



PHASE II GENERIC HUMAN HEALTH RISK ASSESSMENT

Of

**PROPOSED YIEWSLEY HEALTH CENTRE, OTTERFIELD ROAD
WEST DRAYTON**

For

FRANKHAM CONSULTANCY GROUP LTD

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Approval Sheet and Foreword

Report Number: F14/146109/GRA

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For

FRANKHAM CONSULTANCY GROUP LTD

At

PROPOSED YIEWSLEY HEALTH CENTRE, WEST DRAYTON

Report Status/Issue No: Final		Date of Issue: January 2014
Issued to: Frankham Consultancy Group Ltd		Job No: F14/146109/GRA
	Name:	Signature:
Author:	James Appleby	
Approved:	Paul Ettinger	
Issued for and on behalf of CET Infrastructure by the above signatories.	Northdown House Ashford Road Harrietsham Kent ME17 1QW	Tel: + 44 (0) 1622 858545 Fax: + 44 (0) 1622 858544 Web: www.cet-uk.com

FOREWORD

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Distribution Sheet

Our ref: F13/146109/GRA

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For

FRANKHAM CONSULTANCY GROUP LTD

At

PROPOSED YIEWSLEY HEALTH CENTRE, WEST DRAYTON

DISTRIBUTION			
Date:	Issued to:	Name:	No:
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1.0 INTRODUCTION

CET Infrastructure (CET) was instructed by Frankham Consultancy Group Ltd (Frankham) to undertake an intrusive ground investigation and Generic Human Health Risk Assessment of a portion of currently disused ground located to the west of Otterfield Road, Yiewsley. It is understood that the study site was formerly occupied by a swimming pool and associated buildings that had recently been demolished. It is further understood that it is proposed to redevelop the site to a mixed end use, comprising residential housing and healthcare and leisure facilities.

2.0 SUMMARY OF PHASE I PRELIMINARY RISK ASSESSMENT (PRA)

In the first instance CET were instructed to carry out a Phase 1 Preliminary Risk Assessment (PRA) of the study site (ref: F13/146109/PRA, January 2014). The PRA established the following regarding the site and its environmental setting:

- The study site comprised a triangular shaped plot situated some 0.3Ha in area located to the west of Otterfield Road, West Drayton UB7 8PE (see Figure 1). The site is centred on National Grid Reference TQ 062 807;
- The proposed development of the site comprises two separate blocks. A three/four storey healthcare and leisure centre with associated car parking areas will be constructed on the southern portion of the site. The northern portion of the site will comprise two storey residential properties with associated gardens and soft landscaped areas;
- At the time of the walkover survey the study site comprised a fenced off area of disused ground that was surfaced by a mixture of asphalt hardstanding and compacted crushed concrete/brick. The site was bordered by a series of garden areas associated with residential properties, a recreation ground and a public car park;
- Historically the site was mapped as open ground until the 1935 series map when an open swimming baths was constructed on the site. A series of buildings and a small substation were also shown at the site on maps published during the 1960s. This configuration of buildings was replaced by a large enclosed swimming pool structure that was located at the approximate location of the historical baths during the 1980s. Further detached structures were also mapped on the northern portion of the site during this time;
- Environmental database records identified two inactive contemporary trade directory entries at the site, both of which were associated with the former swimming pool. These entries were given as a swimming pool contractor, repairers and servicing business and a rubber and plastic manufacturing company.
- The site is underlain by the London Clay Formation, which has been classified as an Unproductive Strata by the Environmental Agency. However, the superficial deposits of Lynch Hill Gravel Member also mapped at the study site have been classified as a Principal Aquifer. No groundwater Source Protection Zones have been identified within a 1km radius of the study site; and
- The closest surface water receptor to the study site is the Grand Union Canal that is located approximately 320m to the south west of the site. A tributary of the Fray's River is also located approximately 450m to the north east of the site at its closest point.

When considering the nature of the identified current and historical uses of the site the PRA concluded that there was a relatively low risk of the site being impacted by a range of potential contaminants including

metals, poly aromatic hydrocarbons (PAHs), asbestos, phenols, poly chlorinated biphenyls (PCBs) and volatile/semi volatile organic compounds (VOCs/SVOCs). However, as the northern portion of the site is to be developed to a sensitive residential end use inclusive of private garden areas it was considered that there were applicable pollutant linkages by which human receptors could be exposed to potentially contaminated soils.

In order to better quantify the risks posed to human receptors the PRA recommended that an intrusive ground investigation was carried out to enable the recovery of soil samples for chemical testing and risk assessment purposes. The PRA recommended that the following areas of the site be targeted by any ground investigations:

- The northern and southern portions of the site in the vicinity of the historical buildings associated with the swimming baths as these areas were most likely to be underlain by Made Ground or impacted by previous commercial activities;
- The proposed private garden areas as it is within these areas that there is the greatest risk of future site users being exposed to any contaminated soils post development; and
- The former swimming pool to determine the nature of the materials used as backfill.

3.0 INTRUSIVE GROUND INVESTIGATION

Attention is drawn to the fact that whilst every effort has been made to ensure the accuracy of the data supplied and any analysis derived from it, there is a potential for variations in ground conditions and contamination between and beyond the specific locations investigated. No liability can be accepted for any such variations. Furthermore, any recommendations are specific to the client requirements and no liability will be accepted should these be used by third parties without prior consultation with CET.

The intrusive ground investigation was carried out over two phases. The initial environmental investigation, comprising the formation of eight shallow hand dug trial pits, TP01 to TP08, to depths of up to 1.2m below ground level was carried on 17 December 2013. A subsequent phase of investigation, undertaken for primarily for geotechnical purposes, was conducted between the 02 and 08 January 2014 and comprised the formation of three cable percussion boreholes , BH01 to BH03, to depths of 25m bgl.

Trial pit TP01 was formed on the south western portion of the site in the vicinity of the former on site substation. TP02/BH02, TP07 and TP08 were formed on the central and southern portions of the site to investigate the nature of the material used to backfill the historical swimming pool. TP03/BH03 and TP04 to TP06 were formed on the northern portion of the site at the former location of the historical buildings associated with the swimming baths as this area was considered most likely to be underlain by Made Ground or impacted by previous commercial activities. The northern portion of the site was also considered to be relatively more sensitive as a residential end use inclusive of private gardens and soft landscaped areas is proposed in this area.

Made Ground was encountered in all exploratory holes and was proved to a maximum depth of 1.7m bgl. The Made Ground on the southern and central portions of the site generally comprised clayey sandy gravel/sandy gravelly clay with extraneous fill materials including brick, concrete, flint, ceramic and rare ash/clinker and asphalt. Blue/green fragments of tile observed in the trial pits would suggest these were associated with the former swimming pool. Within the northern portion of the site the Made Ground was observed as light brown, red brown and brown, slightly sandy, slightly gravelly clay with some inclusions of brick, flint and occasional ash.

The Lynch Hill Gravel Member, comprising brown, white and black clayey, sandy GRAVEL of angular to rounded flint was identified beneath the Made Ground in the three cable percussion boreholes to depths of between 2.8m and 3.3m bgl. The London Clay Formation, comprising grey brown CLAY, was proved to the base of each cable percussion borehole at 25m bgl.

An exploratory hole location plan is attached as Figure 2. Engineer's logs are enclosed herein as Appendix A

4.0 LABORATORY CHEMICAL ANALYSIS

Upon completion of the intrusive ground investigation nine samples of Made Ground were selected for chemical analysis. The samples were placed in laboratory prepared vessels with a minimum of headspace and labelled accordingly prior to being despatched to accredited analytical laboratory in cool boxes.

The suite of analysis was determined with reference to the PRA report and on site observations and comprised the following determinands:

- A suite of metals comprising As, Cu, Cd, Cr, Cr VI, Hg, Pb, Ni, Se and Zn;
- Speciated Poly Aromatic Hydrocarbons (PAHs);
- Polychlorinated biphenyls (PCBs);
- Phenols (total monohydric)
- Asbestos (identification only);
- Volatile and Semi Volatile Organic Compounds (VOCs/SVOCs);
- pH; and
- Total Organic Carbon (TOC).

The laboratory results for this site are attached in full as laboratory report 367860-1 included as Appendix B.

5.0 RESULTS OF CHEMICAL ANALYSIS

The pH of the six tested soils ranged from 8.1 to 10.8 with an average of 9.8. The TOC content of the same six tested samples ranged from 0.6% to 1.3% with an average of 1.0%, which equates to a mean soil organic matter (SOM) concentration of 1.7%.

Asbestos was not positively identified by the laboratory in the nine Made Ground samples recovered scheduled for analysis. Furthermore, visual evidence of potential asbestos containing materials (ACMs) was not noted by the attending CET Environmental Scientist throughout the progress of the site works.

A summary of the metal concentrations recorded in the tested samples is presented in the below table:

Contaminant	Number of Samples Analysed	Range of Measured Concentration (mg/kg)	Location of Maximum Concentration and Depth bgl
Arsenic	9	13 - 37	TP08 @ 0.3m
Cadmium	9	<0.1 - 0.6	TP08 @ 0.3m
Chromium	9	20 - 28	TP07 @ 0.6m
Chromium VI	9	<1 - 1	TP01 @ 0.4m
Lead	9	61 - 280	TP06 @ 0.1m
Mercury	9	<0.1 – 2.1	TP06 @ 0.1m
Nickel	9	15 - 23	TP05 @ 0.5m
Copper	9	26 - 70	TP06 @ 0.1m
Zinc	9	56 - 150	TP07 @ 0.6m
Selenium	9	<3	N/A

Recordable concentrations of the sixteen PAH compounds tested were encountered in seven of the nine tested samples, with total concentrations ranging from 0.6mg/kg to 68mg/kg (TP02 at 0.5m). Five of the tested samples contained recordable concentrations of the PAH compound benzo(a)pyrene, with concentrations ranging from 0.1mg/kg to 3.7mg/kg (TP02 at 0.5m).

