessary with regards to surface water.

3.5 Ground Water & Hydrology

During the investigation, groundwater was encountered within all locations (with the exception of TP7) to depths of between 0.20 m to 16.80 m bgl. During the groundwater monitoring, standing water was recorded within the monitoring wells at depths of between 0.00 m (ground level) and 1.53 m bgl.

The superficial geology (Alluvium) is classified as being a Secondary Undifferentiated Aquifer. The Solid Geology (Seaford Chalk Formation and Newhaven Chalk Formation) has been classified as being a principal aquifer.

The site lies outside of any Source Protection Zones (SPZs). These zones help to monitor the risk of contamination from any activities that might cause pollution in the area.

There are 2 No. ground water abstraction points identified within 500 m of the site:

- 396 m NW – Southern water, other industrial/commercial/public services, general washing process washing, permitted.
- 440 m N – J Clubb Ltd, mineral products, mineral washing, permitted.

Five discharge consents were identified within 500m of the site boundary:

- 376m S – Retirement Care Group, discharge of other matter, surface water.
- 386m S – Retirement Care Group, discharge of other matter, surface water.
- 387m S – Retirement Care Group, discharge of other matter, surface water.
- 399m S – Retirement Care Group, discharge of other matter, surface water.
- 446m N – Services Support Ltd, Trade effluent discharge, site drainage.

3.6 Unexploded Ordnance

A Desk Study and Risk Assessment has been carried out by Groundsure Ltd which has concluded that there is a medium risk from unexploded ordnance (UXO).

4.0 Piling Risk Assessment

4.1 General

The proposed building is to be founded on bearing piles with Continuous Flight Auger (CFA) techniques adopted by the 'Design & Build' Contractor.

4.2 Bearing Piles

The proposed CFA piles will terminate at approximate toe levels of between - 21.9 m OD & - 26.0 m OD.

The stratigraphy of the site show that all proposed bearing piles will terminate within the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation.

The evaluation of risks from the proposed piling works have been undertaken with consideration to guidance in the EA and NGCLC Document NC/99/73, *Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination*.

The proposed approach to the bearing pile design is considered to be an acceptable foundation solution as the risk of controlled waters or drawn down of contaminants at the site from piling is considered to be very low due to the following:

- The low concentrations of contaminants measured in soils and groundwater.
- The lack of significant thicknesses of Made Ground.
- The site is almost entirely covered by impervious paving and hence no rainwater will be able to penetrate around the piles.

5.0 Conclusions

It has been demonstrated that there are no resultant unacceptable risks to underlying ground waters. Bearing piles of a Continuous Flight Auger (CFA) piling methodology, terminate in the Lewes Nodular Chalk Formation, Seaford Chalk Formation and Newhaven Chalk Formation.

All of the results of the contamination testing from the site investigation were found to be below the relevant trigger concentrations for commercial land use and no asbestos was detected in the investigations. Based on the investigations, no remediation of the site is warranted.

A Discovery Strategy and Watching Brief is being adopted on site so that any unexpected contamination identified on site is reported.

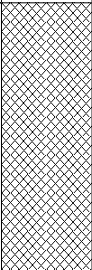
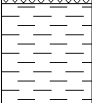
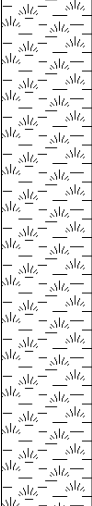
6.0 References & Bibliography

Guidance on prevention of pollution during construction is provided in the following publications:

1. EA and NGCLC Document NC/99/73, Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination.
2. Control of water pollution from construction sites – guide to good practice, C532 (CIRIA, 2001)
3. Guide to good practice on site, SP156 (CIRIA 2002)
4. Control of water pollution from linear construction projects. Technical guidance, C648 (CIRIA 2006)
5. Control of water pollution from linear construction projects. Site guide, C649 (CIRIA 2006)

APPENDIX A – Borehole Logs

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. BH1 Sheet 1 of 4	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 567057E - 173547N		Hole Type CP	
Location: Gravesend, Kent				Level:		Scale 1:50	
Client: Riverdale Developments				Dates: 22/02/2016		Logged By AP	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.50	D	N=11 (2,2/2,4,3,2)	1.80		 Grass overlying brown and off-white silty reworked chalk. MADE GROUND	1		
	1.50 1.50 - 1.95	S D								
	2.30	D								
			3.00 - 3.45	U	Ublow=25	3.00		 Firm dark grey CLAY. ALLUVIUM	3	
			3.50	D						
			4.50 4.50 - 4.95	S D						
			5.50	D	Ublow=15	6.70		 Very soft grey and orange brown mottled CLAY with occasional peat bands. ALLUVIUM	4	
			6.00 - 6.45	U						
			6.50 6.70	D D						
			7.50 7.50 - 7.95	S D	N=3 (1,0/1,1,0,1)	8.50		 Brown PEAT. ALLUVIUM	7	
			8.50	D						
			9.00 - 9.45	U						
			9.50	D	Ublow=20	9.30		 Very soft amourfous PEAT. ALLUVIUM	9	
			9.70	D						
						9.70		 Very soft light grey slightly sandy CLAY. ALLUVIUM	10	
							 Flint COBBLES. ALLUVIUM			
Continued on Next Sheet										

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
150	10.00	16.80	10.10			Standing time and day works 14.5 hours. Four mobilisations. Groundwater at 16.8m bgl, rose to 10.10m bgl after 20 minutes, standing at 5m the following day
200	12.00					
150	32.00					





Geo-Environmental

Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL
www.gesl.net

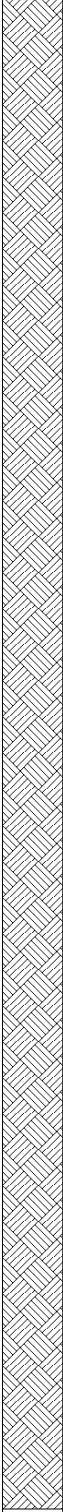
Borehole Log

Borehole No.

BH1

Sheet 2 of 4

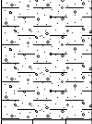
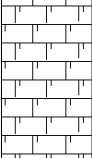
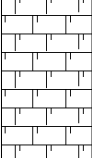
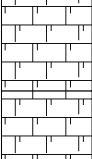
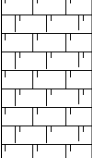
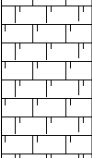
Project Name:	Land Off Dalefield Way, Gravesend	Project No. Ge15338	Co-ords: 567057E - 173547N	Hole Type CP
Location:	Gravesend, Kent		Level:	Scale 1:50
Client:	Riverdale Developments		Dates: 22/02/2016	Logged By AP

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results									
		10.20	D	N=17 (2,1/2,4,4,7)	10.20		Loose blue grey SILT with flint cobbles. ALLUVIUM	11					
		10.50	C										
		10.50 - 10.95	D										
		10.50 - 11.00	B										
		11.10	D	Ublow=35	11.10		Soft light brown and blue grey mottled SILT. ALLUVIUM	12					
		11.50	D										
		12.00 - 12.45	U										
		12.50	D										
								Soft to firm brown and grey mottled CLAY. ALLUVIUM	13				
											13.50	S	N=10 (1,2/2,2,3,3)
											13.50 - 13.95	D	
		14.50	D	Ublow=40				14					
		15.00 - 15.45	U										
		15.50	D										
		16.50	S						N=17 (1,2/3,4,4,6)				
		16.50 - 16.95	D										
		17.50	D	Ublow=25				15					
		18.00 - 18.45	U										
		18.00 - 18.50	B										
		18.50 - 18.95	U										
									16				
19.50	S										N=26 (1,3/4,5,7,10)		
19.50 - 19.95	D												
19.80							17						
								18					
								19					
								20					

Continued on Next Sheet

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks		
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to			
150	10.00	16.80	10.10					Standing time and day works 14.5 hours. Four mobilisations. Groundwater at 16.8m bgl, rose to 10.10m bgl after 20 minutes, standing at 5m the following day
200	12.00							
150	32.00							

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log			Borehole No. BH1 Sheet 3 of 4	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 567057E - 173547N		Hole Type CP
Location: Gravesend, Kent				Level:		Scale 1:50
Client: Riverdale Developments				Dates: 22/02/2016		Logged By AP

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		20.50	D	N=9 (2,3/2,2,2,3)	20.80		fragments and flint gravel. ALLUVIUM	21		
		20.80	D							
		21.00	S							
		21.00 - 21.45	D							
		22.00	D	N=10 (1,3/2,3,2,3)	23.50			Recovered as structureless Chalk composed of sub-angular to rounded gravel. Clasts are very weak, low and medium density and off-white. Matrix is pale brown with occasional fine to coarse flint gravel. CHALK	22	
		22.50	S							
		22.50 - 22.95	D							
		23.50	D							
		24.00	S	N=31 (2,3/5,7,8,11)	24.00 - 24.45				Recovered as off-white weak, medium density CHALK infilled with off-white comminuted chalk and occasional fine to coarse flint gravel. CHALK	24
		24.00 - 24.45	D							
		25.00	D							
		25.50	S							
25.50 - 25.95	D	N=30 (2,4/6,6,8,10)	26.50		...with occasional fine to coarse flint gravel to 30.00m bgl.	25				
26.50	D									
27.00	S									
27.00 - 27.45	D									
28.50	S	N=44 (6,8/10,11,10,13)	28.50 - 28.95				26			
28.50 - 28.95	D									
29.00	S									
29.00 - 29.45	D									
30.00	S	N=40 (5,6/8,10,10,12)	30.00 - 30.45					27		
30.00 - 30.45	D									
30.50	S									
30.50 - 30.95	D									
									Continued on Next Sheet	30

