

18th October 2017

Your ref: Strat/DCr/801429

Our ref: GE15996/GR05.1/171018



Daniel Crawford
Miller Homes
Spinnaker House
Lime Tree Way
Hampshire International Business Park
Chineham
Basingstoke
Hampshire
RG24 8GG

Dear Daniel,

RE: Downend Road, Portchester

Further to your instruction, we write to present the findings of an initial intrusive investigation and geo-environmental assessment of the site. This letter combines the findings of letter reports ref. GE15996/GR03/170201 and GE15996/GR04/171003. The original assessment was undertaken for a larger study area and whilst investigation locations outside of the proposed application site have been retained, due to relevance to the assessment, this assessment which reflects the site area as identified in the updated Illustrative Masterplan, TOR Drawing ref. 2495-01/SK-013, Rev C, Oct 17.

Background

Miller Homes is proposing to prepare an outline planning application for submission in early 2017 in relation to an area of land located to the east of Downend Road on which it is proposed to construct a *“residential development, demolition of existing agricultural buildings and the construction of new buildings providing up to 350 dwellings; the creation of new vehicular access with footways and cycleways; provision of landscaped communal amenity space, including children’s play space; creation of public open space comprising approximately 7.5ha; together with associated highways, landscaping, drainage and utilities”*.

A Phase 1 Ground Condition Survey (Geo-Environmental Desk Study Report) was undertaken by Geo-Environmental (report ref. GE15996-DSR-NOV16, updated GE15996-DSR-OCT17v1.2 to reflect an updated Masterplan TOR Drawing 2495-01/SK-0.13 Rev C, Oct 17) which included a site walkover survey and desk study to determine the site’s historic uses and environmental setting. The desk study findings informed a Preliminary Risk Assessment (PRA) for the site on the context of the proposed development/use.

The findings presented within this letter supplement the Desk Study Report referred to above and aim to provide clarification with regards to recommendations set out in Section 4.2 of the Desk Study Report.

Site Description

The site comprised an irregularly shaped parcel of land which extended to c. 27.44Ha (total area assessed in the original study site) and was located at NGR 459960, 106340. A detailed site walkover survey was undertaken on the 8th November 2016 to inform the desk study.

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The site was occupied in the main by two large fields in the east, one in the south that, at the time of survey, was cropped stubble, one in the north which had recently been planted with a wheat crop. These fields sloped gently to the south, with undulations across both fields. In the southern field, the main morphological features were depression and undulations which formed a shallow valley type feature plunging in the slope direction. A series of other undulations were observed along the southern edge of the field. The main morphological feature in the northern field comprised a bowl-like depression at the eastern end of the field.

A raised bank, possibly plough divide, and sporadic hedgerow running approximately east to west were located along the boundary between the southern and northern fields.

Building and a yard area associated with Winnham Farm were located to the immediate west of the two main fields. The farm was made up of seven main buildings:

- A main barn in the east, including lean-to shelters housing fertilisers in bulk bags;
- A north central barn, containing a bunded tank;
- A central barn;
- Historic pig sties in the central southern area, used for storage of various old tanks, and general farm wares;
- Temporary wooden structure in the northwest;
- Hay barn in the west;
- Pig sties with runs in the south.

At the time of the walkover survey the central barn was sealed and inaccessible due to ongoing fumigation with phosphine. Considering the age and type of structures, it is possible that Asbestos Containing Materials (ACMs) could be present within the buildings fabric with the exception of the main barn. Most showed potential for asbestos containing roofing, sheeting and guttering. To the south of the farm, the remains of an orchard were evident, with a raised electrical substation beside the main access road. No evidence of oil leakage around the unit or at ground level was observed.

A car workshop was located in the central south of the site, with an acetylene gas tank and waste oil tank on concrete hardstanding.

The site was bounded to the south by a railway line located within a cutting (and which included an electricity substation); to the east by a crematorium, allotments and houses/properties; to the north by horse grazing and the M27; and to the west by commercial properties including a health club fronting on to Downend Road.

Ground and Groundwater Conditions

British Geological Survey (BGS) geological mapping indicated the geology underlying the central and southern portion of the site to comprise Head Deposits overlying Spetisbury Chalk Member, with Head Deposits overlying the Portsdown Chalk Formation on the northern portion of the site. In addition, given that some areas of the site have been developed it was considered likely that a mantle of Made Ground might be present.

The location of exploratory holes constructed as part of the initial intrusive investigation included the targeting of specific areas of the site as identified within the desk study report to provide clarification of the potential risks set out in the PRA.