Monohydric phenols were not detected in any of the four soil samples tested by the laboratory.

Recordable concentrations of PCBs were encountered in the sample recovered from TP04 at 0.2m only, with this specific sample recording a concentration of 0.028mg/kg.

Recordable concentrations of VOCs were not detected in any of the four samples scheduled for chemical analysis. With the exception of the recorded PAH compounds discussed above, the large majority of the SVOC compounds tested for were less than the respective analytical detection limits. The only exception was bis(2-ethylhexyl)phthalate, which was recorded at a concentration of 0.1mg/kg in TP04 at 0.2m.

6.0 GENERIC HUMAN HEALTH RISK ASSESSMENT

In order to provide an indication of whether the soils present beneath the study area could pose a risk to human health, CET subjected the aforementioned chemical data to a Generic Risk Assessment (GRA). The initial screen of the chemical data was made against available Soil Guideline Values (SGVs) and a series of Generic Assessment Criteria (GACs) developed by LQM/CIEH (2009) and by CET with the CLEA v1.06 model. Exceedences of assessment criteria may require further detailed/semi detailed quantitative risk assessment. Full details of the various model input parameters selected by CET, and the rationale behind their use, are available upon request.

For the purposes of this assessment the GACs for a 'residential end use with plant uptake' were considered to be the most applicable. In this instance the most sensitive potential receptor is judged to be a female child between the ages of 0 and 6. The vegetable uptake exposure pathway has also been considered. It should be noted that the selected assessment criteria will provide a conservative assessment of soils on the southern portion of the site that will be developed to a less sensitive 'commercial' end use.

A comparison of the recorded concentrations of metals with the corresponding GACs is presented in the following table:

Contaminant	Key statistics				GAC* (Residential with plant uptake)	
	Number of detects	Min. Value (mg/kg)	Max. Value (mg/kg)	Mean Value (mg/kg)	GAC (mg/kg)	No. Samples exceeding assessment criteria
Arsenic	9	13	37	18.2	32	1
Cadmium	6	0.1	0.6	0.3	10	0
Chromium III	9	20	28	23.2	3000	0
Chromium VI	1	-	1	-	4.3	0
Lead [#]	9	61	280	117.7	450	0
Mercury (inorganic)	1	-	2.1	-	10	0
Nickel	9	15	23	18.8	130	0
Copper	9	26	70	38.3	2330	0
Zinc	9	56	150	98.2	3750	0
<i>Notes to Table</i>						
*	<i>Most appropriate supplied GACs are based on a residential end use with plant uptake, a sandy loam soil type and an organic matter content of 6%.</i>					
#	<i>In the absence of revised guidance the now withdrawn SGV for lead has been adopted for reference purposes.</i>					

As the above table shows, the majority of the metals recorded by the analysis were less than the respective GACs. However, the arsenic concentration of 37mg/kg recorded in TP08 at 0.3m exceeded the respective GAC

of 32mg/kg and could therefore have the potential to pose a risk to human receptors via the direct contact, ingestion and dust inhalation exposure pathways. However, it should be noted that the recorded arsenic concentration was less than the respective GAC of 640mg/kg.

A summary of the PAH and SVOC compounds recorded by the analysis are included in the following table:

Contaminant	Key statistics				GAC* (Residential with plant uptake)	
	Number of detects	Min. Value (mg/kg)	Max. Value (mg/kg)	Mean Value (mg/kg)	GAC (mg/kg)	No. Samples exceeding assessment criteria
Acenaphthylene	2	0.1	0.3	0.2	170	0
Acenaphthene	1	-	0.2	-	210	0
Fluorene	1	-	0.1	-	160	0
Phenanthrene	5	0.1	5.6	1.4	92	0
Anthracene	3	0.1	1.6	0.6	2300	0
Fluoranthene	7	0.2	16	3.1	260	0
Pyrene	7	0.2	14	2.8	560	0
B(a)A	6	0.1	7.8	1.8	3.1	1
Chrysene	7	0.1	7.1	1.5	6	1
B(b)F	4	0.1	3.5	1.3	5.6	0
B(k)F	4	0.1	3.5	1.3	8.5	0
B(a)P	5	0.1	3.7	1.2	0.83	3
I(123-cd)P	3	0.5	1.9	1.0	3.2	0
D(ah)A	3	0.2	0.7	0.4	0.76	0
B(ghi)P	3	0.6	2.3	1.2	44	0
Bis(2-e)phthalate	1	-	0.1	-	280	0
<i>Notes to Table</i>						
*	<i>Most appropriate supplied GACs are based on a commercial end use, a sandy loam soil type and an organic matter content of 1%.</i>					

As the above table demonstrates, the majority of the PAH concentrations detected by the analysis were less than the corresponding generic screening criteria. However, elevated concentrations of benzo(a)pyrene, benzo(a)anthracene and chrysene in excess of the respective GACs were recorded by the analysis and could potentially pose a risk to human health. However, in all instances the recorded concentrations of PAHs did not exceed the respective GACs for a 'commercial' end use.

The sample recovered from TP04 at 0.2m recorded a total PCB concentration of 0.028mg/kg. As this concentration did not exceed its respective 0.39mg/kg it is not considered to have the potential to pose a significant risk to human health.

7.0 SUMMARY & RECOMMENDATIONS

It is proposed to redevelop the a site formerly occupied by a swimming pool and associated buildings to a mixed end use, comprising residential housing and healthcare and leisure facilities. In order to determine whether the soils beneath the study site could be significantly contaminated and pose a risk to human receptors CET were commissioned to undertake an intrusive ground investigation and generic risk assessment.

The ground investigation comprised eight shallow hand excavated trial pits, formed to depths of up to 1.2m below ground level (bgl), and three cable percussion boreholes, formed to 25m bgl. Made Ground, generally comprising clayey sandy gravel/sandy gravelly clay with extraneous fill materials including brick, concrete, flint, ceramic and rare ash/clinker and asphalt, was proved to a maximum depth of 1.7m bgl. This Made Ground was underlain by superficial deposits of Lynch Hill Gravel Member which was underlain by the London Clay Formation.

Nine samples of Made Ground were recovered from across the site and scheduled for a suite of determinands that was devised with reference to the preceding Phase I Preliminary Risk Assessment and on site observations.

In order to determine whether the soils beneath the study site could pose a significant risk to human receptors the results of the chemical analysis were compared to a series of Generic Assessment Criteria (GACs) that were selected to reflect the most sensitive proposed end use of the site of 'residential with plant uptake' of the study site. The large majority of the various organic and inorganic potential contaminants tested for were less than the respective GACs and were therefore not considered to pose a significant risk to human health. However, elevated concentrations of arsenic and the PAH compounds benzo(a)pyrene, benzo(a)anthracene and chrysene were recorded by the analysis and as such the shallow Made Ground soils across the site could have the potential to pose a significant risk to human health via the direct contact, ingestion and dust inhalation exposure pathways. In all instances the concentrations recorded by the analysis did not exceed the corresponding GACs for a 'commercial' end use.

When determining the severity of the risks posed to human health from the identified contamination it is important to consider the nature of the proposed development and the potential exposure pathways by which human receptors could be exposed to the identified ground contamination. Post development the southern half of the study site will comprise a health centre that will be surfaced entirely by buildings and hardcover, and as such future site users are unlikely to come into contact with contaminated soils via the aforementioned exposure pathways.

It is judged that the potential risks to human health are more pertinent on the northern portion of the site as, post development, this area will include private gardens and soft landscaped areas. In order to sever the identified exposure pathways it is considered that some form of remediation will be required. Based on the nature of the identified contamination it is considered that the most appropriate remediation technique is likely to be the excavation of shallow Made Ground soils and replacement with suitably 'clean' cover soils e.g. topsoil. Such works are likely to be required at the site, regardless of the presence of ground contamination, to provide a suitable growth medium for plants and maintain the amenity value of the site. The scope of any such remediation works would need to be formerly presented to the Local Authority in a Remediation Plan and subject to validation.

The PRA report identified the on site backfilled swimming pool as a potential sources of ground gases. Based on observations made during the site works, and the TOC concentrations recorded in the samples of Made Ground recovered from the location of the former swimming pool, it is judged that the backfill materials comprised site won demolition rubble with a negligible potential to generate ground gases.

Construction workers could be exposed to contaminated ground by the aforementioned exposure pathways, but based on the nature of the identified contamination it is considered that the use of personal protective equipment (PPE) and health and hygiene practices would effectively ameliorate the identified risks. Appropriate dust suppression measures should also be adopted to ensure that constructions workers and off site human receptors are not exposed to arsenic and PAH impacted dust generated during the construction processes.