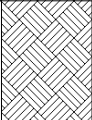
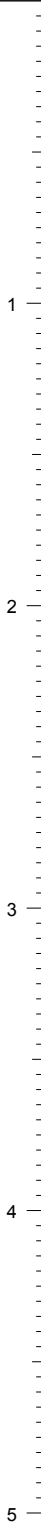
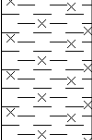
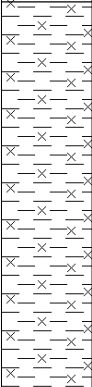
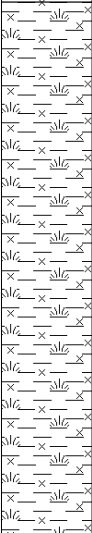
Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
150	10.00	16.80	10.10			Standing time and day works 14.5 hours. Four mobilisations. Groundwater at 16.8m bgl, rose to 10.10m bgl after 20 minutes, standing at 5m the following day	
200	12.00						
150	32.00						

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. BH1 Sheet 4 of 4	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 567057E - 173547N		Hole Type CP	
Location: Gravesend, Kent				Level:		Scale 1:50	
Client: Riverdale Developments				Dates: 22/02/2016		Logged By AP	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		31.50 31.50 - 31.95	S D	N=38 (4,6/9,8,10,11)	36.45				31
		33.00 33.00 - 33.45	S D	N=27 (4,5/6,6,6,9)		32			
		34.50 34.50 - 34.95	S D	N=34 (5,6/6,7,9,12)		33			
		36.00 36.00 - 36.45	S D	N=37 (4,6/7,9,9,12)		34			
									35
									36
									37
									38
									39
									40

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks Standing time and day works 14.5 hours. Four mobilisations. Groundwater at 16.8m bgl, rose to 10.10m bgl after 20 minutes, standing at 5m the following day	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
150	10.00	16.80	10.10				
200	12.00						

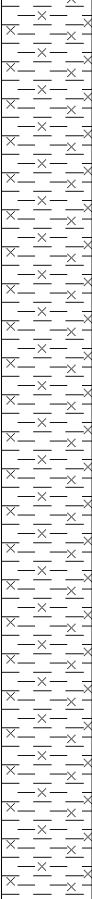
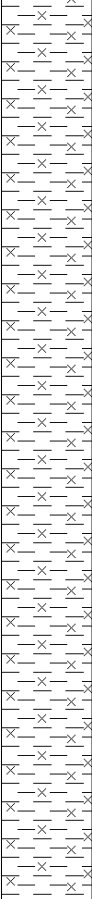
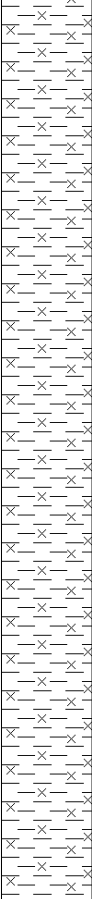
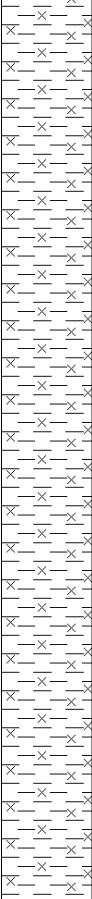
 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS1 Sheet 1 of 1	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 67135E - 73458N		Hole Type WS	
Location: Gravesend, Kent				Level:		Scale 1:25	
Client: Riverdale Developments				Dates: 22/02/2016		Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	PP	1.2kg/cm2	0.40		Dark brown silty clay with rootlets and occasional fine to medium subangular to angular flint gravels. TOPSOIL		
		0.30	D						
		0.50	D	2.8kg/cm2	0.90		Dark greyish brown soft silty CLAY. ALLUVIUM		
		1.00	D						
		1.00	PP						
		1.50	D						
		2.00	D	0.4kg/cm2	2.20		High to low strength light orangish grey soft silty CLAY. ALLUVIUM		
		2.00	PP						
		2.50	D	0.2kg/cm2	3		Extremely low strength light grey very softy silty CLAY with peat. ALLUVIUM		
		3.00	D						
		3.00	PP						
		3.50	D						
		4.00	D	0.0kg/cm2	4.00		End of Borehole at 4.00m		
		4.00	PP						

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
		0.50	0.50				

Ground water depth 0.5m bgl

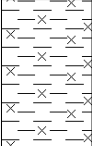
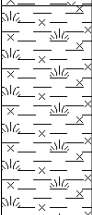
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Location: Gravesend, Kent				Level:		Scale 1:25	
Client: Riverdale Developments				Dates: 22/02/2016		Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	PP	1.4kg/cm2	0.30			Dark brown silty clay with rootlets. TOPSOIL	
		0.30	D						
		0.50	D					Low to extremely low strength light orangish grey soft to very soft silty CLAY. ALLUVIUM	1
		0.80	PP	0.8kg/cm2					
		1.00	D						
		1.50	D						
		1.50	PP	0.7kg/cm2					2
		2.00	D						
		2.50	D						
		2.50	PP	0.0kg/cm2					
		3.00	D		3.30				3
		3.50	D						
4.00	D		4.00			Extremely low strength dark blueish grey very soft silty CLAY with peat. ALLUVIUM	4		
4.00	PP	0.0kg/cm2							
End of Borehole at 4.00m									5

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
		0.55	0.50			Ground water depth 0.55m bgl

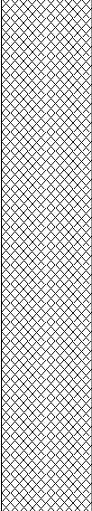
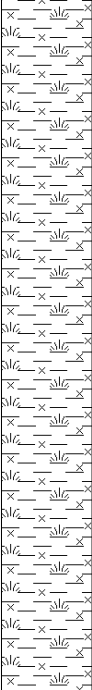


 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS3 Sheet 1 of 1	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 67188E - 73605N		Hole Type WS	
Location: Gravesend, Kent				Level:		Scale 1:25	
Client: Riverdale Developments				Dates: 22/02/2016		Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
	▼	0.20	PP	1.2kg/cm2	0.30			Dark brown silty clay with rootlets. TOPSOIL	
		0.30	D					Low strength dark brown soft silty CLAY. ALLUVIUM	
		0.50	D						
		0.80	PP	0.8kg/cm2	0.80			Low to extremely low strength dark orange mottled brown soft silty CLAY with peat. ALLUVIUM	
		1.00	D						
		1.50	D						
		1.50	PP	0.8kg/cm2					
		2.00	D						
		2.50	D						
		2.50	PP	0.0kg/cm2					
		3.00	D						
		3.50	D						
4.00	D		4.00						
4.00	PP	0.0kg/cm2							
							End of Borehole at 4.00m		

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks Ground water depth 0.73m bgl	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
		0.73	0.73				

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS4 Sheet 1 of 1	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 66913E - 73564N		Hole Type WS	
Location: Gravesend, Kent				Level:		Scale 1:25	
Client: Riverdale Developments				Dates: 23/02/2016		Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	PP	1.3kg/cm2				Dark greyish brown gravelly silty clay with frequent to abundant fragments of brick and rubble. Gravels were fine to medium angular to subangular chalk and flint. MADE GROUND		
		0.30	D							
		0.50	D							
		0.50	PP	1.6kg/cm2						
	▼	1.00	D							
		1.00	PP	0.6kg/cm2						
		1.50	D							
		1.50	PP	0.0kg/cm2						
		2.00	D		1.70					
		2.50	D							
		3.00	D					Extremely low strength dark brownish grey soft silty CLAY with peat. ALLUVIUM		
		3.00	PP	0.0kg/cm2						
		3.50	D							
		4.00	D							
		4.00	PP	0.0kg/cm2	4.00					
								End of Borehole at 4.00m		

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
		1.05	1.05				

Ground water depth 1.05m bgl

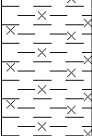
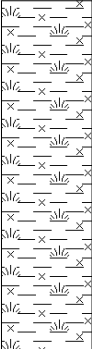
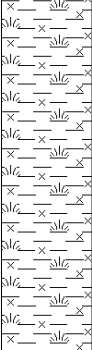
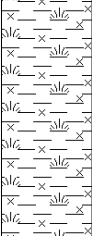
 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS5 Sheet 1 of 1	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 66909E - 73672N		Hole Type WS	
Location: Gravesend, Kent				Level:		Scale 1:25	
Client: Riverdale Developments				Dates: 23/02/2016		Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	PP	1.8kg/cm2	0.30			Dark brown silty clay with rootlets. MADE GROUND		
		0.30	D					Medium strength dark greyish brown soft silty CLAY. ALLUVIUM		
		0.50	D		0.80			Very low to extremely low strength dark bluish grey very soft silty CLAY with peat. ALLUVIUM	1	
		0.50	PP	1.5kg/cm2						
		1.00	D		0.4kg/cm2			2		
		1.50	D							
		1.50	PP							
		2.00	D							
		2.50	D		0.0kg/cm2			3		
		2.50	PP							
		3.00	D							
		3.50	D							
		4.00	D		4.00			4		
		4.00	PP	0.0kg/cm2						
		End of Borehole at 4.00m								5

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
		0.50	0.50			Ground water depth 0.5m bgl



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		Borehole Log				Borehole No. WS6 Sheet 1 of 1	
Project Name: Land Off Dalefield Way, Gravesend		Project No. Ge15338		Co-ords: 67004E - 73661N		Hole Type WS	
Location: Gravesend, Kent				Level:		Scale 1:25	
Client: Riverdale Developments				Dates: 23/02/2016		Logged By	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	PP	1.5kg/cm2	0.30		Dark brwo gravelly silty clay. Gravels were fine to medium angular to subangular chalk and flint. TOPSOIL	1 2 3 4 5	
		0.30	D						
		0.50	D						
		1.00	D		0.80		High to extremely low strength dark greyish brown soft silty CLAY. ALLUVIUM		
		1.00	PP	1.8kg/cm2					
		1.50	D						
		1.50	PP	3.0kg/cm2			Dark grey very soft silty CLAY with peat. ALLUVIUM		
		2.00	D						
		2.50	D						
		2.50	PP	0.2kg/cm2					
		3.00	D						
		3.50	D						
4.00	D		4.00						
4.00	PP	0.0kg/cm2							
End of Borehole at 4.00m									

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
		0.30	0.30			
Ground water depth 0.3m bgl						



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Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

Borehole Log

Borehole No.