The ground conditions encountered within the exploratory holes were broadly as anticipated from the published mapping and are summarised in Table 1.

Top (m bgl)	Base (m bgl)	Description
0	0.25 – 0.50	TOPSOIL: Dark brown silty gravelly cobbly CLAY
0	0.50	MADE GROUND: Concrete; brown silty clayey gravel with charcoal fragments [WS4 only]
0.25 – 0.50	0.85 – 3.0+	HEAD DEPOSITS: Firm reddish brown gravelly cobbly CLAY; orange red and brown clayey slightly gravelly SILT; medium to high strength orange-brown silty CLAY. [TP4 from 2.2m bgl Orange-brown very slightly clayey flint GRAVEL].
0.40 – 1.60	3.0+	CHALK: Light brown, white and off-white structureless CHALK composed of a silt and sand matrix with gravel to cobble size weak medium density clasts and some gravel to cobble sized flint. CIRIA Grade Dc, locally Grade Dm/Dc

Table 1 Summary of encountered ground conditions

Dynamic sampler WS3 was located in the north-western portion of the farmyard and in an area where fragments of potentially asbestos containing materials, e.g. corrugated sheeting and the like, were observed at the ground surface. Whilst asbestos was not identified from visual inspection of the soils recovered from this position, a sample of the near surface soil (logged as Topsoil) was submitted for asbestos identification as part of the analytical suite. The results are discussed in greater detail below.

For further information, reference should be made to the individual exploratory hole logs enclosed herein.

Groundwater was not encountered within any of the exploratory holes during the intrusive investigation and given the site's elevation and presence of a railway cutting immediately to the south of the site, shallow groundwater would not be expected under normal conditions.

Groundwater depths can fluctuate over time, e.g. due to seasonal effects and following heavy or prolonged rainfall. In addition, run-off and infiltrating rain water could become perched over low permeability soils. At the time of writing, groundwater monitoring is in ongoing, i.e. as part of the ground gas monitoring exercise.

Falling head permeability testing was undertaken within selected boreholes from which preliminary permeabilities of the order 10^{-6} m/s were estimated. The results of the soakage testing undertaken within the trial pits indicated infiltration rates of c. 10^{-5} m/s to 10^{-6} m/s, with the test in TP4 suggesting a much more rapid rate, i.e. the outflow from the pit was too fast to measure.

Ground Gas Monitoring

Ground gas monitoring was undertaken on five occasions over a two month period during which time two of the five rounds were undertaken during a period of low atmospheric pressure (<1000mb) as summarised below and cross-referenced to the nearest available weather monitoring station (St Catherine's Point on the Isle of Wight) as follows:

- 09/02/2017 – monitoring at the end of a period of rising atmospheric pressure
- 14/02/2017 – rising atmospheric pressure
- 23/02/2017 – low atmospheric pressure (<1000mb)
- 28/02/2017 – low atmospheric pressure (<1000mb) and rapidly falling (>10mb in the preceding 24hrs)
- 10/03/2017 – monitoring at the end of a period of rising atmospheric pressure

As such, the monitoring undertaken included targeting of climatic conditions recommended in best practice guidance, i.e. low and rapidly falling pressure.

The gas monitoring undertaken did not detect methane within any of the monitoring wells. Carbon dioxide and oxygen were detected in the ranges 0.0-2.1% v/v and 16.0-20.8% v/v respectively. VOCs were detected in the range 0.0-0.2ppm. Borehole flow rates were recorded in the range -3.0l/r to +0.1l/hr. All of the wells were dry during each monitoring visit.

The gas monitoring data have been assessed in accordance with BS8485, CIRIA and NHBC guidance from which the site's gassing regime is considered to be representative of Characteristic Situation 1/Green.

On the basis of the monitoring undertaken and that surrounding land uses remain unchanged, it is considered that no ground gas protection measures would be required for the proposed residential development on this site.

Soil Contamination Assessment

Soil samples were recovered from the dynamic sampler boreholes and also from the trial pits constructed as part of this phase of the site assessment. On the basis of the desk study and observed site conditions, analysis comprised a generic brownfield suite augmented with pesticide analysis on selected samples.

Soil samples were collected and placed into amber jars and cool boxes on site for transit to the office, where they were stored under chilled conditions (<4°C) prior to final transportation in cool boxes to the laboratory by their in-house courier. Contamination testing of soil samples was also undertaken in accordance with UKAS and MCERTs accredited protocols. Samples were stored in temperature controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with laboratory's protocols.