Contemporary trade directory entries reviewed as part of the Phase 1 PRA identified that previous commercial activities at the site included rubber and plastic manufacturing. However, when considering that the site was also occupied by a swimming pool it was concluded that there was a low likelihood of large scale commercial/industrial being carried out at the site. As a precautionary measure, samples recovered from the site were tested for associated potential contaminants including VOCs, SVOCs, phenols and PCBs. Although the recorded concentrations of these contaminants were generally less than the respective analytical detection limits the sample recovered from TP04 at 0.2m did contain recordable, albeit very low, concentrations of bis(2-ethylhexyl)phthalate and total PCBs. The presence of bis(2-ethylhexyl)phthalate is potentially of significance as it is known to be used as a plasticiser in in PVC, and as such plastics products contain between 1% to 40% of bis(2-ethylhexyl)phthalate. Along with PCBs it is also used as a dielectric fluid in capacitors.

Notwithstanding the above, it should be noted that the recorded concentrations of bis(2-ethylhexyl)phthalate and PCBs were both less than the respective GACs, which considered a sensitive residential end use of the site. This consideration, coupled with the absence of significant visual or olfactory evidence of contamination

in TP04, suggests that the results obtained are not likely to be indicative of a significant pollution event on the eastern portion of the site. The source of the identified contamination is more likely to be inclusions of fill materials, in particular plastics, within the Made Ground. In order to support this hypothesis, and completely discount the risks posed to human health, it may be prudent to carry out a supplementary inspection of this portion of the site once it has been stripped to formation level.

Although a detailed controlled waters risk assessment is beyond the remit of this initial phase of investigation it should be noted that the results of the soil analysis recorded negligible concentrations of more mobile organic contaminants such as VOCs and SVOCs. It is therefore considered that the Made Ground soils encountered are unlikely to represent a source of contamination with the potential to significantly impact controlled water receptors. Furthermore, the environmental sensitivity of the site is deemed to be relatively low as the preceding Phase 1 PRA did not identify any sensitive receptors, such as potable abstractions or surface water bodies, in the immediate vicinity of the site.

FIGURES



INFRASTRUCTURE
Giving our all

Northdown House, Ashford Road, Harrietsham, Maidstone
Kent, ME17 1QW
Telephone: 01622 858545 Facsimile: 01622 858544

Yiewsley Health Centre, 35 Otterfield Road, West
Drayton

Lead No.
F14/146109

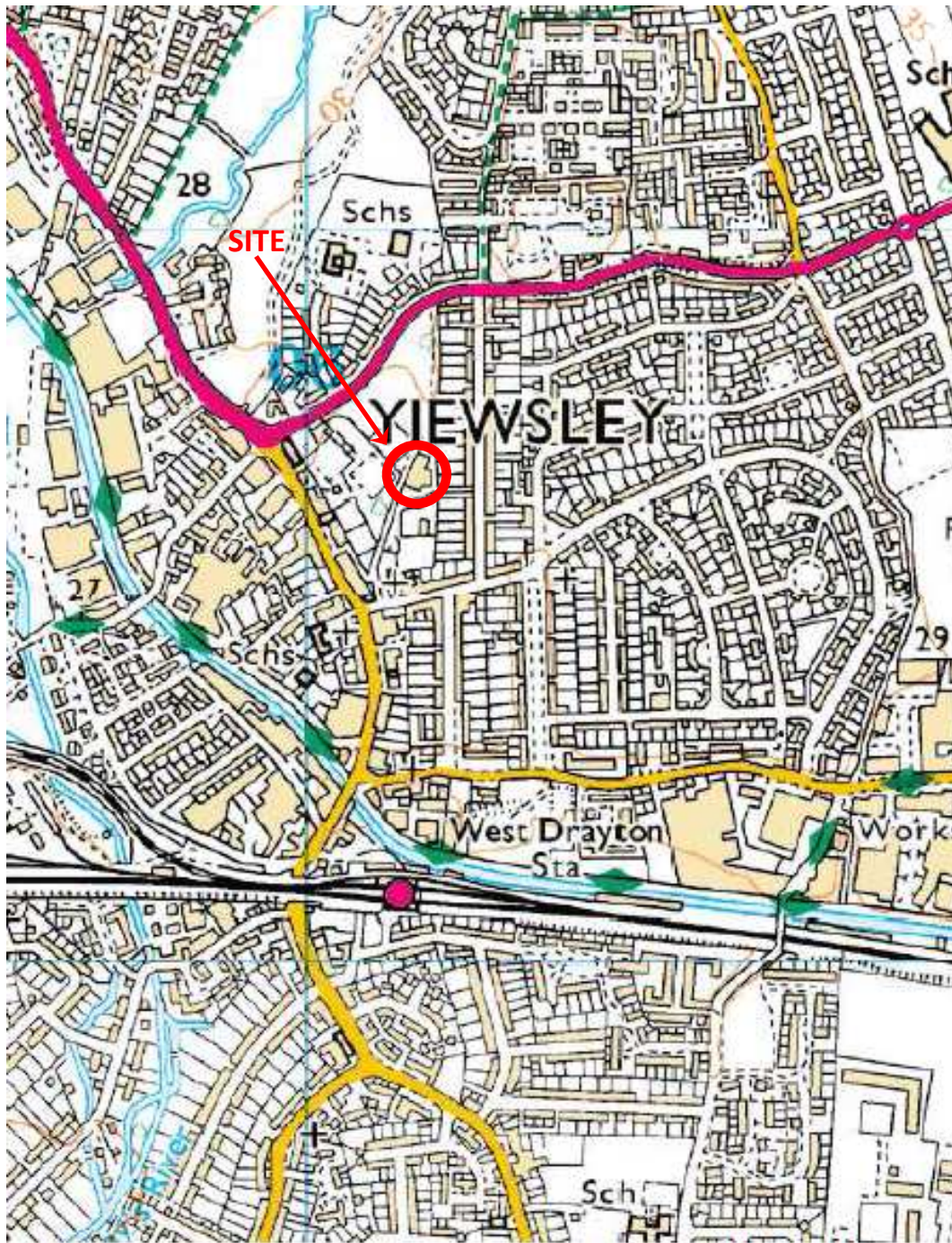
Sheet 1 of 1

Created By:
JAA

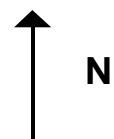
Checked:
[Signature]

Approved:
[Signature]

Date:
January 2014



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Site Location Plan

Scale: NTS

FIGURE 1



INFRASTRUCTURE
Giving our all

Northdown House, Ashford Road, Harrietsham, Maidstone
Kent, ME17 1QW
Telephone: 01622 858545 Facsimile: 01622 858544

Viewsley Health Centre, 35 Otterfield Road, West
Drayton

Lead No.
F13/146109

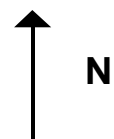
Sheet 1 of 1

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Approved:
[Signature]

Date:
January 2014



Approximate Exploratory Hole Location Plan

Scale: NTS

FIGURE 2

APPENDIX A

Exploratory Hole Logs




Client: Frankham Consultancy Group Ltd		Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH01 Sheet 1 of 3
Method: Cable Percussion		Casing Dia. (mm): 150 to 4.00m		
Date Started: 07/01/14	Co-ordinates E N	Ground Level (m AOD)	Ref. No: 146109	

Backfill/Well		Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata	Legend
Depth (m)	Legend	Depth (m)	Depth (m)	Type	Type	Results	Level (mAOD)	(m)		
			0.20	D					Brown, very clayey, fine to coarse sandy GRAVEL / sandy, gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse, flint, brick, and concrete. Locally slightly clayey, slightly sandy, gravelly COBBLES of sub-angular brick and concrete. (Made Ground)	
			0.50	D						
			0.70	D						
			0.70 - 1.20	B				(1.70)		
			1.20 - 1.70	B	C	N = 17				
			1.70	D				1.70	Dense, brown, black, white, slightly clayey, very fine to coarse sandy becoming sandy, GRAVEL of angular to rounded flint. (Lynch Hill Gravel)	
			2.00 - 2.50	B	C	N = 39				
			2.70	D				(1.60)		
			3.00 - 3.30	B	C	N = 14				
			3.30	D				3.30	Firm, grey and mottled brown, slightly coarse sandy, slightly gravelly CLAY. Gravel consists of sub-angular fine and medium flint. (Disturbed London Clay?)	
			3.80	D				(0.50)		
			4.00 - 4.45	U		U = 30				
			4.50	D					Firm becoming very stiff with depth, grey brown, becoming slightly fine sandy with depth, CLAY with occasional partings and dustings of light grey silt, occasional sub-rounded, medium gravel size siltstone and pyrite and rare fine and medium gravel size shell fragments. Rare becoming frequent at depth, fine and medium sand size selenite. (London Clay)	
			5.00 - 5.45	D	S	N = 11				
			6.00	D						
			6.50 - 6.95	U		U = 50				
			7.00	D						
			7.50	D						
			8.00 - 8.45	D	S	N = 23				
			9.00	D						
			9.50 - 9.95	U		U = 70				

Continued on next sheet




General Remarks:
1. No groundwater seepages noted during boring.