WS7

Sheet 1 of 1

Project Name:	Land Off Dalefield Way, Gravesend	Project No. Ge15338	Co-ords: 66989E - 73553N	Hole Type WS
Location:	Gravesend, Kent		Level:	Scale 1:25
Client:	Riverdale Developments		Dates: 23/02/2016	Logged By

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 0.30	PP D	1.5kg/cm2				Dark greyish brown gravelly silty clay with frequent to abundant fragments of brick and rubble. Gravels were fine to medium angular to subangular chalk and flint. MADE GROUND	
		0.50 0.50	D PP	2.2kg/cm2					
		1.00	D						1
		1.20	PP	3.0kg/cm2					
		1.50	D						
					1.85				
		2.00 2.00	D PP	0.8kg/cm2	2.00			Low to extremely low strength dark greyish black very soft clayey PEAT. ALLUVIUM Dark brownish grey very soft silty CLAY with peat. ALLUVIUM	2
		2.50	D						
		3.00 3.00	D PP	0.0kg/cm2					3
		3.50	D						
		4.00 4.00	D PP	0.0kg/cm2	4.00			End of Borehole at 4.00m	4
									5

Casing		Water Strikes (mbgl)		Chiselling (mbgl)	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to
		2.05	2.05		

Remarks
Ground water depth 2.05m bgl



Trial Pit Log

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 66959.00 - 73624.00
Level:

Date
23/02/2016

Location: Gravesend, Kent

Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
0.70

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.20	ES	PP=1.8kg/cm2	0.24		Grass overlying dark brown silty clay with roots and rootlets. TOPSOIL	
	0.20	PP				High Strength orange brown and grey mottled silty CLAY with fine roots. ALLUVIUM	
	0.50	D	PP=1.6kg/cm2	0.70		End of Pit at 0.70m	
	0.50	PP					
1 2 3 4 5							
Depth Strike 0.60 Water Strikes 0.55		Remarks Groundwater depth 0.60m bgl.					
		Stability					





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

Geo-Environmental www.gesl.net

Trial Pit Log

Trial Pit No

TP2

Sheet 1 of 1

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 67098.00 - 73646.00
Level:

Date
23/02/2016

Location: Gravesend, Kent

Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
0.50

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES					Grass overlying brown silty clay with roots and fine roots.	
	0.20	PP	PP=1.5kg/cm2	0.24			Medium to high strength brown silty CLAY with fine roots.	
	0.50	D					ALLUVIUM	
	0.50	PP	PP=3kg/cm2	0.50			End of Pit at 0.50m	
								1
								2
								3
								4
								5
Water Strikes								
Depth Strike	Rose to (m bgl)							
0.45	0.40	Remarks Groundwater depth 0.45m bgl.						
		Stability						





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP3

Sheet 1 of 1

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 67156.00 - 73626.00
Level:

Date
22/02/2016

Location: Gravesend, Kent

Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
1.50

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
▼	0.20 0.20	ES PP	PP=1.5kg/cm2	0.50			Grass overlying dark brown silty clay with roots and rootlets. TOPSOIL	
	0.50 0.50	ES PP	PP=1.5kg/cm2				Grey CLAY with frequent black peat bands and frequent timber. MADE GROUND	
	1.00 1.00	ES PP	PP=0.5kg/cm2	1.50				1
	1.50 1.50	ES PP	PP=0kg/cm2				End of Pit at 1.50m	2
								3
								4
								5
Water Struck								
Depth Struck	Rose to (m bgl)							
0.20	0.20	Remarks Pit very unstable, Groundwater depth 0.20m bgl.						
		Stability						





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP4

Sheet 1 of 1

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 67153.00 - 73526.00
Level:

Date
22/02/2016

Location: Gravesend, Kent

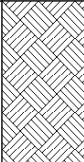
Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
2.50

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
	Depth	Type	Results								
▼	0.20 0.20	ES PP	PP=1.5kg/cm2	0.55			Grass overlying dark brown silty clay with roots and rootlets. TOPSOIL				
	0.50 0.60	D PP	PP=1.5kg/cm2				High to extremely low strength light brown CLAY with frequent fine roots (to 1.80m) and occasional brown peat bands. ALLUVIUM				
	1.00 1.00	D PP	PP=0.8kg/cm2								
	1.50 1.50	D PP	PP=0.5kg/cm2								
	2.00 2.00	D PP	PP=0kg/cm2	2.50				2			
	2.50 2.50	D PP	PP=0kg/cm2								
						End of Pit at 2.50m					





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP5

Sheet 1 of 1

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 67103.00 - 73592.00
Level:

Date
23/02/2016

Location: Gravesend, Kent

Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
0.50

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
 	0.20	ES		0.20			Grass overlying brown silty clay with roots. TOPSOIL	
	0.20	PP	PP=1.5kg/cm2				Medium strength brown silty CLAY with frequent fine roots. ALLUVIUM	
	0.50	D		0.50				
	0.50	PP	PP=1.5kg/cm2				End of Pit at 0.50m	
								1
								2
								3
								4
								5
Water Strikes Depth Strike Rise to (m bgl)		Remarks Groundwater depth 0.30m bgl						
0.30 0.20		Stability						





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP6

Sheet 1 of 1

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 67034.00 - 73599.00
Level:

Date
23/02/2016

Location: Gravesend, Kent

Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
0.50

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES					Grass overlying brown silty CLAY with fine roots. TOPSOIL	
	0.20	PP	PP=0.5kg/cm2	0.35				
	0.50	D		0.50			High strength brown and orange brown mottled silty CLAY.	
	0.50	PP	PP=2kg/cm2				ALLUVIUM	
							End of Pit at 0.50m	
								1
								2
								3
								4
								5
Water Strikes								
Depth Strike	Rose to (m bgl)							
0.45	0.40	Remarks Groundwater depth 0.45m bgl.						
		Stability						





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP7

Sheet 1 of 1

Project Name: Land Off Dalefield Way, Gravesend

Project No.
Ge15338

Co-ords: 67085.00 - 73525.00
Level:

Date
22/02/2016

Location: Gravesend, Kent

Dimensions
(m):

Scale
1:25

Client: Riverdale Developments

Depth
3.10

Logged
AP

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES					Grass overlying grey sandy silt with frequent chalk fragments and rare brick, plastic, concrete, limestone cobbles and flint. MADE GROUND	
	0.50	ES						
	1.00	ES						1
	1.50	ES						
	2.00	ES						2
	2.20	PP	PP=3.5kg/cm2	2.20			High strength black and dark grey CLAY with occasional peat bands. ALLUVIUM	
	2.50 2.50	D PP	PP=2.2kg/cm2	2.70			Medium strength brown CLAY. ALLUVIUM	
	3.00 3.00	D PP	PP=1kg/cm2	3.10			End of Pit at 3.10m	3
								4
								5

Remarks Groundwater depth DRY.

Stability



APPENDIX B – Standpipe Records

Project: Dalefield Way, Gravesend
 Ref: GE15338
 Client:



Location	Date	Time (sec)	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Flow (l/hr)	VOC (ppm)	Pressure (mb)	GWL (m bgl)	GSV/Qhgs		Characteristic Situation		CS1 Limiting Value Check			NHBC			
										CH ₄	CO ₂	BS8485 & C665		Flow	CH ₄	CO ₂	CH ₄		CO ₂	
												CH ₄	CO ₂				GSV	Conc.	GSV	Conc.
WS1	01/03/16	10	0.0	0.1	17.5	0.0	0.4	1004	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	01/03/16	20	0.0	0.0	9.6	0.0	0.40	1004	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	01/03/16	30	0.0	0.0	12.2	0.0	0.40	1004	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	01/03/16	60	0.0	0.0	21.8	0.0	0.40	1004	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	01/03/16	120	0.0	0.0	20.0	0.0	0.40	1004	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	01/03/16	10	0.0	0.0	23.2	0.0	0.2	1005	0.36	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	01/03/16	20	0.0	0.0	21.8	0.0	0.20	1005	0.36	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	01/03/16	30	0.0	0.0	22.5	0.0	0.20	1005	0.36	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	01/03/16	60	0.0	0.0	21.0	0.0	0.20	1005	0.36	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	01/03/16	120	0.0	0.0	21.0	0.0	0.20	1005	0.36	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	01/03/16	10	0.0	4.3	19.1	0.0	1.8	1004	1.08	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	01/03/16	20	0.0	0.3	21.7	0.0	1.80	1004	1.08	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	01/03/16	30	0.0	0.4	21.7	0.0	1.80	1004	1.08	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	01/03/16	60	0.0	0.8	18.6	0.0	1.80	1004	1.08	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	01/03/16	120	0.0	3.0	15.3	0.0	1.80	1004	1.08	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	01/03/16	10	0.0	0.0	24.3	0.0	0.0	1004	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	01/03/16	20	0.0	0.1	24.5	0.0	0.00	1004	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	01/03/16	30	0.0	0.1	25.3	0.0	0.00	1004	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	01/03/16	60	0.0	0.1	19.9	0.0	0.00	1004	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	01/03/16	120	0.0	0.1	21.2	0.0	0.00	1004	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	01/03/16	10						1004	0.00	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	01/03/16	20				-	-	1004	0.00	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	01/03/16	30				-	-	1004	0.00	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	01/03/16	60				-	-	1004	0.00	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	01/03/16	120				-	-	1004	0.00	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	01/03/16	10	0.0	3.2	17.9	0.0	0.9	1004	1.36	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	01/03/16	20	0.0	4.5	16.1	0.0	0.90	1004	1.36	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	01/03/16	30	0.0	5.6	13.2	0.0	0.90	1004	1.36	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	01/03/16	60	0.0	5.7	14.2	0.0	0.90	1004	1.36	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	01/03/16	120	0.0	7.1	9.4	0.0	0.90	1004	1.36	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS1	07/03/16	10	0.1	0.2	20.9	0.0	0.0	1014	0.39	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	07/03/16	20	0.1	0.2	20.9	0.0	0.00	1014	0.39	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	07/03/16	30	0.1	0.2	20.9	0.0	0.00	1014	0.39	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	07/03/16	60	0.1	0.2	20.3	0.0	0.00	1014	0.39	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	07/03/16	120	0.1	0.2	20.0	0.0	0.00	1014	0.39	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	07/03/16	10	0.0	0.0	23.4	0.0	0.0	1014	0.31	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	07/03/16	20	0.0	0.0	22.3	0.0	0.00	1014	0.31	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	07/03/16	30	0.0	0.0	22.7	0.0	0.00	1014	0.31	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	07/03/16	60	0.0	0.0	21.0	0.0	0.00	1014	0.31	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	07/03/16	120	0.0	0.0	21.0	0.0	0.00	1014	0.31	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	07/03/16	10	0.0	0.8	20.8	0.0	0.0	1014	1.07	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	07/03/16	20	0.0	0.9	21.2	0.0	0.00	1014	1.07	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	07/03/16	30	0.0	1.0	21.7	0.0	0.00	1014	1.07	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	07/03/16	60	0.0	1.8	20.6	0.0	0.00	1014	1.07	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	07/03/16	120	0.0	3.0	20.0	0.0	0.00	1014	1.07	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	07/03/16	10	0.0	0.0	21.6	0.0	0.0	1014	0.28	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	07/03/16	20	0.0	0.0	21.8	0.0	0.00	1014	0.28	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN

Project: Dalefield Way, Gravesend
 Ref: GE15338
 Client:



Location	Date	Time (sec)	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Flow (l/hr)	VOC (ppm)	Pressure (mb)	GWL (m bgl)	GSV/Qhgs		Characteristic Situation		CS1 Limiting Value Check			NHBC			
										CH ₄	CO ₂	BS8485 & C665		Flow	CH ₄	CO ₂	CH ₄		CO ₂	
												CH ₄	CO ₂				GSV	Conc.	GSV	Conc.
WS5	07/03/16	30	0.0	0.0	21.9	0.0	0.00	1014	0.28	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	07/03/16	60	0.0	0.0	23.0	0.0	0.00	1014	0.28	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	07/03/16	120	0.0	0.0	22.6	0.0	0.00	1014	0.28	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	07/03/16	10	0.0	0.0	22.2	0.0	0.0	1014	0.19	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	07/03/16	20	0.0	0.0	23.0	0.0	0.00	1014	0.19	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	07/03/16	30	0.0	0.0	22.9	0.0	0.00	1014	0.19	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	07/03/16	60	0.0	0.0	21.8	0.0	0.00	1014	0.19	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	07/03/16	120	0.0	0.0	21.7	0.0	0.00	1014	0.19	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	07/03/16	10	0.0	3.5	21.1	0.0	0.0	1015	1.53	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	07/03/16	20	0.0	4.7	21.6	0.0	0.00	1015	1.53	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	07/03/16	30	0.0	5.9	21.7	0.0	0.00	1015	1.53	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	07/03/16	60	0.0	6.3	22.3	0.0	0.00	1015	1.53	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	07/03/16	120	0.0	7.8	21.5	0.0	0.00	1015	1.53	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS1	16/03/16	10	0.0	0.0	20.1	0.0	0.0	1026	0.30	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	16/03/16	20	0.0	0.0	20.1	0.0	0.00	1026	0.30	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	16/03/16	30	0.0	0.0	20.3	0.0	0.00	1026	0.30	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	16/03/16	60	0.0	0.0	20.4	0.0	0.00	1026	0.30	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	16/03/16	120	0.0	0.0	20.7	0.0	0.00	1026	0.30	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	16/03/16	10	0.0	0.0	20.3	0.0	0.0	1026	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	16/03/16	20	0.0	0.0	20.3	0.0	0.00	1026	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	16/03/16	30	0.0	0.0	20.3	0.0	0.00	1026	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	16/03/16	60	0.0	0.0	20.4	0.0	0.00	1026	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	16/03/16	120	0.0	0.0	20.6	0.0	0.00	1026	0.29	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	16/03/16	10	0.0	2.2	14.1	0.0	0.0	1026	1.06	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	16/03/16	20	0.0	3.9	9.2	0.0	0.00	1026	1.06	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	16/03/16	30	0.0	4.1	8.1	0.0	0.00	1026	1.06	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	16/03/16	60	0.0	4.3	7.6	0.0	0.00	1026	1.06	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	16/03/16	120	0.0	5.5	7.5	0.0	0.00	1026	1.06	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS5	16/03/16	10	0.0	0.0	20.0	0.0	0.0	1026	0.18	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	16/03/16	20	0.0	0.0	20.1	0.0	0.00	1026	0.18	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	16/03/16	30	0.0	0.0	20.1	0.0	0.00	1026	0.18	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	16/03/16	60	0.0	0.0	20.5	0.0	0.00	1026	0.18	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS5	16/03/16	120	0.0	0.0	20.8	0.0	0.00	1026	0.18	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	16/03/16	10	0.0	0.0	20.8	0.0	0.0	1026	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	16/03/16	20	0.0	0.0	20.8	0.0	0.00	1026	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	16/03/16	30	0.0	0.0	20.8	0.0	0.00	1026	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	16/03/16	60	0.0	0.0	20.9	0.0	0.00	1026	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS6	16/03/16	120	0.0	0.0	21.3	0.0	0.00	1026	0.15	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16/03/16	10	0.0	2.0	19.0	0.0	0.0	1027	1.50	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS7	16/03/16	20	0.0	7.2	9.1	0.0	0.00	1027	1.50	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	16/03/16	30	0.0	7.9	6.9	0.0	0.00	1027	1.50	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	16/03/16	60	0.0	8.2	6.0	0.0	0.00	1027	1.50	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1
WS7	16/03/16	120	0.0	8.4	5.0	0.0	0.00	1027	1.50	0.000	0.000	CS1	CS1	NO	NO	CO2>CS1 limit	GREEN	GREEN	GREEN	AMBER 1

APPENDIX C – Laboratory Results



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 16-05847

Issue: 1

Date of Issue: 07/03/2016

Contact: Anthony Potter

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q14-00021

Order No: Not Supplied

Customer Reference: GE15338

Date Received: 26/02/2016

Date Approved: 04/03/2016

Details: Dalefield Way, Gravesend

Approved by:

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 16-05847

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
55079	WS1 0.30	22/02/2016	26/02/2016	Silty loam	
55080	WS2 0.30	22/02/2016	26/02/2016	Silty loam	
55081	WS3 0.30	22/02/2016	26/02/2016	Silty loam	
55082	WS4 0.50	22/02/2016	26/02/2016	Silty loam + chalk	
55083	WS5 0.30	22/02/2016	26/02/2016	Silty loam	
55084	WS6 0.30	22/02/2016	26/02/2016	Silty loam	
55085	WS7 0.50	22/02/2016	26/02/2016	Silty loam + chalk	
55086	TP1 0.20	22/02/2016	26/02/2016	Silty loam	
55087	TP2 0.20	22/02/2016	26/02/2016	Silty loam	
55088	TP3 1.00	22/02/2016	26/02/2016	Silty loam	
55089	TP4 0.20	22/02/2016	26/02/2016	Silty loam + chalk	
55090	TP5 0.20	22/02/2016	26/02/2016	Silty loam	
55091	TP6 0.20	22/02/2016	26/02/2016	Silty loam	
55092	TP7 0.50	22/02/2016	26/02/2016	Silty loam	
55093	TP7 1.00	22/02/2016	26/02/2016	Silty loam + chalk	
55094	TP3 0.50	22/02/2016	26/02/2016	Silty loam	

Results Summary

Report No.: 16-05847

ELAB Reference	55079	55080	55081	55082	55083	55084
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS1	WS2	WS3	WS4	WS5	WS6
Sample Depth (m)	0.30	0.30	0.30	0.50	0.30	0.30
Sampling Date	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	18.0	15.1	23.7	^ 6.3	26.1	22.4
Barium	M	mg/kg	10	129	96.8	73.1	^ 58.0	87.8	60.2
Beryllium	U	mg/kg	1	1.0	1.0	1.4	< 1.0	1.4	1.2
Cadmium	M	mg/kg	0.5	< 0.5	0.6	< 0.5	^ < 0.5	1.1	< 0.5
Chromium	M	mg/kg	5	28.2	39.5	40.0	^ 14.0	43.3	42.0
Copper	M	mg/kg	5	48.5	29.5	27.6	^ 10.7	24.9	23.8
Lead	M	mg/kg	5	159	70.9	90.0	^ 23.6	59.8	67.8
Mercury	M	mg/kg	0.5	1.1	< 0.5	< 0.5	^ < 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	25.0	31.7	28.3	^ 13.7	32.4	29.7
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	^ < 1.0	< 1.0	< 1.0
Vanadium	M	mg/kg	5	41.6	49.0	70.6	^ 19.3	77.0	73.5
Zinc	M	mg/kg	5	142	131	122	^ 33.0	129	112
Anions									
Water Soluble Chloride	M	mg/l	20	25	22	58	n/t	77	67
Water Soluble Chloride	M	mg/kg	40	n/t	n/t	n/t	^ < 40	n/t	n/t
Water Soluble Sulphate	M	g/l	0.02	0.05	0.09	0.14	^ 0.14	0.18	0.16
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	2	2	3	2	3	3
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	^ < 1.0	1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.06	0.09	0.07	0.08	0.10	0.12
Water Soluble Boron	N	mg/kg	0.5	2.3	2.3	4.2	0.9	5.3	5.4
Miscellaneous									
pH	M	pH units	0.1	8.1	8.0	7.6	^ 8.2	7.6	7.8
Total Organic Carbon	N	%	0.01	2.6	1.4	4.1	0.15	4.4	3.1
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	0.2	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	0.7	0.3	0.1	^ 0.3	< 0.1	0.1
Pyrene	M	mg/kg	0.1	0.6	0.2	0.1	^ 0.3	< 0.1	0.1
Benzo(a)anthracene	M	mg/kg	0.1	0.4	0.1	< 0.1	^ 0.2	< 0.1	< 0.1
Chrysene	M	mg/kg	0.1	0.6	0.2	0.1	^ 0.3	< 0.1	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	1.0	< 0.1	< 0.1	^ 0.5	< 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	0.5	< 0.1	< 0.1	^ 0.3	< 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	0.5	0.2	0.1	^ 0.3	< 0.1	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	0.4	0.2	< 0.1	^ 0.2	< 0.1	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.1	< 0.1	< 0.1	^ < 0.1	< 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	0.3	0.1	< 0.1	^ 0.2	< 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	5.5	1.5	< 0.4	^ 2.8	< 0.4	< 0.4