The analytical results have been assessed individually against Tier 1 screening criteria (T1SC) derived from the LQM CIEH Suitable for Use Levels (S4ULs), with lead assessed against the Category 4 Screening Level (C4SL) published by DEFRA. The site has been assessed in the context of a residential end use with private gardens (including plant uptake), i.e. the proposed end-use.

Given that the initial investigation and thus sample selection was based at least in part on targeting potential contamination sources, the analytical results have been assessed individually.

End users

No exceedances against the respective T1SC were identified in any of the samples analysed. In addition, pesticide analysis did not identify any concentrations above the respective limit of detection.

However, chrysotile (white asbestos) was identified within the sample of Topsoil from WS3 at 0.3m bgl, i.e. the area of farm yard where suspected ACM was observed at ground surface.

On the basis of the initial testing undertaken, it is considered that no remedial action would be required to protect end users of the proposed development with the exception of the farmyard area around WS3, where it is considered that a localised soil strip/reduced dig exercise would be required, with the excavated soils removed from site presumably as Hazardous Waste due to the presence of chrysotile. Prior to any such reduced dig exercise being undertaken it is recommended that further investigation is undertaken on a grid basis across this portion of the site with samples submitted to a laboratory for asbestos identification and quantification. The results of such an investigation would be used to confirm the lateral and vertical extent of any reduced dig. Verification of these works would also be required. However, given that suspected ACM was observed at ground surface, it would be prudent to undertake the further investigation after the removal of ACM from the buildings and ground surface.

The presence of asbestos within buildings/building fabric should be assumed unless/until proven absent.

Soft landscaping

In addition to the assessment of soils in the context of human health risk, the analytical results have also been considered in the context of general suitability in terms of risk of harm to plant life. Thus, analytical results have been assessed against criteria as set out in British Standard BS3882:2015 *Specification for topsoil and requirements for use*. No concentrations of concern were identified in relation to potentially phytotoxic contaminants. With regards to nutrient content, the results mostly closely conformed to calcareous or low fertility calcareous Topsoil but some rebalancing of nutrients could be required if strict compliance with BS3882:2015 was required. The soils grading was assessed to be a 'sandy silt loam'. Some screening of existing Topsoil may be required to remove flint gravel and cobble in excess of 50mm size.

Groundwater

The initial investigation has not encountered any gross or potentially mobile contamination which could pose a risk to groundwater. In addition, groundwater is anticipated to be present at depth and migration through layered strata and an upper zone of highly weathered Chalk is considered unlikely.

Update Risk Assessment

On the basis of the results of the initial investigation the PRA as presented in the Desk Study Report, the PRA has been revised as summarised in Table 2 below.



Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
Contaminants of Concern (Made Ground and Shallow Soils)	End users	Direct contact	<i>Farmyard and garage complex</i>		
			Likely	Medium	Moderate Apparently localised presence of asbestos has been identified within soils in the north-western portion of the farmyard. Remedial action, e.g. excavation and disposal, would be required to protect end users, following which the risk would reduce to very low.
			<i>Former quarry/worked ground</i>		
			Unlikely	Minor	Very Low Made Ground has not been encountered within the soils in proximity to areas of potentially worked ground on the site.
			<i>Remainder of the Site</i>		
			Unlikely	Minor	Very Low End users could come into contact with soils via direct contact as the development will include soft landscaping, however no concentrations of concern have been identified.
	Soft Landscaping	Root Uptake	<i>Farmyard and garage complex</i>		
			Likely	Mild	Moderate to Low The proposed development is likely to include areas of private gardens. No hazards to plant life have been identified.
			<i>Former quarry/worked ground</i>		
			Likely	Mild	Moderate to Low The proposed development is likely to include areas of private gardens.
	Adjacent land users	Direct or indirect contact	<i>Remainder of the Site</i>		
			Unlikely	Minor	Very Low No hazards to plant life have been identified. Some nutrient balancing and possible screening of soils to remove stones >50mm in size may be required.
	Water supply pipes	Direct contact	Unlikely	Mild	Very Low Adjacent site users are unlikely to come into contact with soils and no concentrations of concern have been identified.
			<i>Farmyard, garage complex and former quarry/worked ground</i>		
			Unlikely	Mild	Very Low No concentrations of concern have been identified.