Driller:	DP	BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>	CET INFRASTRUCTURE Giving our all
Logged:	JAC		
Checked:		Yiewsley Health Centre	FIG A1
Appr'd:			




Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH01 Sheet 2 of 3					
Method: Cable Percussion				Casing Dia. (mm): 150 to 4.00m							
Date Started: 07/01/14		Co-ordinates E N		Ground Level (m AOD)				Ref. No: 146109			
Backfill/Well		Water		Samples		In Situ Tests		Reduced Level (mAOD)	Depth & (Thickness) (m)	Description of Strata	Legend
Depth (m)	Legend	Depth (m)	Depth (m)	Type	Type	Results					
			10.00	D						Firm becoming very stiff with depth, grey brown, becoming slightly fine sandy with depth, CLAY with occasional partings and dustings of light grey silt, occasional sub-rounded, medium gravel size siltstone and pyrite and rare fine and medium gravel size shell fragments. Rare becoming frequent at depth, fine and medium sand size selenite.	
			10.50	D							
			11.00 - 11.45	D	S	N = 29					
			12.00	D							
			12.50 - 12.95	U		U = 75					
			13.00	D							
			13.50	D							
			14.00 - 14.45	D	S	N = 38					
			15.00	D				(21.20)			
			15.50 - 15.95	U		U = 80					
			16.00	D							
			16.50	D							
			17.00 - 17.45	D	S	N = 47					
			18.00	D							
			18.50 - 18.95	U		U = 100					
			19.00	D							
			19.50	D							
<i>Continued on next sheet</i>											
General Remarks:											
Driller: DP		BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>				 CET INFRASTRUCTURE Giving our all		FIG A1			
Logged: JAC											
Checked: 		Yiewsley Health Centre									
Appr'd: 											




Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH01 Sheet 3 of 3					
Method: Cable Percussion				Casing Dia. (mm): 150 to 4.00m							
Date Started: 07/01/14		Co-ordinates E N		Ground Level (m AOD)	Ref. No: 146109						
Backfill/Well		Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata		Legend
Depth (m)	Legend	Depth (m)	Depth (m)	Type	Type	Results	Level (mAOD)	(m)			
-25.00			20.00 - 20.45	D	S	N = 50			Firm becoming very stiff with depth, grey brown, becoming slightly fine sandy with depth, CLAY with occasional partings and dustings of light grey silt, occasional sub-rounded, medium gravel size siltstone and pyrite and rare fine and medium gravel size shell fragments. Rare becoming frequent at depth, fine and medium sand size selenite.		
			21.00	D							
			21.50 - 21.95	U		U = 100					
			22.00	D							
			22.50	D							
			23.00 - 23.45	D	S	N = 50					
			24.00	D							
			24.50 - 24.95	U		U = 100					
-25.00		-25.00	D				25.00		End of Borehole at 25.00 m		
General Remarks:											
Driller: DP		BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>					CET INFRASTRUCTURE Giving our all		FIG A1		
Logged: JAC											
Checked:		Yiewsley Health Centre									
Appr'd:											




Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH02 Sheet 1 of 3			
Method: Cable Percussion				Casing Dia. (mm): 150 to 3.00m					
Date Started: 03/01/14		Co-ordinates E N		Ground Level (m AOD)				Ref. No: 146109	
Backfill/Well	Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata	Legend
Depth (m)	Legend	Depth (m)	Type	Type	Results	Level (mAOD)	(m)		
		0.20	D				(0.50)	Firm brown, slightly fine to coarse sandy, slightly gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse brick, ceramic, concrete, flint and rare clinker with rare sub-angular, cobble size brick and tile fragments. (Made Ground)	
		0.50	D				0.50 (0.30)		
		0.80	D				0.80	Dense, brown, white and black, slightly clayey, fine to coarse sandy GRAVEL of angular to rounded, fine to coarse flint and occasional brick. Rare coarse gravel size pockets/ lenses of brown, slightly sandy, slightly gravelly CLAY. (Made Ground)	
		0.80 - 1.20	B						
		0.80	D						
		0.80 - 1.20	B						
		1.20 - 1.70	B					Medium dense, brown, clayey, fine to coarse sandy GRAVEL of angular to rounded, fine to coarse flint with rare coarse gravel size pockets/ lenses of soft grey CLAY and rare sub-angular flint cobbles. (Lynch Hill Gravel)	
		1.70							
		2.00	D				(2.00)		
		2.00 - 2.50	B						
		2.00	D					Firm becoming very stiff with depth, grey CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and rare fine gravel size shell fragments. Rare becoming occasional at a depth of 16.5m, fine and medium sand size selenite. Thinly laminated siltstone recovered in SPT at 5 - 5.45m as light grey, slightly silty, fine to coarse SAND and GRAVEL of angular and sub-angular, fine and medium siltstone and rare fine gravel size shell with rare pocket/ lense of very stiff, grey clay. (London Clay)	
		2.00 - 2.50	B						
		2.80	B				2.80		
		3.00 - 3.45	U				U = 26		
		3.50	D					Firm becoming very stiff with depth, grey CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and rare fine gravel size shell fragments. Rare becoming occasional at a depth of 16.5m, fine and medium sand size selenite. Thinly laminated siltstone recovered in SPT at 5 - 5.45m as light grey, slightly silty, fine to coarse SAND and GRAVEL of angular and sub-angular, fine and medium siltstone and rare fine gravel size shell with rare pocket/ lense of very stiff, grey clay. (London Clay)	
		4.00 - 4.45	D				N = 10		
		4.50	D						
		5.00 - 5.45	U				U = 51		
		5.50	D					Firm becoming very stiff with depth, grey CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and rare fine gravel size shell fragments. Rare becoming occasional at a depth of 16.5m, fine and medium sand size selenite. Thinly laminated siltstone recovered in SPT at 5 - 5.45m as light grey, slightly silty, fine to coarse SAND and GRAVEL of angular and sub-angular, fine and medium siltstone and rare fine gravel size shell with rare pocket/ lense of very stiff, grey clay. (London Clay)	
		6.00	D						
		6.50 - 6.95	D				N = 19		
		7.50	D						
		8.00 - 8.45	U				U = 71	Firm becoming very stiff with depth, grey CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and rare fine gravel size shell fragments. Rare becoming occasional at a depth of 16.5m, fine and medium sand size selenite. Thinly laminated siltstone recovered in SPT at 5 - 5.45m as light grey, slightly silty, fine to coarse SAND and GRAVEL of angular and sub-angular, fine and medium siltstone and rare fine gravel size shell with rare pocket/ lense of very stiff, grey clay. (London Clay)	
		8.50	D						
		9.00	D						
		9.50 - 9.95	D				N = 25		
<i>Continued on next sheet</i>									
General Remarks: 1. Water encountered at 2.0m rising to 1.7 after 20 minutes. 2. Rare rootlets observed to 0.5m.									
Driller:	DP	BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>				CET INFRASTRUCTURE Giving our all			
Logged:	JAC								
Checked:		Yiewsley Health Centre				FIG A2			
Appr'd:									

Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH02 Sheet 2 of 3				
Method: Cable Percussion				Casing Dia. (mm): 150 to 3.00m						
Date Started: 03/01/14		Co-ordinates ^E N		Ground Level (m AOD)	Ref. No: 146109					
Backfill/Well	Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata	Legend	
Depth (m)	Legend	Depth (m)	Type	Type	Results	Level (mAOD)	(m)			
		10.50	D					Firm becoming very stiff with depth, grey CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and rare fine gravel size shell fragments. Rare becoming occasional at a depth of 16.5m, fine and medium sand size selenite. Thinly laminated siltstone recovered in SPT at 5 - 5.45m as light grey, slightly silty, fine to coarse SAND and GRAVEL of angular and sub-angular, fine and medium siltstone and rare fine gravel size shell with rare pocket/ lense of very stiff, grey clay.		
		11.00 - 11.45	U		U = 72					
		11.50	D							
		12.00	D							
		12.50 - 12.95	D	S	N = 31					
		13.50	D							
		14.00 - 14.45	U		U = 80		(22.20)			
		14.50	D							
		15.00	D							
		15.50 - 15.95	D	S	N = 49					
		16.50	D							
		17.00 - 17.45	U		U = 70					
		17.50	D							
		18.00	D							
				S	N = 50					
		19.50	D							
<i>Continued on next sheet</i>										
General Remarks:										
Driller:	DP	BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>				 INFRASTRUCTURE Giving our all				
Logged:	JAC									
Checked:		Yiewsley Health Centre				FIG A2				
Appr'd:										

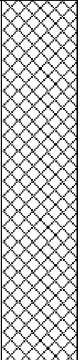
Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH02 Sheet 3 of 3			
Method: Cable Percussion				Casing Dia. (mm): 150 to 3.00m					
Date Started: 03/01/14		Co-ordinates ^E N		Ground Level (m AOD)	Ref. No: 146109				
Backfill/Well	Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata	Legend
Depth (m)	Legend	Depth (m)	Type	Type	Results	Level (mAOD)	(m)		
		20.00 - 20.45	U		U = 100			Firm becoming very stiff with depth, grey CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and rare fine gravel size shell fragments. Rare becoming occasional at a depth of 16.5m, fine and medium sand size selenite. Thinly laminated siltstone recovered in SPT at 5 - 5.45m as light grey, slightly silty, fine to coarse SAND and GRAVEL of angular and sub-angular, fine and medium siltstone and rare fine gravel size shell with rare pocket/ lense of very stiff, grey clay.	
		20.50	D						
		21.00	D						
		21.50 - 21.95	D	S	N = 50				
		22.50	D						
		23.00 - 23.45	U			U = 100			
		23.50	D						
		24.00	D						
		24.50 - 24.95	D	S	N = 50				
		25.00	D						
End of Borehole at 25.00 m									
General Remarks:									
Driller:	DP	BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>				 INFRASTRUCTURE Giving our all			
Logged:	JAC								
Checked:		Yiewsley Health Centre				FIG A2			
Appr'd:									

Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH03 Sheet 1 of 3				
Method: Cable Percussion				Casing Dia. (mm): 150 to 3.50m						
Date Started: 02/01/14		Co-ordinates E N		Ground Level (m AOD)				Ref. No: 146109		
Backfill/Well	Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata	Legend	
Depth (m)	Legend	Depth (m)	Type	Type	Results	Level (mAOD)	(m)			
		0.20	D					Firm, brown and orange brown, slightly fine to coarse sandy, slightly gravelly becoming gravelly CLAY, becoming very clayey, fine to coarse sandy GRAVEL at depth. Gravel consists of angular to well rounded, fine and medium, flint, brick, and occasional weathered chalk. Rare sub-rounded cobbles of flint and rare medium to coarse gravel size pocket/ lenses of soft grey clay. (Made Ground)		
		0.50	D							
		0.70	D					Dense, white, brown and black, slightly clayey, fine to coarse sandy GRAVEL of angular to rounded flint with occasional sub-angular cobble of flint. (Lynch Hill Gravel)		
		0.70 - 1.20	B				(1.70)			
		0.70	D							
		0.70 - 1.20	B							
		1.20 - 1.70	B	C	N = 37					
		1.60					1.70			
		1.80								
		2.00	D	C	N = 44					
		2.00 - 2.50	B				(1.60)			
		2.00 - 2.50	B							
		2.80	D					Firm becoming very stiff with depth, grey brown CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and pyrite and rare fine gravel size shell fragments. Rare becoming frequent at depth, fine and medium sand size selenite. (London Clay)		
		3.00 - 3.30	B	C	N = 15					
		3.30	D				3.30			
		3.80	D							
		4.00 - 4.45	U		U = 40					
		4.50	D							
		4.80	D							
		5.00 - 5.45	D	S	N = 13					
		6.00	D							
		6.50 - 6.95	U		U = 70					
		7.00	D					Continued on next sheet		
		7.50	D							
		8.00 - 8.45	D	S	N = 22					
		9.00	D							
		9.50 - 9.95	U		U = 61					
General Remarks: 1. Water encountered at 1.8m rising to 1.6 after 20min. 2. Rare rootlets observed to 0.2m.										
Driller:	DP	BOREHOLE RECORD Scale 1:50 See Key Sheet for explanation of symbols, etc.					 CET INFRASTRUCTURE Giving our all			
Logged:	JAC									
Checked:		Yiewsley Health Centre					FIG A3			
Appr'd:										

Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH03 Sheet 2 of 3						
Method: Cable Percussion				Casing Dia. (mm): 150 to 3.50m								
Date Started: 02/01/14		Co-ordinates E N		Ground Level (m AOD)	Ref. No: 146109							
Backfill/Well	Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata		Legend		
Depth (m)	Legend	Depth (m)	Type	Type	Results	Level (mAOD)	(m)					
		10.00	D					Firm becoming very stiff with depth, grey brown CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and pyrite and rare fine gravel size shell fragments. Rare becoming frequent at depth, fine and medium sand size selenite.				
		10.50	D									
		11.00 - 11.45	D	S	N = 26							
		12.00	D									
		12.50 - 12.95	U		U = 100							
		13.00	D									
		13.50	D									
		14.00 - 14.45	D	S	N = 31		(21.70)					
		15.00	D									
		15.50 - 15.95	U		U = 82							
		16.00	D									
		16.50	D									
		17.00 - 17.45	D	S	N = 34							
		18.00	D									
		18.50 - 18.95	U		U = 100							
		19.00	D									
		19.50	D									
<i>Continued on next sheet</i>												
General Remarks:												
Driller:	DP	BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>				 INFRASTRUCTURE Giving our all		FIG A3				
Logged:	JAC											
Checked:		Yiewsley Health Centre										
Appr'd:												

Client: Frankham Consultancy Group Ltd				Hole Diameter (mm): 150 to 25.00m		BOREHOLE NUMBER BH03 Sheet 3 of 3					
Method: Cable Percussion				Casing Dia. (mm): 150 to 3.50m							
Date Started: 02/01/14		Co-ordinates E N		Ground Level (m AOD)	Ref. No: 146109						
Backfill/Well	Water	Samples		In Situ Tests		Reduced	Depth & (Thickness)	Description of Strata		Legend	
Depth (m)	Legend	Depth (m)	Depth (m)	Type	Type	Results	Level (mAOD)				(m)
-25.00		25.00	20.00 - 20.45	D	S	N = 36			Firm becoming very stiff with depth, grey brown CLAY becoming slightly fine sandy with depth. With occasional partings and dustings of light grey silt, occasional angular to sub-rounded fine to medium gravel size siltstone and pyrite and rare fine gravel size shell fragments. Rare becoming frequent at depth, fine and medium sand size selenite.		
			21.00	D							
			21.50 - 21.95	U*		U = 100					
			21.50 - 22.00	B							
			21.50 - 21.95	U*							
			21.50 - 22.00	B							
			22.50	D							
			23.00 - 23.45	D	S		N = 38				
-25.00		25.00	24.00	D					End of Borehole at 25.00 m		
			24.50 - 24.95	U		U = 100					
			25.00	D							
General Remarks:											
Driller: DP		BOREHOLE RECORD Scale 1:50 <small>See Key Sheet for explanation of symbols, etc.</small>				 INFRASTRUCTURE Giving our all					
Logged: JAC											
Checked: 		Yiewsley Health Centre				FIG A3					
Appr'd: 											

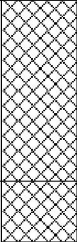
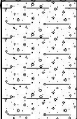
Client: Frankham Consultancy Group Ltd		Depth (m) 1.20	Plant used: Hand Tools	TRIAL PIT NUMBER TP01/BH01 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.40	T J V			(1.20)	Brown, very clayey, fine to coarse sandy GRAVEL / sandy, gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse, flint, brick, concrete and rare clinker. Locally slightly clayey, slightly sandy, gravelly COBBLES of sub-angular brick and concrete. (Made Ground)	
				1.20	End of Trial Pit at 1.20 m	

General Remarks:
1. Pit remained dry and stable whilst open.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A1
Appr'd:			

Client: Frankham Consultancy Group Ltd		Depth (m) 1.20	Plant used: Hand Tools	TRIAL PIT NUMBER TP02/BH02 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.50	T J V			(0.60)	Brown, slightly fine to coarse sandy, slightly gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse brick, ceramic, concrete, flint and rare clinker with rare sub-angular, cobble size brick and tile fragments. (Made Ground)	
				0.60 (0.20) 0.80 (0.40)	Brown, white and black, slightly clayey, fine to coarse sandy GRAVEL or angular to rounded, fine to coarse flint and occasional brick. Rare coarse gravel size pockets/ lenses of brown, slightly sandy, slightly gravelly CLAY. (Made Ground)	
				1.20	Brown, clayey, fine to coarse sandy GRAVEL of angular to rounded, fine to coarse flint with rare coarse gravel size pockets/ lenses of soft grey CLAY and rare sub-angular flint cobbles. (Lynch Hill Gravel) <i>End of Trial Pit at 1.20 m</i>	

General Remarks:
1. Pit remained dry and stable whilst open.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A2
Appr'd:			

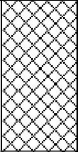
Client: Frankham Consultancy Group Ltd		Depth (m) 1.20	Plant used: Hand Tools	TRIAL PIT NUMBER TP03/BH03 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.40	T J V			(1.20)	Brown and orange brown, slightly fine to coarse sandy, slightly gravelly becoming gravelly CLAY, becoming very clayey, fine to coarse sandy GRAVEL at depth. Gravel consists of angular to well rounded, fine and medium, flint, brick, and occasional weathered chalk. Rare sub-rounded cobbles of flint and rare medium to coarse gravel size pocket/ lenses of soft grey clay. (Made Ground)	
				1.20	----- <i>End of Trial Pit at 1.20 m</i>	

General Remarks:
1. Pit remained dry and stable whilst open.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	CET INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A3
Appr'd:			

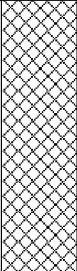
Client: Frankham Consultancy Group Ltd		Depth (m) 0.50	Plant used: Hand Tools	TRIAL PIT NUMBER TP04 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.20	T J V			(0.50)	Brown, sandy, slightly gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse, flint, brick, concrete, glass, ash and rare clinker. (Made Ground)	
				0.50		
<i>End of Trial Pit at 0.50 m</i>						

General Remarks:
 1. Pit remained dry and stable whilst open.
 2. Trial pit logged for environmental purposes only and not necessarily in accordance with BS 5930.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A4
Appr'd:			


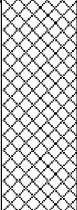
Client: Frankham Consultancy Group Ltd		Depth (m) 0.90	Plant used: Hand Tools	TRIAL PIT NUMBER TP05 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.50	T J V			(0.90) 0.90	Light brown, brown and red brown slightly sandy, slightly gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse, flint, brick and ash. (Made Ground)	
----- <i>End of Trial Pit at 0.90 m</i>						

General Remarks:
 1. Pit remained dry and stable whilst open.
 2. Trial pit logged for environmental purposes only and not necessarily in accordance with BS 5930.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A5
Appr'd:			