2683



Results Summary

Report No.: 16-05847

ELAB Reference	55079	55080	55081	55082	55083	55084
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS1	WS2	WS3	WS4	WS5	WS6
Sample Depth (m)	0.30	0.30	0.30	0.50	0.30	0.30
Sampling Date	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	n/t	n/t	n/t	^ < 10.0	n/t	n/t
Toluene	M	ug/kg	10	n/t	n/t	n/t	^ < 10.0	n/t	n/t
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t	^ < 10.0	n/t	n/t
Xylenes	M	ug/kg	10	n/t	n/t	n/t	^ < 10.0	n/t	n/t
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t
>C6-C8 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t
>C8-C10 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C10-C12 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C12-C16 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C16-C21 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C21-C35 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	3.5	n/t	n/t
>C35-C40 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C5-C7 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t
>C7-C8 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t
>C8-C10 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C10-C12 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C12-C16 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C16-C21 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
>C21-C35 Aromatic	N	mg/kg	1	n/t	n/t	n/t	2.6	n/t	n/t
>C35-C40 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t
Total (>C5-C40) Ali/Aro	N	mg/kg	1	n/t	n/t	n/t	6.1	n/t	n/t
Total Petroleum Hydrocarbons									
Total TPH (>C8-C40)	M	mg/kg	5	< 5	< 5	< 5	n/t	< 5	< 5
OrganoChlorine Pesticides									
alpha-HCH	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
beta_HCH	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
gamma-HCH	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
delta-HCH	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Heptachlor	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Aldrin	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Heptachlor expoxide	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
trans-Chlordane	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
alpha cis-Chlordane	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
p,p-DDE	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Dieldrin	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Endrin	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
p,p-DDD	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Endosulfan II	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Endrin aldehyde	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
p,p-DDT	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Endosulphan sulphate	M	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Methoxychlor	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t
Endrin ketone	N	ug/kg	10	< 10	n/t	n/t	n/t	< 10	n/t

Results Summary

Report No.: 16-05847

ELAB Reference	55085	55086	55087	55088	55089	55090
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS7	TP1	TP2	TP3	TP4	TP5
Sample Depth (m)	0.50	0.20	0.20	1.00	0.20	0.20
Sampling Date	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	^ 7.9	24.8	26.1	33.9	^ 10.1	24.4
Barium	M	mg/kg	10	^ 68.1	59.5	50.3	45.8	^ 96.7	65.2
Beryllium	U	mg/kg	1	< 1.0	1.2	1.3	1.5	< 1.0	1.4
Cadmium	M	mg/kg	0.5	^ < 0.5	< 0.5	< 0.5	< 0.5	^ < 0.5	< 0.5
Chromium	M	mg/kg	5	^ 21.7	47.6	50.0	48.7	^ 25.9	41.0
Copper	M	mg/kg	5	^ 15.9	21.4	20.7	17.1	^ 13.0	31.3
Lead	M	mg/kg	5	^ 43.4	52.3	44.2	35.0	^ 27.4	83.2
Mercury	M	mg/kg	0.5	^ < 0.5	< 0.5	< 0.5	< 0.5	^ < 0.5	< 0.5
Nickel	M	mg/kg	5	^ 17.6	29.7	34.2	33.7	^ 31.6	30.7
Selenium	M	mg/kg	1	^ < 1.0	< 1.0	< 1.0	< 1.0	^ < 1.0	< 1.0
Vanadium	M	mg/kg	5	^ 27.1	85.6	88.3	90.2	^ 33.0	74.7
Zinc	M	mg/kg	5	^ 54.2	105	106	110	^ 52.0	116
Anions									
Water Soluble Chloride	M	mg/l	20	n/t	562	83	n/t	^ 35	n/t
Water Soluble Chloride	M	mg/kg	40	^ 123	n/t	n/t	981	n/t	228
Water Soluble Sulphate	M	g/l	0.02	^ 0.31	0.89	0.18	1.50	^ 0.13	0.33
Inorganics									
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	2	3	3	3	5	3
Total Cyanide	M	mg/kg	1	^ < 1.0	< 1.0	< 1.0	< 1.0	^ < 1.0	1.1
Acid Soluble Sulphate (SO4)	U	%	0.02	0.11	0.18	0.05	0.36	0.13	0.15
Water Soluble Boron	N	mg/kg	0.5	1.2	6.4	3.2	3.4	0.9	2.6
Miscellaneous									
pH	M	pH units	0.1	^ 9.2	8.2	7.3	7.2	^ 8.3	7.6
Total Organic Carbon	N	%	0.01	0.50	2.2	2.4	2.0	0.21	3.6
Phenols									
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	^ 0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Fluorene	M	mg/kg	0.1	^ < 0.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	^ 1.1	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Anthracene	M	mg/kg	0.1	^ 0.3	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	^ 2.2	0.2	< 0.1	0.1	^ 0.1	0.2
Pyrene	M	mg/kg	0.1	^ 1.9	0.2	< 0.1	0.1	^ < 0.1	0.1
Benzo(a)anthracene	M	mg/kg	0.1	^ 1.1	0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Chrysene	M	mg/kg	0.1	^ 1.2	0.2	< 0.1	< 0.1	^ < 0.1	0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	^ 1.5	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	^ 1.0	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	^ 1.1	0.2	< 0.1	< 0.1	^ < 0.1	0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	^ 0.8	0.2	< 0.1	< 0.1	^ < 0.1	0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	^ 0.2	< 0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	^ 0.7	0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Total PAH(16)	M	mg/kg	0.4	^ 13.3	1.3	< 0.4	< 0.4	^ < 0.4	0.5

Results Summary

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Report No.: 16-05847

ELAB Reference	55085	55086	55087	55088	55089	55090
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS7	TP1	TP2	TP3	TP4	TP5
Sample Depth (m)	0.50	0.20	0.20	1.00	0.20	0.20
Sampling Date	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016	22/02/2016

Determinand	Codes	Units	LOD						
BTEX									
Benzene	M	ug/kg	10	^ < 10.0	n/t	n/t	< 10.0	n/t	< 10.0
Toluene	M	ug/kg	10	^ < 10.0	n/t	n/t	< 10.0	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	^ < 10.0	n/t	n/t	< 10.0	n/t	< 10.0
Xylenes	M	ug/kg	10	^ < 10.0	n/t	n/t	< 10.0	n/t	< 10.0
TPH CWG									
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	n/t	n/t	< 0.01	n/t	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	n/t	n/t	< 0.01	n/t	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	11.6	n/t	n/t	< 1.0	n/t	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	3.0	n/t	n/t	< 1.0	n/t	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	n/t	n/t	< 0.01	n/t	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	n/t	n/t	< 0.01	n/t	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	n/t	n/t	< 1.0	n/t	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	15.8	n/t	n/t	< 1.0	n/t	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	3.9	n/t	n/t	< 1.0	n/t	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	34.3	n/t	n/t	< 1.0	n/t	< 1.0
Total Petroleum Hydrocarbons									
Total TPH (>C8-C40)	M	mg/kg	5	n/t	< 5	< 5	n/t	^ < 5	n/t
OrganoChlorine Pesticides									
alpha-HCH	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
beta_HCH	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
gamma-HCH	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
delta-HCH	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Heptachlor	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Aldrin	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Heptachlor expoxide	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
trans-Chlordane	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
alpha cis-Chlordane	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
p,p-DDE	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Dieldrin	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Endrin	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
p,p-DDD	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Endosulfan II	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Endrin aldehyde	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
p,p-DDT	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Endosulphan sulphate	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Methoxychlor	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t
Endrin ketone	N	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 16-05847

ELAB Reference	55091	55092	55093	55094
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	TP6	TP7	TP7	TP3
Sample Depth (m)	0.20	0.50	1.00	0.50
Sampling Date	22/02/2016	22/02/2016	22/02/2016	22/02/2016