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
			<i>Remainder of the site</i>		
			Unlikely	Mild	Very Low The majority of the site is undeveloped fields, as such the likelihood of pipes coming into contact with impacted soils is negligible. No concentrations of concern have been identified.
	Buildings and infrastructure	Direct contact	Unlikely	Mild	Very Low Foundations and utilities will be placed within potentially aggressive soils (e.g. sulphate). No concentrations of concern have been identified (BRE design class DS1 conditions indicated from test results).
	Groundwater	Vertical migration	<i>Farmyard, garage complex and former quarry/worked ground</i>		
			Unlikely	Medium	Low No evidence of gross/mobile contamination or concentrations of concern has been identified. Shallow groundwater (<5m bgl) is unlikely to be present. In addition, the presence of a railway cutting to the south and the M27 cutting to the north are indicative that groundwater would not be present at shallow depth and thus any localised soil impact, if present, is unlikely to impact groundwater due to natural processes such as sorption, dilution and natural attenuation.
			<i>Remainder of the site</i>		
			Unlikely	Mild	Very Low No evidence of gross/mobile contamination or concentrations of concern has been identified.
Current and historic land use	End users	Direct contact	<i>Farmyard and garage complex</i>		
			Likely	Medium	Moderate Apparently localised presence of asbestos has been identified within soils in the north-western portion of the farmyard. Remedial action, e.g. excavation and disposal, would be required to protect end users, following which the risk would reduce to very low.
			<i>Remainder of the site</i>		
			Low likelihood	Minor	Very Low End users could come into contact with soils via direct contact as the development will include soft landscaping, however no concentrations of concern have been identified.
	Soft Landscaping	Root Uptake	<i>Farmyard, garage complex and former quarry/worked ground</i>		
			Likely	Mild	Moderate to Low The proposed development is likely to include areas of private gardens. No hazards to plant life have been identified.

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
			<i>Remainder of the site</i>		
			Unlikely	Mild	Very Low End users are likely to come into contact with soils via direct contact as the development will include soft landscaping and garden areas, however no concentrations of concern have been identified to date.
	Adjacent land users	Direct or indirect contact	Unlikely	Mild	Very Low Adjacent site users are unlikely to come into contact with soils. No concentrations of concern have been identified to date.
	Water supply pipes	Direct contact	<i>Farmyard, garage complex and former quarry/worked ground</i>		
			Unlikely	Mild	Very Low No concentrations of concern have been identified.
			<i>Remainder of the site</i>		
			Unlikely	Mild	Very Low No concentrations of concern have been identified.
	Buildings and infrastructure	Direct contact	<i>Farmyard, garage complex and former quarry/worked ground</i>		
			Unlikely	Mild	Very Low Foundations and utilities will be placed within potentially aggressive soils (e.g. sulphate). No concentrations of concern have been identified (BRE design class DS1 conditions indicated from test results).
			<i>Remainder of the site</i>		
			Unlikely	Mild	Very Low Foundations and utilities will be placed within potentially aggressive soils (e.g. sulphate). No concentrations of concern have been identified (BRE design class DS1 conditions indicated from test results).
	Groundwater	Vertical migration	<i>Farmyard, garage complex and former quarry/worked ground</i>		

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
			Unlikely	Medium	Low No evidence of gross/mobile contamination or concentrations of concern has been identified. Shallow groundwater (<5m bgl) is unlikely to be present. In addition, the presence of a railway cutting to the south and the M27 cutting to the north are indicative that groundwater would not be present at shallow depth and thus any localised soil impact, if present, is unlikely to impact groundwater due to natural processes such as sorption, dilution and natural attenuation.
			<i>Remainder of the site</i>		
			Unlikely	Mild	Very Low No evidence of gross/mobile contamination or concentrations of concern has been identified.
Ground Gases and Vapours	End users	Inhalation	<i>Farmyard, garage complex and former quarry/worked ground</i>		
			Unlikely	-	Ground gas monitoring has not identified any gas concentrations of hazardous gas flows of concern and thus no specific risk linkage has been established. On the basis of monitoring to date, no risk mitigation is required.
			<i>Remainder of the site</i>		
	Soft Landscaping	Root Uptake	Unlikely	-	Ground gas monitoring has not identified any gas concentrations of hazardous gas flows of concern and thus no specific risk linkage has been established. On the basis of monitoring to date, no risk mitigation is required.
			Unlikely	-	Ground gas monitoring has not identified any gas concentrations of hazardous gas flows of concern and thus no specific risk linkage has been established. On the basis of monitoring to date, no risk mitigation is required.
			Unlikely	-	Ground gas monitoring has not identified any gas concentrations of hazardous gas flows of concern and thus no specific risk linkage has been established. On the basis of monitoring to date, no risk mitigation is required.
Off-site sources	End users	Groundwater flow	Unlikely	Minor	Very Low End users are unlikely to come into contact with impacted groundwater.