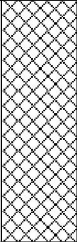
Client: Frankham Consultancy Group Ltd		Depth (m) 0.90	Plant used: Hand Tools	TRIAL PIT NUMBER TP06 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.10	T J V			(0.20)	Light brown, brown and red brown slightly sandy, slightly gravelly CLAY. Gravel consists of angular to sub-rounded, fine to coarse, flint, brick and ash. (Made Ground)	
0.40	T J V			0.20		
				(0.70)	Light brown/yellow, slightly gravelly CLAY. Gravel consists of sub-angular to rounded, fine to coarse, flint, brick and occasional ash. (Made Ground)	
				0.90	<i>End of Trial Pit at 0.90 m</i>	

General Remarks:
 1. Pit remained dry and stable whilst open.
 2. Trial pit logged for environmental purposes only and not necessarily in accordance with BS 5930.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A6
Appr'd:			

Client: Frankham Consultancy Group Ltd		Depth (m) 0.80	Plant used: Hand Tools	TRIAL PIT NUMBER TP07 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation : Hand Dug	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)		Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.60	T J V			(0.80) 0.80	Brown, slightly clayey, sandy GRAVEL of angular to sub-rounded brick, salt glazed pipe, concrete, ceramic, plastic, tile and occasional clinker and asphalt fragments. (Made Ground)	
End of Trial Pit at 0.80 m						

General Remarks:
1. Pit remained dry and stable whilst open.
2. Trial pit logged for environmental purposes only and not necessarily in accordance with BS 5930.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 INFRASTRUCTURE Giving our all
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A7
Appr'd:			

Client: Frankham Consultancy Group Ltd		Depth (m) 0.90	Plant used: Hand Tools	TRIAL PIT NUMBER TP08 Sheet 1 of 1
Width (m)	Length (m)	Method of Excavation :	Shoring: None	
Co-ordinates E N	Ground Level (mAOD)	Hand Dug	Date Started : 17/12/2013	

Samples/In Situ Tests			Change of Strata		Description of Strata	Legend
Depth (m)	Type	Test/Field Records	Reduced Level (mAOD)	Depth & Thickness (m)		
0.30	T J V			(0.90)	Brown, slightly fine to coarse sandy, slightly gravelly CLAY . Gravel consists of angular to sub-rounded, fine to coarse brick, ceramic, concrete, flint and rare clinker. (Made Ground)	
				0.90	<i>End of Trial Pit at 0.90 m</i>	

General Remarks:
 1. Pit remained dry and stable whilst open.
 2. Trial pit logged for environmental purposes only and not necessarily in accordance with BS 5930.

Ref:	146109	TRIAL PIT RECORD Scale 1:25 <small>Symbols and abbreviations in accordance with AGS</small>	 CET INFRASTRUCTURE <small>Giving our all</small>
Logged:	JAA		
Check'd:		Yiewsley Health Centre	FIG A8
Appr'd:			

APPENDIX B

Results of Laboratory Chemical Analysis



Scientific Analysis Laboratories Ltd

Certificate of Analysis

3 Crittall Drive
Springwood Industrial
Estate
Braintree
Essex
CM7 2RT
Tel : 01376 560120
Fax : 01376 552923

Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Report Number: 367860-1

Date of Report: 06-Jan-2014

Customer: CET Group Ltd
Northdown House
Harrietsham Maidstone Kent
ME17 1QW

Customer Contact: Mr James Appleby

Customer Job Reference: 146109

Customer Purchase Order: 493754/G2

Customer Site Reference: Otterfield Road, Yiewsley

Date Job Received at SAL: 19-Dec-2013

Date Analysis Started: 20-Dec-2013

Date Analysis Completed: 06-Jan-2014

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22



Report checked
and authorised by :
Miss Claire Brown
Customer Service Manager

Issued by :
Miss Claire Brown
Customer Service Manager

SAL Reference: 367860										
Project Site: Otterfield Road, Yiewsley										
Customer Reference: 146109										
Soil Miscellaneous										
Analysed as Soil										
SAL Reference					367860 001	367860 002	367860 003	367860 004	367860 005	
Customer Sample Reference					TP01 @ 0.40m - 129137	TP02 @ 0.50m - 129138	TP03 @ 0.40m - 129139	TP04 @ 0.20m - 129140	TP05 @ 0.50m - 129141	
Date Sampled					17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013
Determinand	Method	Test Sample	LOD	Units						
Arsenic	T257	A40	2.0	mg/kg	13	13	15	19	17	
Cadmium	T257	A40	0.1	mg/kg	0.3	0.2	<0.1	<0.1	0.1	
Chromium	T257	A40	0.5	mg/kg	20	20	22	27	23	
Copper	T257	A40	2	mg/kg	32	37	37	28	47	
Lead	T257	A40	2	mg/kg	91	120	90	76	160	
Mercury	T245	A40	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0	
Nickel	T257	A40	0.5	mg/kg	15	16	21	18	23	
Selenium	T257	A40	3	mg/kg	<3	<3	<3	<3	<3	
Zinc	T257	A40	2	mg/kg	99	120	56	77	67	
Asbestos ID	T27	A40			Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected	
Chromium VI	T6	A40	1	mg/kg	1	<1	<1	<1	<1	
Total Organic Carbon	T21	A40	0.1	%	0.9	1.3	0.6	-	1.0	
pH	T7	A40			10.8	10.7	8.8	-	8.1	
Phenols(Mono)	T221	AR	0.5	mg/kg	-	-	<0.5	<0.5	<0.5	
PCB (Total Tri-Hepta)	T1	AR	0.05	µg/kg	-	-	<0.05	28	<0.05	

SAL Reference: 367860										
Project Site: Otterfield Road, Yiewsley										
Customer Reference: 146109										
Soil Miscellaneous										
Analysed as Soil										
SAL Reference					367860 006	367860 007	367860 008	367860 009		
Customer Sample Reference					TP06 @ 0.10m - 129142	TP06 @ 0.40m - 129143	TP07 @ 0.60m - 129144	TP08 @ 0.30m - 129145		
Date Sampled					17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013		
Determinand	Method	Test Sample	LOD	Units						
Arsenic	T257	A40	2.0	mg/kg	18	17	15	37		
Cadmium	T257	A40	0.1	mg/kg	0.2	<0.1	0.3	0.6		
Chromium	T257	A40	0.5	mg/kg	23	24	28	22		
Copper	T257	A40	2	mg/kg	70	40	26	28		
Lead	T257	A40	2	mg/kg	280	93	61	88		
Mercury	T245	A40	1.0	mg/kg	2.1	<1.0	<1.0	<1.0		
Nickel	T257	A40	0.5	mg/kg	22	20	17	17		
Selenium	T257	A40	3	mg/kg	<3	<3	<3	<3		
Zinc	T257	A40	2	mg/kg	110	65	150	140		
Asbestos ID	T27	A40			Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected		
Chromium VI	T6	A40	1	mg/kg	<1	<1	<1	<1		
Total Organic Carbon	T21	A40	0.1	%	-	-	1.2	1.1		
pH	T7	A40			-	-	9.8	10.5		
Phenols(Mono)	T221	AR	0.5	mg/kg	-	<0.5	-	-		
PCB (Total Tri-Hepta)	T1	AR	0.05	µg/kg	-	<0.05	-	-		

SAL Reference: 367860
Project Site: Otterfield Road, Yiewsley
Customer Reference: 146109

Soil Analysed as Soil
Total and Speciated USEPA16 PAH (SE)

SAL Reference					367860 001	367860 002	367860 003	367860 004	367860 005
Customer Sample Reference					TP01 @ 0.40m - 129137	TP02 @ 0.50m - 129138	TP03 @ 0.40m - 129139	TP04 @ 0.20m - 129140	TP05 @ 0.50m - 129141
Date Sampled					17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013
Determinand	Method	Test Sample	LOD	Units					
Naphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg	0.1	0.3	<0.1	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	0.7	5.6	<0.1	<0.1	0.2
Anthracene	T16	AR	0.1	mg/kg	0.2	1.6	<0.1	<0.1	<0.1
Fluoranthene	T16	AR	0.1	mg/kg	2.5	16	<0.1	0.3	0.4
Pyrene	T16	AR	0.1	mg/kg	2.6	14	<0.1	0.3	0.4
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	1.6	7.8	<0.1	0.1	0.2
Chrysene	T16	AR	0.1	mg/kg	1.6	7.1	<0.1	0.2	0.2
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	0.8	3.5	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	0.9	3.5	<0.1	<0.1	0.1
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	0.9	3.7	<0.1	<0.1	0.1
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	0.6	1.9	<0.1	<0.1	<0.1
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	0.2	0.7	<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	0.7	2.3	<0.1	<0.1	<0.1
PAH(total)	T16	AR	0.1	mg/kg	13	68	<0.1	1.0	1.7

SAL Reference: 367860
Project Site: Otterfield Road, Yiewsley
Customer Reference: 146109

Soil Analysed as Soil
Total and Speciated USEPA16 PAH (SE)

SAL Reference					367860 006	367860 007	367860 008	367860 009
Customer Sample Reference					TP06 @ 0.10m - 129142	TP06 @ 0.40m - 129143	TP07 @ 0.60m - 129144	TP08 @ 0.30m - 129145
Date Sampled					17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013
Determinand	Method	Test Sample	LOD	Units				
Naphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	0.4
Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.1
Fluoranthene	T16	AR	0.1	mg/kg	0.4	<0.1	0.2	2.0
Pyrene	T16	AR	0.1	mg/kg	0.3	<0.1	0.2	2.0
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	0.2	<0.1	<0.1	1.0
Chrysene	T16	AR	0.1	mg/kg	0.2	<0.1	0.1	0.9
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	0.7
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.8
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	0.1	<0.1	<0.1	1.0
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.5
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.2
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	0.6
PAH(total)	T16	AR	0.1	mg/kg	1.5	<0.1	0.6	10