Determinand	Codes	Units	LOD				
Metals							
Arsenic	M	mg/kg	1	22.0	11.8	^ 9.6	24.8
Barium	M	mg/kg	10	43.6	84.3	^ 97.8	65.7
Beryllium	U	mg/kg	1	1.5	< 1.0	< 1.0	1.6
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	^ < 0.5	< 0.5
Chromium	M	mg/kg	5	44.4	28.3	^ 25.5	61.3
Copper	M	mg/kg	5	17.9	18.1	^ 16.6	21.2
Lead	M	mg/kg	5	33.9	60.5	^ 59.7	43.5
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	^ < 0.5	< 0.5
Nickel	M	mg/kg	5	30.4	23.7	^ 19.8	36.8
Selenium	M	mg/kg	1	< 1.0	< 1.0	^ < 1.0	< 1.0
Vanadium	M	mg/kg	5	76.9	41.9	^ 35.6	104
Zinc	M	mg/kg	5	96.8	77.7	^ 67.7	117
Anions							
Water Soluble Chloride	M	mg/l	20	n/t	n/t	n/t	n/t
Water Soluble Chloride	M	mg/kg	40	388	47	^ 47	502
Water Soluble Sulphate	M	g/l	0.02	0.56	0.24	^ 1.19	0.60
Inorganics							
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	3	2	2	3
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	^ < 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	0.18	0.16	0.28	0.15
Water Soluble Boron	N	mg/kg	0.5	5.3	1.1	1.4	5.4
Miscellaneous							
pH	M	pH units	0.1	7.8	9.8	^ 9.4	8.2
Total Organic Carbon	N	%	0.01	1.8	0.69	0.73	2.2
Phenols							
Total Phenols	N	mg/kg	6	< 6	< 6	< 6	< 6
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	< 0.1	< 0.1	^ < 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	< 0.1	0.5	^ < 0.1	< 0.1
Fluorene	M	mg/kg	0.1	< 0.1	0.3	^ < 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	< 0.1	5.3	^ 0.1	< 0.1
Anthracene	M	mg/kg	0.1	< 0.1	0.9	^ < 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	< 0.1	7.2	^ 0.3	< 0.1
Pyrene	M	mg/kg	0.1	< 0.1	5.8	^ 0.3	< 0.1
Benzo(a)anthracene	M	mg/kg	0.1	< 0.1	2.6	^ 0.2	< 0.1
Chrysene	M	mg/kg	0.1	< 0.1	2.9	^ 0.2	< 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	< 0.1	2.4	^ 0.4	< 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	< 0.1	2.0	^ 0.2	< 0.1
Benzo (a) pyrene	M	mg/kg	0.1	< 0.1	2.3	^ 0.2	< 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	< 0.1	1.8	^ 0.2	< 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	< 0.1	0.4	^ < 0.1	< 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	< 0.1	1.5	^ 0.3	< 0.1
Total PAH(16)	M	mg/kg	0.4	< 0.4	36.0	^ 2.7	< 0.4

Results Summary

Report No.: 16-05847

ELAB Reference	55091	55092	55093	55094
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	TP6	TP7	TP7	TP3
Sample Depth (m)	0.20	0.50	1.00	0.50
Sampling Date	22/02/2016	22/02/2016	22/02/2016	22/02/2016

Determinand	Codes	Units	LOD				
BTEX							
Benzene	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0
Xylenes	M	ug/kg	10	< 10.0	< 10.0	^ < 10.0	< 10.0
TPH CWG							
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	< 1.0	2.8	6.8	< 1.0
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	1.4	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	< 1.0	6.3	12.3	< 1.0
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	2.8	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	< 1.0	9.2	23.2	< 1.0
Total Petroleum Hydrocarbons							
Total TPH (>C8-C40)	M	mg/kg	5	n/t	n/t	n/t	n/t
OrganoChlorine Pesticides							
alpha-HCH	M	ug/kg	10	n/t	n/t	n/t	n/t
beta_HCH	M	ug/kg	10	n/t	n/t	n/t	n/t
gamma-HCH	M	ug/kg	10	n/t	n/t	n/t	n/t
delta-HCH	N	ug/kg	10	n/t	n/t	n/t	n/t
Heptachlor	N	ug/kg	10	n/t	n/t	n/t	n/t
Aldrin	M	ug/kg	10	n/t	n/t	n/t	n/t
Heptachlor expoxide	N	ug/kg	10	n/t	n/t	n/t	n/t
trans-Chlordane	N	ug/kg	10	n/t	n/t	n/t	n/t
alpha cis-Chlordane	N	ug/kg	10	n/t	n/t	n/t	n/t
p,p-DDE	M	ug/kg	10	n/t	n/t	n/t	n/t
Dieldrin	M	ug/kg	10	n/t	n/t	n/t	n/t
Endrin	N	ug/kg	10	n/t	n/t	n/t	n/t
p,p-DDD	M	ug/kg	10	n/t	n/t	n/t	n/t
Endosulfan II	N	ug/kg	10	n/t	n/t	n/t	n/t
Endrin aldehyde	N	ug/kg	10	n/t	n/t	n/t	n/t
p,p-DDT	M	ug/kg	10	n/t	n/t	n/t	n/t
Endosulphan sulphate	M	ug/kg	10	n/t	n/t	n/t	n/t
Methoxychlor	N	ug/kg	10	n/t	n/t	n/t	n/t
Endrin ketone	N	ug/kg	10	n/t	n/t	n/t	n/t



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Results Summary

Report No.: 16-05847

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
55079	0.30	WS1	Silty loam	No asbestos detected
55080	0.30	WS2	Silty loam	No asbestos detected
55081	0.30	WS3	Silty loam	No asbestos detected
55082	0.50	WS4	Silty loam + chalk	No asbestos detected
55083	0.30	WS5	Silty loam	No asbestos detected
55084	0.30	WS6	Silty loam	No asbestos detected
55085	0.50	WS7	Silty loam + chalk	No asbestos detected
55086	0.20	TP1	Silty loam	No asbestos detected
55087	0.20	TP2	Silty loam	No asbestos detected
55088	1.00	TP3	Silty loam	No asbestos detected
55089	0.20	TP4	Silty loam + chalk	No asbestos detected
55090	0.20	TP5	Silty loam	No asbestos detected
55091	0.20	TP6	Silty loam	No asbestos detected
55092	0.50	TP7	Silty loam	No asbestos detected
55093	1.00	TP7	Silty loam + chalk	No asbestos detected
55094	0.50	TP3	Silty loam	No asbestos detected

Method Summary

Report No.: 16-05847

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Sulphide	N	As submitted sample	02/03/2016	109	Colorimetry
Hexavalent chromium	N	As submitted sample	01/03/2016	110	Colorimetry
pH	M	Air dried sample	04/03/2016	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	03/03/2016	115	Ion Chromatography
Total Petroleum Hydrocarbons in solids	M	As submitted sample	29/02/2016	117	GC-FID
Aqua regia extractable metals	M	Air dried sample	03/03/2016	118	ICPMS
Phenols in solids	M	As submitted sample	01/03/2016	121	HPLC
Elemental Sulphur	N	Air dried sample	02/03/2016	122	HPLC
PAH (GC-FID)	M	As submitted sample	29/02/2016	133	GC-FID
Water soluble anions	M	Air dried sample	02/03/2016	172	Ion Chromatography
Organochlorine Pesticides in solids	M	As submitted sample	29/02/2016	173	GC-MS
BTEX in solids	M	As submitted sample	02/03/2016	181A	GC-MS
Water soluble boron	N	Air dried sample	02/03/2016	202	Colorimetry
Total cyanide	M	As submitted sample	02/03/2016	204	Colorimetry
Total organic carbon/Total sulphur	N	Air dried sample	02/03/2016	210	IR
Aliphatic hydrocarbons in soil	N	As submitted sample	29/02/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	02/03/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	29/02/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	02/03/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	02/03/2016	214	GC-MS
Asbestos identification	U	As submitted sample	01/03/2016	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-05847

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 16-05909

Issue: 1

Date of Issue: 09/03/2016

Contact: Anthony Potter

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q14-00021

Order No: Not Supplied

Customer Reference: GE15338

Date Received: 02/03/2016

Date Approved: 09/03/2016

Details: Dalefield Way, Gravesend

Approved by:

Mike Varley,

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 16-05909

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
55731	WS1 0.29	01/03/2016	02/03/2016		
55732	WS3 1.08	01/03/2016	02/03/2016		
55733	WS4 0.24	01/03/2016	02/03/2016		
55734	WS5 0.15	01/03/2016	02/03/2016		
55735	WS6 0.00	01/03/2016	02/03/2016		
55736	WS7 1.36	01/03/2016	02/03/2016		
55737	WS1 0.10	01/03/2016	02/03/2016		
55738	WS4 0.15	01/03/2016	02/03/2016		
55739	WS6 1.53	01/03/2016	02/03/2016		

Results Summary

Report No.: 16-05909

ELAB Reference	55731	55732	55733	55734	55735	55736
Customer Reference						
Sample ID						
Sample Type	WATER	WATER	WATER	WATER	WATER	WATER
Sample Location	WS1	WS3	WS4	WS5	WS6	WS7
Sample Depth (m)	0.29	1.08	0.24	0.15	0.00	1.36
Sampling Date	01/03/2016	01/03/2016	01/03/2016	01/03/2016	01/03/2016	01/03/2016