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
	End users	Ground gas inhalation	Unlikely	-	<p>Potentially filled land has been identified adjacent to the site (to the west and north-west). Depending on the materials deposited and date of deposition, they could represent a potential source of ground gas and thus represent a plausible risk to the site and end users.</p> <p>Former quarries to the south of the railway line have been developed for housing and topography suggests that mass filling did not occur prior to redevelopment. These are also separated from the site by a railway cutting and thus migration is not considered plausible. Quarrying occurred to the north of the site but was separated from the site by the M27 located in a deep cutting which would intercept any migrating gas and vent to atmosphere. As such any quarry of filled ground to the north of the M27 cutting is not considered to represent a plausible risk of harm to the subject site.</p> <p>Monitoring undertaken to date has not identified any gas concentrations or hazardous gas flows of concern and thus in the absence of a gas source no specific risk linkages have been identified and risk mitigation is not warranted.</p>
	Groundwater	Groundwater flow	Unlikely	Minor	<p>Very Low</p> <p>Gross impact to groundwater from off-site sources is plausible. However, the proposed development would not be anticipated to intercept or otherwise affect groundwater flow.</p>

Table 2 Updated Risk Assessment



The review of the PRA following the initial intrusive investigation has resulted in the downgrading of several potential pollutant linkages. The two main potential pollutant linkage groups which have been reviewed but not downgraded relate to the asbestos impacted soil in WS3 (presumed to cover at least the immediate vicinity of farmyard) and ground gas.

With regards to the asbestos impacted soil, further investigation, delineation and removal would serve to mitigate the risk to end users and this is noted in the relevant sections of Table 2.

Risk ratings could not be derived for ground gas scenarios. This is due to monitoring to date not having identified any gas concentrations or hazardous gas flows of concern and thus in the absence of any specific source, there is no pollutant linkage.

Further intrusive investigation, testing and assessment is likely to be required in due course in order to support design and detailed planning. This should include a more detailed investigation of the farm yard complex, but as noted above some investigation in the farmyard complex may need to be undertaken following demolition and clearance.

Closure

We trust we have provided sufficient information for your current requirements. Should you have any queries please do not hesitate to contact us.