SAL Reference: 367860

Project Site: Otterfield Road, Yiewsley

Customer Reference: 146109

Soil
Analysed as Soil
Semi-Volatile Organic Compounds (USEPA 625) (SE)

SAL Reference					367860 003	367860 004	367860 005	367860 007
Customer Sample Reference					TP03 @ 0.40m - 129139	TP04 @ 0.20m - 129140	TP05 @ 0.50m - 129141	TP06 @ 0.40m - 129143
Date Sampled					17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013
Determinand	Method	Test Sample	LOD	Units				
1,2,4-Trichlorobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
1,2-Dichlorobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4,5-Trichlorophenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4,6-Trichlorophenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4-Dichlorophenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4-Dimethylphenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2,4-Dinitrotoluene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2,6-Dinitrotoluene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Chloronaphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Chlorophenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2-methyl phenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Nitroaniline	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
2-Nitrophenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
3-Nitroaniline	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
3/4-Methylphenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Bromophenyl phenylether	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chloro-3-methylphenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chloroaniline	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Chlorophenyl phenylether	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
4-Nitroaniline	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Azobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	<0.1	0.1	0.2	<0.1
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	<0.1	<0.1	0.1	<0.1
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg	<0.1	0.2	0.2	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Bis (2-chloroethoxy) methane	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Bis (2-chloroethyl) ether	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Bis (2-chloroisopropyl) ether	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Bis (2-ethylhexyl)phthalate	T16	AR	0.1	mg/kg	<0.1	0.1	<0.1	<0.1
Butyl benzylphthalate	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Carbazole	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	T16	AR	0.1	mg/kg	<0.1	0.2	0.2	<0.1
Di-n-butylphthalate	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Di-n-octylphthalate	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzofuran	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Diethyl phthalate	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethyl phthalate	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	T16	AR	0.1	mg/kg	<0.1	0.3	0.4	<0.1
Fluorene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Hexachlorobutadiene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Hexachlorocyclopentadiene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Hexachloroethane	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Isophorone	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Naphthalene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Nitrobenzene	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Pentachlorophenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg	<0.1	<0.1	0.2	<0.1
Phenol	T16	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	T16	AR	0.1	mg/kg	<0.1	0.3	0.4	<0.1

SAL Reference: 367860
 Project Site: Otterfield Road, Yiewsley
 Customer Reference: 146109

Soil
 VOC (SE) Analysed as Soil

SAL Reference					367860 003	367860 004	367860 005	367860 007
Customer Sample Reference					TP03 @ 0.40m - 129139	TP04 @ 0.20m - 129140	TP05 @ 0.50m - 129141	TP06 @ 0.40m - 129143
Date Sampled					17-DEC-2013	17-DEC-2013	17-DEC-2013	17-DEC-2013
Determinand	Method	Test Sample	LOD	Units				
1,1,1,2-Tetrachloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1,1-Trichloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1,2-Trichloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1,2-Trichloroethylene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1-Dichloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1-Dichloroethylene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,1-Dichloropropene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2,3-Trichlorobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2,3-Trichloropropane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2,4-Trichlorobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2,4-Trimethylbenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	T54	AR	10	µg/kg	<10	<10	<10	<10
1,2-dibromoethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2-Dichlorobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2-Dichloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,2-Dichloropropane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,3,5-Trimethylbenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,3-Dichlorobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
1,3-Dichloropropane	T54	AR	5	µg/kg	<5	<5	<5	<5
1,4-Dichlorobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
Ethyl-2-Methylbenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
2,2-Dichloropropane	T54	AR	5	µg/kg	<5	<5	<5	<5
2-Chlorotoluene	T54	AR	5	µg/kg	<5	<5	<5	<5
4-Chlorotoluene	T54	AR	5	µg/kg	<5	<5	<5	<5
Benzene	T54	AR	1	µg/kg	(13) <1	(13) <1	(13) <1	(13) <1
Bromobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
Bromochloromethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Bromodichloromethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Bromoform	T54	AR	5	µg/kg	<5	<5	<5	<5
Bromomethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Carbon tetrachloride	T54	AR	5	µg/kg	<5	<5	<5	<5
Chlorobenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
Chlorodibromomethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Chloroethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Chloroform	T54	AR	5	µg/kg	<5	<5	<5	<5
Chloromethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Cis-1,2-Dichloroethylene	T54	AR	5	µg/kg	<5	<5	<5	<5
Cis-1,3-Dichloropropene	T54	AR	5	µg/kg	<5	<5	<5	<5
Dibromomethane	T54	AR	5	µg/kg	<5	<5	<5	<5
Dichlorodifluoromethane	T54	AR	5	µg/kg	<5	<5	<5	<5
EthylBenzene	T54	AR	1	µg/kg	<1	<1	<1	<1
Hexachlorobutadiene	T54	AR	5	µg/kg	<5	<5	<5	<5
Isopropyl benzene	T54	AR	5	µg/kg	<5	<5	<5	<5
m/p ethyl toluene	T54	AR	5	µg/kg	<5	<5	<5	<5
M/P Xylene	T54	AR	1	µg/kg	<1	<1	<1	<1
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	<1	<1	<1	<1
n-Butylbenzene	T54	AR	10	µg/kg	<10	<10	<10	<10
n-Propylbenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
O Xylene	T54	AR	1	µg/kg	<1	<1	<1	<1
p-Isopropyltoluene	T54	AR	5	µg/kg	<5	<5	<5	<5
S-Butylbenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
Styrene	T54	AR	5	µg/kg	<5	<5	<5	<5
T-Butylbenzene	T54	AR	5	µg/kg	<5	<5	<5	<5
Tertiary amyl methyl ether	T54	AR	5	µg/kg	<5	<5	<5	<5
Tetrachloroethene	T54	AR	5	µg/kg	<5	<5	<5	<5
Toluene	T54	AR	1	µg/kg	<1	<1	<1	<1
Trans-1,2-Dichloroethene	T54	AR	5	µg/kg	<5	<5	<5	<5
Trans-1,3-Dichloropropene	T54	AR	5	µg/kg	<5	<5	<5	<5

SAL Reference: 367860									
Project Site: Otterfield Road, Yiewsley									
Customer Reference: 146109									
Soil			Analysed as Soil						
VOC (SE)									
SAL Reference			367860 003		367860 004		367860 005		367860 007
Customer Sample Reference			TP03 @ 0.40m - 129139		TP04 @ 0.20m - 129140		TP05 @ 0.50m - 129141		TP06 @ 0.40m - 129143
Date Sampled			17-DEC-2013		17-DEC-2013		17-DEC-2013		17-DEC-2013
Determinand	Method	Test Sample	LOD	Units					
Trichlorofluoromethane	T54	AR	5	µg/kg	<5	<5	<5	<5	<5
Vinyl chloride	T54	AR	5	µg/kg	<5	<5	<5	<5	<5

Index to symbols used in 367860-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
13	Results have been blank corrected.
W	Analysis was performed at another SAL laboratory
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Where an asbestos result of none detected is reported, this is obtained from analysis of a representative sub sample.

Method Index

Value	Description
T21	OX/IR
T54	GC/MS (Headspace)
T257	ICP/OES (SIM) (Aqua Regia Extraction)
T7	Probe
T221	Colorimetry (CE)
T245	ICP/OES(Aqua Regia Extraction)
T1	GC/MS (HR)
T16	GC/MS
T27	PLM
T6	ICP/OES

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T257	A40	2.0	mg/kg	U	001-009
Cadmium	T257	A40	0.1	mg/kg	U	001-009
Chromium	T257	A40	0.5	mg/kg	U	001-009
Copper	T257	A40	2	mg/kg	U	001-009
Lead	T257	A40	2	mg/kg	U	001-009
Mercury	T245	A40	1.0	mg/kg	U	001-009
Nickel	T257	A40	0.5	mg/kg	U	001-009
Selenium	T257	A40	3	mg/kg	U	001-009
Zinc	T257	A40	2	mg/kg	U	001-009
Asbestos ID	T27	A40			SU	001-009
Chromium VI	T6	A40	1	mg/kg	N	001-009
Total Organic Carbon	T21	A40	0.1	%	WN	001-003,005,008-009
pH	T7	A40			U	001-003,005,008-009
Phenols(Mono)	T221	AR	0.5	mg/kg	U	003-005,007
PCB (Total Tri-Hepta)	T1	AR	0.05	µg/kg	WU	003-005,007
1,2,4-Trichlorobenzene	T16	AR	0.1	mg/kg	U	003-005,007
1,2-Dichlorobenzene	T16	AR	0.1	mg/kg	U	003-005,007
1,3-Dichlorobenzene	T16	AR	0.1	mg/kg	U	003-005,007
1,4-Dichlorobenzene	T16	AR	0.1	mg/kg	U	003-005,007
2,4,5-Trichlorophenol	T16	AR	0.1	mg/kg	N	003-005,007