Determinand	Codes	Units	LOD						
Dissolved Metals									
Arsenic	U	ug/l	5	< 5	< 5	< 5	< 5	6	< 5
Boron	N	ug/l	5	1230	1480	1800	1910	1370	1290
Barium	U	ug/l	5	258	68	39	64	68	206
Beryllium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5
Cadmium	U	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
Chromium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5	< 5
Copper	U	ug/l	5	15	< 5	5	< 5	< 5	< 5
Mercury	U	ug/l	0.1	0.3	0.5	< 0.1	< 0.1	0.2	0.1
Nickel	U	ug/l	5	20	12	28	53	21	43
Lead	U	ug/l	1	3	< 1	4	< 1	2	< 1
Selenium	U	ug/l	5	24	17	21	15	13	18
Vanadium	N	ug/l	5	9	< 5	< 5	< 5	12	< 5
Zinc	U	ug/l	5	27	8	21	36	8	14
Anions									
Chloride	U	mg/l	0.5	2800	2010	1450	2000	1370	1650
Sulphate	U	mg/l	0.5	2280	2960	2030	1760	1260	1130
Inorganics									
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexavalent Chromium	U	ug/l	100	< 100	< 100	< 100	< 100	< 100	< 100
Sulphide	N	mg/l	0.1	1.5	1.3	1.8	2.0	1.5	2.2
Miscellaneous									
Dissolved organic carbon	U	mg/l	1.5	43	13	24	16	22	25
pH	U	pH units	0.1	7.1	7.3	7.1	6.6	7.1	7.0
Phenols									
Phenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
2,3,5-trimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	ug/l	1	< 1	< 1	< 1	< 1	< 1	< 1
Polyaromatic hydrocarbons									
Naphthalene GCMS	N	ug/l	0.01	1.35	0.21	0.11	0.14	0.16	0.24
Acenaphthylene GCMS	N	ug/l	0.01	3.26	0.09	0.09	0.05	0.05	0.43
Acenaphthene GCMS	N	ug/l	0.01	0.56	0.02	0.02	0.02	0.02	0.08
Fluorene GCMS	N	ug/l	0.01	1.08	0.06	0.05	0.06	0.05	0.16
Phenanthrene GCMS	N	ug/l	0.01	11.2	0.32	0.41	0.32	0.36	1.27
Anthracene GCMS	N	ug/l	0.01	4.01	0.10	0.14	0.09	0.13	0.54
Fluoranthene GCMS	N	ug/l	0.01	28.0	0.77	1.03	0.58	0.68	3.94
Pyrene GCMS	N	ug/l	0.01	23.7	0.60	0.84	0.44	0.53	3.25
Benzo (a) anthracene GCMS	N	ug/l	0.01	17.0	0.39	0.60	0.31	0.39	2.73
Chrysene GCMS	N	ug/l	0.01	15.4	0.34	0.56	0.28	0.35	2.10
Benzo (b) fluoranthene GCMS	N	ug/l	0.01	17.2	0.37	0.56	0.23	0.29	2.57
Benzo (k) fluoranthene GCMS	N	ug/l	0.01	15.6	0.37	0.57	0.23	0.31	2.01
Benzo (a) pyrene GCMS	N	ug/l	0.01	20.2	0.50	0.84	0.33	0.40	3.31
Indeno (1,2,3-cd) pyrene GCMS	N	ug/l	0.01	14.8	0.36	0.58	0.23	0.23	2.30
Dibenzo(a,h)anthracene GCMS	N	ug/l	0.01	6.23	0.09	0.18	0.06	0.08	0.79
Benzo(ghi)perylene GCMS	N	ug/l	0.01	15.2	0.33	0.53	0.23	0.25	2.21
Total PAH(16) GCMS	N	ug/l	0.01	195	4.93	7.11	3.61	4.28	27.9
TPH CWG									
>C5-C6 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 16-05909

ELAB Reference	55731	55732	55733	55734	55735	55736
Customer Reference						
Sample ID						
Sample Type	WATER	WATER	WATER	WATER	WATER	WATER
Sample Location	WS1	WS3	WS4	WS5	WS6	WS7
Sample Depth (m)	0.29	1.08	0.24	0.15	0.00	1.36
Sampling Date	01/03/2016	01/03/2016	01/03/2016	01/03/2016	01/03/2016	01/03/2016

Determinand	Codes	Units	LOD						
>C6-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	24.0	< 5.0	< 5.0	25.6	< 5.0	31.4
>C21-C35 Aliphatic	N	ug/l	5	282	146	17.5	676	39.4	1000
>C35-C40 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aliphatic	N	ug/l	5	306	146	17.5	702	39.4	1030
>C5-C7 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aromatic	N	ug/l	5	23.7	15.0	< 5.0	< 5.0	< 5.0	22.9
>C21-C35 Aromatic	N	ug/l	5	202	121	34.7	468	55.9	686
>C35-C40 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aromatic	N	ug/l	5	226	136	34.7	468	55.9	709
Total (>C5-C40) Ali/Aro	N	ug/l	5	532	282	52.2	1170	95.3	1740
PCB (ICES 7 congeners)									
PCB 28	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 52	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 101	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB118	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 153	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 138	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 180	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB (7 Congeners)	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Method Summary

Report No.: 16-05909

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Water					
Aliphatic/Aromatic hydrocarbons in water	N		08/03/2016		GC-FID
Aromatic hydrocarbons in water	N		08/03/2016		GC-FID
Phenols in waters	N		03/03/2016		HPLC
Dissolved metals by ICP in waters	U		03/03/2016	101	ICPMS
Dissolved organic carbon	U		04/03/2016	102	IR
pH of waters	U		03/03/2016	113	Electromeric
Chromium Hexavalent in waters	U		08/03/2016	123	Colorimetry
Anions	U		03/03/2016	131	Ion Chromatography
PAHs and/or PCBs in waters	N		04/03/2016	135	GC-MS
Elemental Sulphur by HPLC in waters	N	As submitted sample	04/03/2016	206	HPLC
Aliphatic hydrocarbons in water	N		03/03/2016	215	GC-FID
Aromatic hydrocarbons in water	N		03/03/2016	215	GC-FID
Low range Aliphatic hydrocarbons water	N		08/03/2016	215	GC-MS
Low range Aromatic hydrocarbons water	N		08/03/2016	215	GC-MS

Tests marked N are not UKAS accredited



Report Information

Report No.: 16-05909

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 16-06122

Issue: 2

Date of Issue: 23/03/2016

Contact: Anthony Potter

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q14-00021

Order No: GE15338

Customer Reference: GE15338

Date Received: 17/03/2016

Date Approved: 23/03/2016

Details: Dalefield Way, Gravesend

Approved by: 

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 16-06122

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
57249	Upstream Ditch	16/03/2016	17/03/2016		
57250	Downstream Ditch	16/03/2016	17/03/2016		



Results Summary

Report No.: 16-06122

ELAB Reference	57249	57250
Customer Reference	Ditch	Ditch
Sample ID		
Sample Type	WATER	WATER
Sample Location	Upstream	Downstream
Sample Depth (m)		
Sampling Date	16/03/2016	16/03/2016

Determinand	Codes	Units	LOD		
Dissolved Metals					
Arsenic	U	ug/l	5	< 5	< 5
Boron	N	ug/l	5	291	272
Barium	U	ug/l	5	21	18
Beryllium	U	ug/l	5	< 5	< 5
Cadmium	U	ug/l	1	< 1	< 1
Chromium	U	ug/l	5	< 5	< 5
Copper	U	ug/l	5	< 5	< 5
Mercury	U	ug/l	0.1	< 0.1	< 0.1
Nickel	U	ug/l	5	< 5	< 5
Lead	U	ug/l	1	< 1	< 1
Selenium	U	ug/l	5	< 5	< 5
Vanadium	N	ug/l	5	< 5	< 5
Zinc	U	ug/l	5	< 5	< 5
Anions					
Chloride	U	mg/l	0.5	265	226
Sulphate	U	mg/l	0.5	284	241
Inorganics					
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1
Hexavalent Chromium	U	ug/l	100	< 100	< 100
Sulphide	N	mg/l	0.1	0.8	0.2
Miscellaneous					
Dissolved organic carbon	U	mg/l	1.5	12	10
pH	U	pH units	0.1	7.7	8.0
Phenols					
Phenol	N	ug/l	1	< 1	< 1
M,P-Cresol	N	ug/l	1	< 1	< 1
O-Cresol	N	ug/l	1	< 1	< 1
3,4-Dimethylphenol	N	ug/l	1	< 1	< 1
2,3-Dimethylphenol	N	ug/l	1	< 1	< 1
2,3,5-trimethylphenol	N	ug/l	1	< 1	< 1
Total Monohydric Phenols	N	ug/l	1	< 1	< 1
Polyaromatic hydrocarbons					
Naphthalene GCMS	N	ug/l	0.01	0.08	0.08
Acenaphthylene GCMS	N	ug/l	0.01	0.02	0.25
Acenaphthene GCMS	N	ug/l	0.01	0.03	0.12
Fluorene GCMS	N	ug/l	0.01	0.05	0.30
Phenanthrene GCMS	N	ug/l	0.01	0.19	1.86
Anthracene GCMS	N	ug/l	0.01	0.05	0.49
Fluoranthene GCMS	N	ug/l	0.01	0.16	1.68
Pyrene GCMS	N	ug/l	0.01	0.11	1.14
Benzo (a) anthracene GCMS	N	ug/l	0.01	0.06	0.50
Chrysene GCMS	N	ug/l	0.01	0.08	0.57
Benzo (b) fluoranthene GCMS	N	ug/l	0.01	0.05	0.22
Benzo (k) fluoranthene GCMS	N	ug/l	0.01	0.05	0.28
Benzo (a) pyrene GCMS	N	ug/l	0.01	0.06	0.28
Indeno (1,2,3-cd) pyrene GCMS	N	ug/l	0.01	0.04	0.13
Dibenzo(a,h)anthracene GCMS	N	ug/l	0.01	0.02	0.03
Benzo(ghi)perylene GCMS	N	ug/l	0.01	0.04	0.14
Total PAH(16) GCMS	N	ug/l	0.01	1.10	8.05
TPH CWG					
>C5-C6 Aliphatic	N	ug/l	1	< 1.0	< 1.0

Tests marked N are not UKAS accredited.