Yours sincerely
For and on Behalf of Geo-Environmental



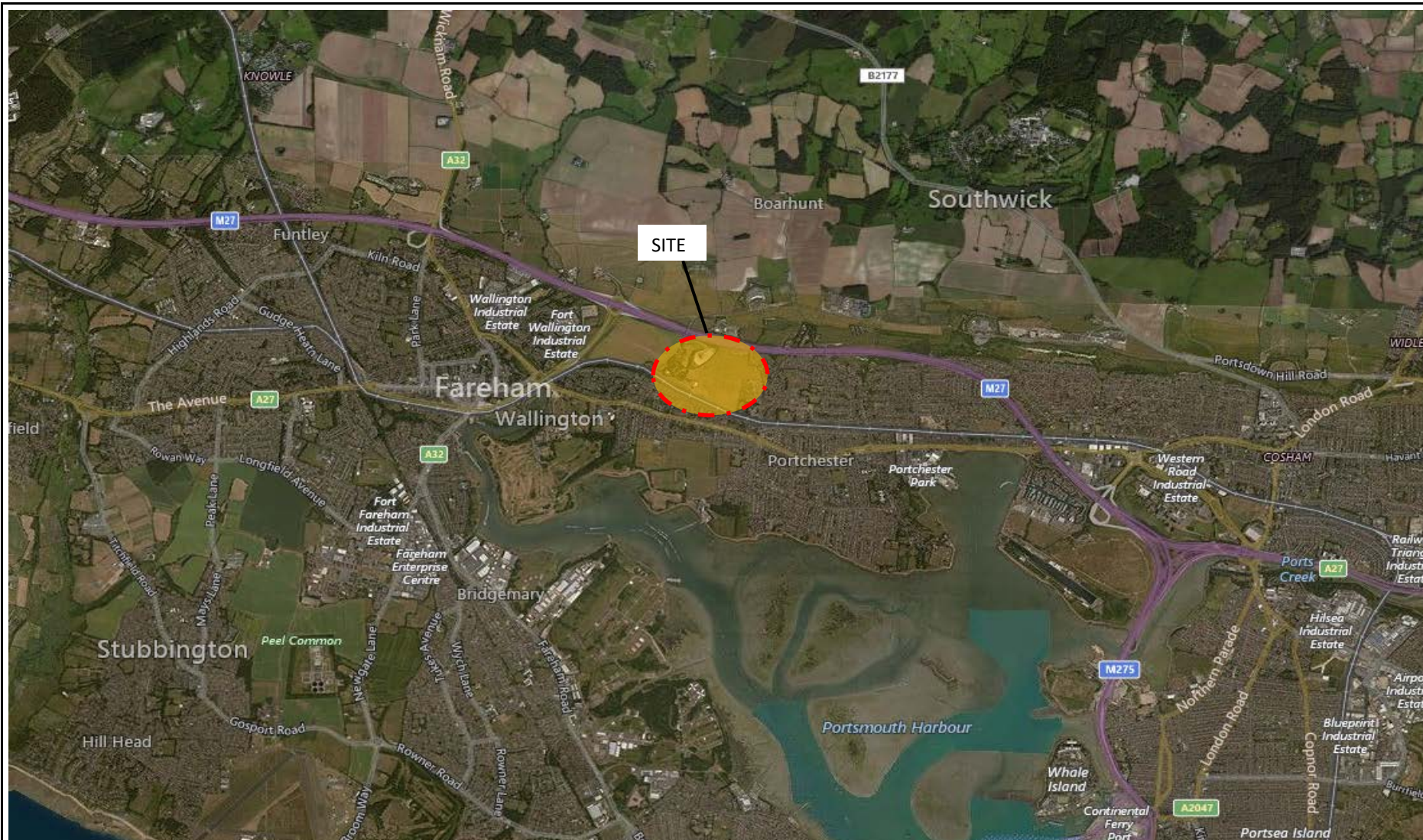
GAVIN ROBERTS CGeol, BEng (Hons), MSc, FGS

Technical Director


gavin.roberts@gesl.net

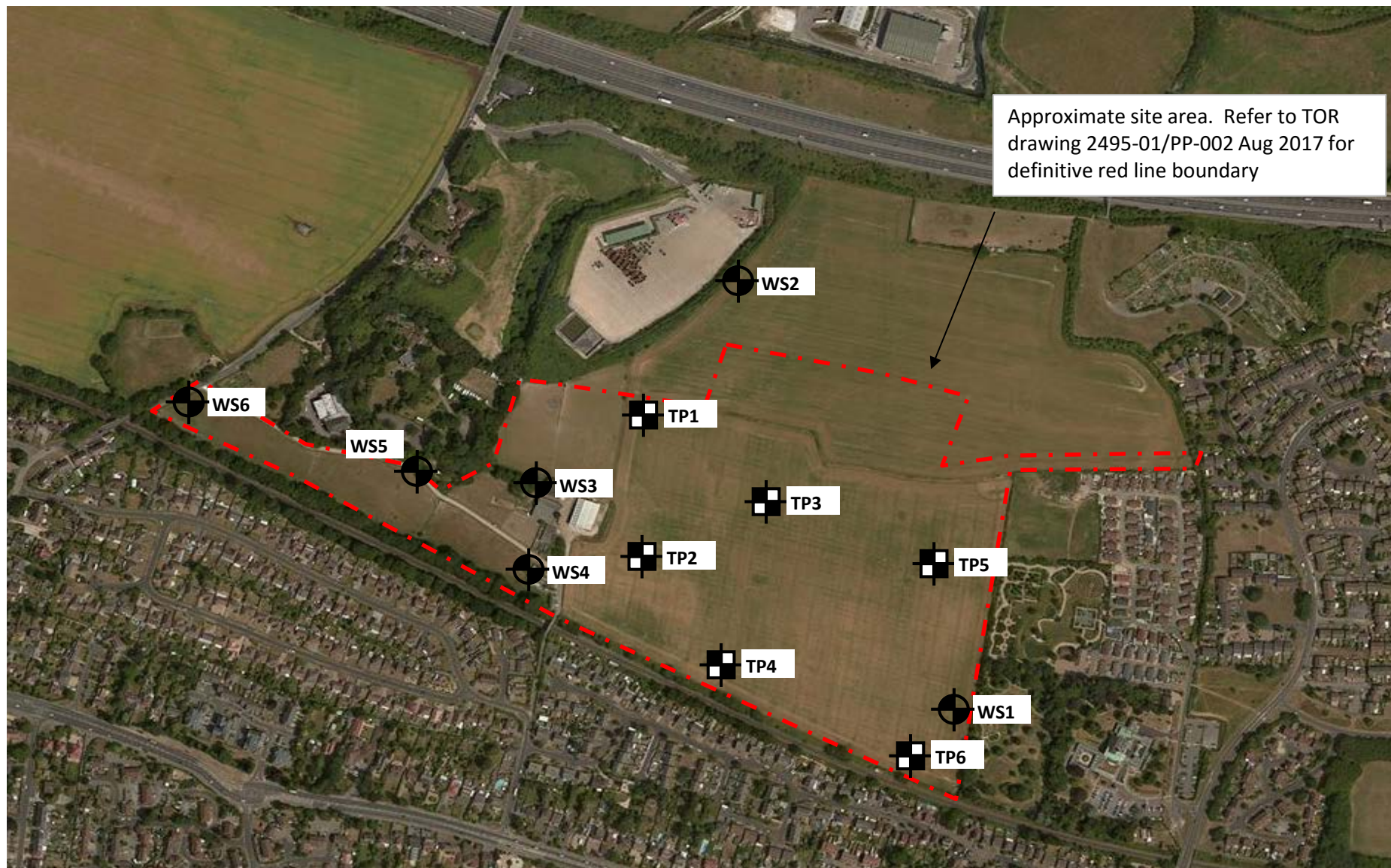
Enc Figure 1 Site Location Plan
 Figure 2 Exploratory Hole Location Plan
 Exploratory Hole Logs
 Analytical Results (AR 16-10012)
 Gas assessment sheet