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
2,4,6-Trichlorophenol	T16	AR	0.1	mg/kg	N	003-005,007
2,4-Dichlorophenol	T16	AR	0.1	mg/kg	N	003-005,007
2,4-Dimethylphenol	T16	AR	0.1	mg/kg	N	003-005,007
2,4-Dinitrotoluene	T16	AR	0.1	mg/kg	U	003-005,007
2,6-Dinitrotoluene	T16	AR	0.1	mg/kg	U	003-005,007
2-Chloronaphthalene	T16	AR	0.1	mg/kg	U	003-005,007
2-Chlorophenol	T16	AR	0.1	mg/kg	U	003-005,007
2-methyl phenol	T16	AR	0.1	mg/kg	U	003-005,007
2-Methylnaphthalene	T16	AR	0.1	mg/kg	U	003-005,007
2-Nitroaniline	T16	AR	0.1	mg/kg	U	003-005,007
2-Nitrophenol	T16	AR	0.1	mg/kg	N	003-005,007
3-Nitroaniline	T16	AR	0.1	mg/kg	U	003-005,007
3/4-Methylphenol	T16	AR	0.1	mg/kg	U	003-005,007
4-Bromophenyl phenylether	T16	AR	0.1	mg/kg	U	003-005,007
4-Chloro-3-methylphenol	T16	AR	0.1	mg/kg	U	003-005,007
4-Chloroaniline	T16	AR	0.1	mg/kg	U	003-005,007
4-Chlorophenyl phenylether	T16	AR	0.1	mg/kg	U	003-005,007
4-Nitroaniline	T16	AR	0.1	mg/kg	U	003-005,007
Azobenzene	T16	AR	0.1	mg/kg	U	003-005,007
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg	U	003-005,007
Bis (2-chloroethoxy) methane	T16	AR	0.1	mg/kg	U	003-005,007
Bis (2-chloroethyl) ether	T16	AR	0.1	mg/kg	U	003-005,007
Bis (2-chloroisopropyl) ether	T16	AR	0.1	mg/kg	U	003-005,007
Bis (2-ethylhexyl)phthalate	T16	AR	0.1	mg/kg	N	003-005,007
Butyl benzylphthalate	T16	AR	0.1	mg/kg	N	003-005,007
Carbazole	T16	AR	0.1	mg/kg	U	003-005,007
Di-n-butylphthalate	T16	AR	0.1	mg/kg	U	003-005,007
Di-n-octylphthalate	T16	AR	0.1	mg/kg	U	003-005,007
Dibenzofuran	T16	AR	0.1	mg/kg	U	003-005,007
Diethyl phthalate	T16	AR	0.1	mg/kg	U	003-005,007
Dimethyl phthalate	T16	AR	0.1	mg/kg	U	003-005,007
Hexachlorobenzene	T16	AR	0.1	mg/kg	U	003-005,007
Hexachlorobutadiene	T16	AR	0.1	mg/kg	U	003-005,007
Hexachlorocyclopentadiene	T16	AR	0.1	mg/kg	N	003-005,007
Hexachloroethane	T16	AR	0.1	mg/kg	U	003-005,007
Isophorone	T16	AR	0.1	mg/kg	U	003-005,007
Nitrobenzene	T16	AR	0.1	mg/kg	U	003-005,007
Pentachlorophenol	T16	AR	0.1	mg/kg	N	003-005,007
Phenol	T16	AR	0.1	mg/kg	U	003-005,007
Naphthalene	T16	AR	0.1	mg/kg	U	001-009
Acenaphthylene	T16	AR	0.1	mg/kg	U	001-009
Acenaphthene	T16	AR	0.1	mg/kg	U	001-009
Fluorene	T16	AR	0.1	mg/kg	U	001-009
Phenanthrene	T16	AR	0.1	mg/kg	U	001-009
Anthracene	T16	AR	0.1	mg/kg	U	001-009
Fluoranthene	T16	AR	0.1	mg/kg	N	001-009
Pyrene	T16	AR	0.1	mg/kg	N	001-009
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	U	001-009
Chrysene	T16	AR	0.1	mg/kg	U	001-009
Benzo(b)fluoranthene	T16	AR	0.1	mg/kg	U	001-009
Benzo(k)fluoranthene	T16	AR	0.1	mg/kg	N	001-009
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	U	001-009
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	U	001-009
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	U	001-009
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	U	001-009
PAH(total)	T16	AR	0.1	mg/kg	U	001-009
1,1,1,2-Tetrachloroethane	T54	AR	5	µg/kg	U	003-005,007
1,1,1-Trichloroethane	T54	AR	5	µg/kg	U	003-005,007
1,1,2,2-Tetrachloroethane	T54	AR	5	µg/kg	U	003-005,007
1,1,2-Trichloroethane	T54	AR	5	µg/kg	U	003-005,007
1,1,2-Trichloroethylene	T54	AR	5	µg/kg	U	003-005,007
1,1-Dichloroethane	T54	AR	5	µg/kg	U	003-005,007
1,1-Dichloroethylene	T54	AR	5	µg/kg	U	003-005,007
1,1-Dichloropropene	T54	AR	5	µg/kg	U	003-005,007
1,2,3-Trichlorobenzene	T54	AR	5	µg/kg	U	003-005,007
1,2,3-Trichloropropane	T54	AR	5	µg/kg	U	003-005,007
1,2,4-Trichlorobenzene	T54	AR	5	µg/kg	U	003-005,007
1,2,4-Trimethylbenzene	T54	AR	5	µg/kg	U	003-005,007
1,2-Dibromo-3-Chloropropane	T54	AR	10	µg/kg	U	003-005,007
1,2-dibromoethane	T54	AR	5	µg/kg	U	003-005,007

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
1,2-Dichlorobenzene	T54	AR	5	µg/kg	U	003-005,007
1,2-Dichloroethane	T54	AR	5	µg/kg	U	003-005,007
1,2-Dichloropropane	T54	AR	5	µg/kg	U	003-005,007
1,3,5-Trimethylbenzene	T54	AR	5	µg/kg	U	003-005,007
1,3-Dichlorobenzene	T54	AR	5	µg/kg	U	003-005,007
1,3-Dichloropropane	T54	AR	5	µg/kg	U	003-005,007
1,4-Dichlorobenzene	T54	AR	5	µg/kg	U	003-005,007
Ethyl-2-Methylbenzene	T54	AR	5	µg/kg	U	003-005,007
2,2-Dichloropropane	T54	AR	5	µg/kg	U	003-005,007
2-Chlorotoluene	T54	AR	5	µg/kg	U	003-005,007
4-Chlorotoluene	T54	AR	5	µg/kg	U	003-005,007
Benzene	T54	AR	1	µg/kg	U	003-005,007
Bromobenzene	T54	AR	5	µg/kg	U	003-005,007
Bromochloromethane	T54	AR	5	µg/kg	U	003-005,007
Bromodichloromethane	T54	AR	5	µg/kg	U	003-005,007
Bromoform	T54	AR	5	µg/kg	U	003-005,007
Bromomethane	T54	AR	5	µg/kg	U	003-005,007
Carbon tetrachloride	T54	AR	5	µg/kg	U	003-005,007
Chlorobenzene	T54	AR	5	µg/kg	U	003-005,007
Chlorodibromomethane	T54	AR	5	µg/kg	U	003-005,007
Chloroethane	T54	AR	5	µg/kg	U	003-005,007
Chloroform	T54	AR	5	µg/kg	U	003-005,007
Chloromethane	T54	AR	5	µg/kg	N	003-005,007
Cis-1,2-Dichloroethylene	T54	AR	5	µg/kg	U	003-005,007
Cis-1,3-Dichloropropene	T54	AR	5	µg/kg	U	003-005,007
Dibromomethane	T54	AR	5	µg/kg	U	003-005,007
Dichlorodifluoromethane	T54	AR	5	µg/kg	N	003-005,007
EthylBenzene	T54	AR	1	µg/kg	U	003-005,007
Hexachlorobutadiene	T54	AR	5	µg/kg	U	003-005,007
Isopropyl benzene	T54	AR	5	µg/kg	U	003-005,007
m/p ethyl toluene	T54	AR	5	µg/kg	U	003-005,007
M/P Xylene	T54	AR	1	µg/kg	U	003-005,007
Methyl tert-Butyl Ether	T54	AR	1	µg/kg	U	003-005,007
n-Butylbenzene	T54	AR	10	µg/kg	U	003-005,007
n-Propylbenzene	T54	AR	5	µg/kg	U	003-005,007
O Xylene	T54	AR	1	µg/kg	U	003-005,007
p-Isopropyltoluene	T54	AR	5	µg/kg	U	003-005,007
S-Butylbenzene	T54	AR	5	µg/kg	U	003-005,007
Styrene	T54	AR	5	µg/kg	U	003-005,007
T-Butylbenzene	T54	AR	5	µg/kg	U	003-005,007
Tertiary amyl methyl ether	T54	AR	5	µg/kg	U	003-005,007
Tetrachloroethene	T54	AR	5	µg/kg	U	003-005,007
Toluene	T54	AR	1	µg/kg	U	003-005,007
Trans-1,2-Dichloroethene	T54	AR	5	µg/kg	U	003-005,007
Trans-1,3-Dichloropropene	T54	AR	5	µg/kg	U	003-005,007
Trichlorofluoromethane	T54	AR	5	µg/kg	U	003-005,007
Vinyl chloride	T54	AR	5	µg/kg	U	003-005,007

SAL