Results Summary

Report No.: 16-06122

ELAB Reference	57249	57250
Customer Reference	Ditch	Ditch
Sample ID		
Sample Type	WATER	WATER
Sample Location	Upstream	Downstream
Sample Depth (m)		
Sampling Date	16/03/2016	16/03/2016

Determinand	Codes	Units	LOD		
>C6-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	< 5.0	5.6
>C21-C35 Aliphatic	N	ug/l	5	8.6	13.6
>C35-C40 Aliphatic	N	ug/l	5	< 5.0	< 5.0
Total (>C5-C40) Aliphatic	N	ug/l	5	8.6	19.1
>C5-C7 Aromatic	N	ug/l	1	< 1.0	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0	< 5.0
>C12-C16 Aromatic	N	ug/l	5	< 5.0	< 5.0
>C16-C21 Aromatic	N	ug/l	5	6.1	5.4
>C21-C35 Aromatic	N	ug/l	5	19.1	15.0
>C35-C40 Aromatic	N	ug/l	5	< 5.0	< 5.0
Total (>C5-C40) Aromatic	N	ug/l	5	25.2	20.4
Total (>C5-C40) Ali/Aro	N	ug/l	5	33.8	39.5

Method Summary

Report No.: 16-06122

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Water					
Aliphatic/Aromatic hydrocarbons in water	N		22/03/2016		GC-FID
Aromatic hydrocarbons in water	N		22/03/2016		GC-FID
Phenols in waters	N		18/03/2016		HPLC
Dissolved metals by ICP in waters	U		21/03/2016	101	ICPMS
Dissolved organic carbon	U		22/03/2016	102	IR
pH of waters	U		22/03/2016	113	Electromeric
Chromium Hexavalent in waters	U		22/03/2016	123	Colorimetry
Anions	U		21/03/2016	131	Ion Chromatography
PAHs and/or PCBs in waters	N		18/03/2016	135	GC-MS
Elemental Sulphur by HPLC in waters	N	As submitted sample	21/03/2016	206	HPLC
Aliphatic hydrocarbons in water	N		18/03/2016	215	GC-FID
Aromatic hydrocarbons in water	N		18/03/2016	215	GC-FID
Low range Aliphatic hydrocarbons water	N		22/03/2016	215	GC-MS
Low range Aromatic hydrocarbons water	N		22/03/2016	215	GC-MS

Tests marked N are not UKAS accredited



Report Information

Report No.: 16-06122

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

[illegible]



		Assessment Criterion (mg kg ⁻¹)			Ratio of ADE to HCV			Saturation Limit (mg kg ⁻¹)	50% rule?	
		oral	inhalation	combined	oral	inhalation	combined		Oral	Inhal
1	Arsenic	6.35E+02	6.95E+02	NR	1.00	0.91	NR	NR	No	No
2	Cadmium	3.99E+02	3.87E+02	2.30E+02	0.41	0.59	1.00	NR	Yes	No
3	Chromium III	3.31E+05	3.34E+04	3.04E+04	0.09	0.91	1.00	NR	No	No
4	Mercury, inorganic	4.41E+03	2.09E+04	3.64E+03	0.83	0.17	1.00	NR	No	No
5	Nickel	2.22E+04	1.79E+03	NR	0.07	1.00	NR	NR	No	No
6	Copper	1.78E+05	9.60E+04	7.17E+04	0.25	0.75	1.00	NR	Yes	No
7	Zinc	6.67E+05	2.09E+08	6.65E+05	1.00	0.00	1.00	NR	Yes	No
8	Selenium	1.30E+04	NR	NR	1.00	NR	NR	NR	No	No
9	Chromium VI	2.01E+03	NR	NR	1.00	NR	NR	NR	No	No
10	Barium	2.21E+04	NR	NR	1.00	NR	NR	NR	Yes	No
11	Beryllium	3.97E+03	4.17E+02	3.78E+02	0.09	0.91	1.00	NR	No	No
12	Vanadium	5.94E+03	6.76E+03	3.16E+03	0.53	0.47	1.00	NR	No	No
13	Phenol	1.54E+06	3.74E+04	3.65E+04	0.02	0.98	1.00	7.54E+04 (vap)	No	No
14	Acenaphthylene	1.10E+05	1.08E+06	9.96E+04	0.91	0.09	1.00	1.71E+02 (sol)	No	No
15	Acenaphthene	1.10E+05	1.16E+06	1.00E+05	0.91	0.09	1.00	1.13E+02 (sol)	No	No
16	Flourene	7.31E+04	1.33E+06	6.93E+04	0.95	0.05	1.00	6.16E+01 (sol)	No	No
17	Phenanthrene	2.28E+04	1.30E+06	2.24E+04	0.98	0.02	1.00	7.18E+01 (sol)	No	No
18	Anthracene	5.49E+05	2.80E+07	5.38E+05	0.98	0.02	1.00	2.33E+00 (vap)	No	No
19	Flouranthene	2.29E+04	2.99E+06	2.27E+04	0.99	0.01	1.00	3.79E+01 (vap)	No	No
20	Pyrene	5.49E+04	7.10E+06	5.44E+04	0.99	0.01	1.00	4.40E+00 (vap)	No	No

[illegible]

Client/client ref: Riverdale Developments Ltd
Project ref: GE15338
Site ref: Dalefield Way, Gravesend
Data description:
Contaminant(s):
Test scenario: Planning
Date: 11 March 2016
User details: AP

Client/client ref: Riverdale Developments Ltd Project ref: GE15338 Site ref: Dalefield Way, Gravesend Data description: Contaminant(s): Test scenario: Planning Date: 11 March 2016 User details: AP		Lead (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium III (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Copper (mg/kg)	Zinc (mg/kg)	Selenium (mg/kg)	Chromium VI (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Vanadium (mg/kg)	Phenol (mg/kg)
Critical concentration, C _c	2330	640	410	30400	3640	1790	71700	665000	13000	49	22100	378	3160	36500	
Notes															
Full dataset size	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
Outliers present?	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No	
Number of outliers temporarily excluded	0														
Number removed by filter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sample size, n	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
Sample mean, $\bar{x}$	59.6375	19.1875	0.325	37.5875	0.303125	28.0625	22.3875	98.2125	0.5	0.4	73.86875	1.09375	61.76875	3	
Standard deviation, s	32.627021	8.08899458	0.22435092	12.4514992	0.2125	6.4323013	9.01619839	31.9273524	0	5.7332E-17	23.1553513	0.39743972	26.063991	0	
Number of non-detects	0	0	14	0	15	0	0	0	16	16	0	4	0	16	
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	
Distribution	Non-normal	Normal	Non-normal	Normal	Non-normal	Normal	Non-normal	Normal	Single value	Non-normal	Normal	Non-normal	Normal	Single value	
Statistical approach	Auto: Chebychev	Auto: One-sample t	Auto: Chebychev	Auto: One-sample t	Auto: Chebychev	Auto: One-sample t	Auto: Chebychev	Auto: One-sample t	Auto: Chebychev	Auto: Chebychev	Auto: One-sample t	Auto: Chebychev	Auto: One-sample t	Auto: Chebychev	

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[Go to outlier test](#)
[Go to normality test](#)
[Show individual summary](#)

Client/client ref: Riverdale Developments Ltd
Project ref: GE15338
Site ref: Dalefield Way, Gravesend
Data description:
Contaminant(s):
Test scenario: Planning
Date: 11 March 2016
User details: AP

Benzo(a)pyrene (mg/kg)						
Critical concentration, C _c	76					
Notes						
Full dataset size	16	0	0	0	0	0
Outliers present?	Yes					
Number of outliers temporarily excluded						
Number removed by filter	0	0	0	0	0	0
Sample size, n	16	0	0	0	0	0
Sample mean, $\bar{X}$	0.33125	No Data	No Data	No Data	No Data	No Data
Standard deviation, s	0.59072695					
Number of non-detects	8	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution	Non-normal					
Statistical approach	Auto: Chebychev	Auto	Auto	Auto	Auto	Auto

Test scenario:						
t statistic, t ₀ (or k ₀)	-512.3771623					
Upper confidence limit (on true mean concentration, μ)	0.97497977					
Evidence level	100%					
Base decision on:	evidence level					
Result	$\mu < C_c$					
Select dataset	☐ Y	☐ Y	☐ Y	☐ Y	☐ Y	☐ Y

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Client/client ref: Riverdale Developments Ltd
Project ref: GE15338
Site ref: Dalefield Way, Gravesend
Data description:
Contaminant(s):
Test scenario: Planning
Date: 14 March 2016
User details: AP

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Go to normality test

Show individual summary

Client/client ref: Riverdale Developments Ltd
Project ref: GE15338
Site ref: Dalefield Way, Gravesend
Data description:
Contaminant(s):
Test scenario: Planning
Date: 14 March 2016
User details: AP

AI EC35-EC44 (mg/kg)						
Critical concentration, C _c	1910000					
Notes						
Full dataset size	8	0	0	0	0	0
Outliers present?	Yes					
Number of outliers temporarily excluded						
Number removed by filter	0	0	0	0	0	0
Sample size, n	8	0	0	0	0	0
Sample mean, $\bar{X}$	0.925	No Data	No Data	No Data	No Data	No Data
Standard deviation, s	0.89562428					
Number of non-detects	6	0	0	0	0	0
Set non-detect values to:	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit	Half detection limit
Distribution	Non-normal					
Statistical approach	Auto: Chebychev	Auto	Auto	Auto	Auto	Auto

Test scenario:					
t statistic, t ₀ (or k ₀)	-6031874.405				
Upper confidence limit (on true mean concentration, μ)	2.30524972				
Evidence level	100%				
Base decision on:	evidence level				
Result	$\mu < C_c$				
Select dataset	☐ Y	☐ Y	☐ Y	☐ Y	☐ Y

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APPENDIX D – Exploratory Hole Location Plan



Project: Land Off Dalefield Way, Gravesend			Title Site Investigation Plan	
Client: Riverdale Developments			Geo-Environmental Services Limited Unit 7, Danworth Farm, Cuckfield Rd Hurstpierpoint, BN6 9GL E: mail@gesl.net W: www.gesl.net	
Ref No: GE15338	Revision:	v1		
Drawn: AP	Date:	02/03/2016		
Figure: 2	Scale:	Not To Scale		