Refer to TOR drawing 2495-01/PP-002 Aug 2017 for definitive red line boundary

Project:	Land off Downend Road, Portchester PO16 8PX			Title	Site Location Plan	
Client:	Miller Homes			Geo-Environmental Services Ltd Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL +44(0)1273 832972 www.gesl.net	 Geo-Environmental	
Ref No:	GE15996	Revision:	1.1			
Drawn:	VB/GR	Date:	11/10/2017			
Figure:	1	Scale:	Not To Scale			



Project:	Land off Downend Road, Portchester PO16 8PX			Title	Exploratory Hole Location Plan	
Client:	Miller Homes			<div><div><div>Geo-Environmental Services Ltd</div><div>Unit 7 Danworth Farm, Cuckfield Road</div><div>Hurstpierpoint, West Sussex BN6 9GL</div><div>+44(0)1273 832972 www.gesl.net</div></div><div><div>Geo-Environmental</div></div></div>		
Ref No:	GE15996	Revision:	1.1			
Drawn:	GR	Date:	11/10/2017			
Figure:	2	Scale:	Not To Scale			





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP1

Sheet 1 of 1

Project Name: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460199.43 - 106388.88
Level:

Date
13/12/2016

Location: Downend Road, Portchester

Dimensions (m): 2.36

Depth
3.00

0.60



Scale
1:25

Logged
VB

Client: Miller Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.26 0.26	D ES		0.40			Dark brown clayey gravelly cobbly SILT. Gravel and cobbles consist of subangular flint.	
				0.75			Light brown and off-white structureless CHALK composed of a silt and sand matrix with gravel and cobble size weak low to medium density clasts and some gravel sized flint. CIRIA Grade Dc.	1
	1.55 1.55	D ES					White and off-white structureless CHALK composed of a silt and sand matrix with gravel to cobble size weak medium density clasts and some gravel and cobble sized flint. CIRIA Grade Dc.	2
				3.00			End of Pit at 3.00m	3
								4
								5

Remarks None encountered

Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP2

Sheet 1 of 1

Project Name: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460189.58 - 106221.54
Level:

Date
13/12/2016

Location: Downend Road, Portchester

Dimensions (m): 2.50

Depth
3.00

0.60

Scale
1:25

Logged
VB

Client: Miller Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.25 0.25	D ES		0.30			Dark brown clayey gravelly cobbly SILT. Gravel and cobbles consist of subangular flint.	
	0.68 0.68	D ES		0.80			Orange gravelly cobbly CLAY. Gravel and cobbles of subangular flint.	
	1.46 1.46	D ES					Firm orange-brown and reddish brown clayey slightly gravelly SILT. Gravel is fine to medium subangular flint.	1
								2
				3.00			End of Pit at 3.00m	3
								4
								5

Remarks None encountered

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: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460301.58 - 106281.29
Level:

Date
13/12/2016

Location: Downend Road, Portchester

Dimensions (m): 2.37

Depth
3.00

0.60

Scale
1:25

Logged
VB

Client: Miller Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.25 0.25	D ES		0.25			Dark brown clayey gravelly cobbly SILT. Gravel and cobbles consist of subangular flint.	
	0.67 0.67	D ES		0.85			Orange-brown gravelly cobbly CLAY. Gravel and cobble is subangular flint.	
	1.06 1.06	D ES		1.60			Light brown and off-white structureless CHALK composed of a silt and sand matrix with gravel size weak low to medium density clasts and some gravel and cobble sized flint. CIRIA Grade Dc.	1
	2.80 2.80	D ES		3.00			White and off-white structureless CHALK composed of a silt and sand matrix with gravel to cobble size weak medium density clasts and some gravel to cobble sized flint. CIRIA Grade Dc.	2
							End of Pit at 3.00m	3
								4
								5
Water Struck		Remarks		None encountered				
Depth Struck		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: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460255.03 - 106126.47
Level:

Date
13/12/2016

Location: Downend Road, Portchester

Dimensions (m): 2.40

Depth
3.00

0.60

Scale
1:25

Logged
VB

Client: Miller Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.33 0.33	D ES		0.35			Greyish brown gravelly clayey SILT. Gravel is subangular flint.	
	0.67	D					Firm orange-brown gravelly cobbly CLAY. Gravel and cobble is subangular flint.	1
	1.20 1.20	D ES		1.10			Firm to stiff orange-brown silty CLAY.	
	2.40 2.40	D ES		2.20			Orange-brown very slightly clayey GRAVEL. Gravel is fine to medium subangular to sub-rounded flint.	2
				3.00			End of Pit at 3.00m	3
								4
								5

Remarks None encountered

Stability





Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

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Trial Pit Log

Trial Pit No

TP5

Sheet 1 of 1

Project Name: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460478.59 - 106180.29
Level:

Date
13/12/2016

Location: Downend Road, Portchester

Dimensions (m): 2.20
Depth 3.10

Scale
1:25

Logged
VB

Client: Miller Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.25 0.25	D ES		0.50			Dark brown clayey gravelly cobbly SILT. Gravel and cobbles consist of subangular flint.	
	1.00 1.00	D ES		1.70 1.90			Firm orange-brown gravelly cobbly CLAY. Gravel and cobble of subangular flint.	1
							Firm to stiff orange-brown silty CLAY with occasional black flecks/mottling	
	2.80 2.80	D ES		3.10			Firm light greyish brown silty sandy gravelly CLAY. Gravel is subangular flint.	2
							End of Pit at 3.10m	3
								4
								5

Remarks None encountered

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: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460503.05 - 105999.77
Level:

Date
13/12/2016

Location: Downend Road, Portchester

Dimensions (m): 2.30
Depth 3.00

Scale
1:25

Logged
VB

Client: Miller Homes

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.25 0.25	D ES		0.30			Dark brown clayey gravelly cobbly SILT. Gravel and cobbles consist of subangular flint.	
	1.00 1.00	D ES		1.60			Firm reddish brown gravelly cobbly CLAY. Gravel and cobble consist of subangular flint, which become sparse from 1.25m.	1
	2.00 2.00	D ES		3.00			Light brown to light orange-brown and off-white structureless CHALK composed of a silt and sand matrix with gravel size weak low to medium density clasts and some gravel sized flint. CIRIA Grade Dc.	2
							End of Pit at 3.00m	3
								4
								5

Remarks None encountered

Stability





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Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

Borehole Log

Borehole No.

WS1

Sheet 1 of 1

Project Name: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460533E - 106045N

Hole Type
WLS

Location: Downend Road, Portchester

Level:

Scale
1:25


Client: Miller Homes

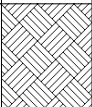

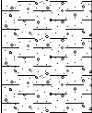
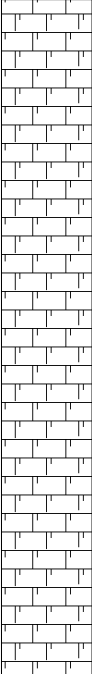
Dates: 14/12/2016

Logged By
VB


Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.15 0.15	D ES		0.30		Greyish brown slightly SILT with some subangular flint gravel		
					0.65		Firm reddish brown silty slightly gravelly CLAY. Gravel is subangular flint.		
							Slightly reddish brown silty clayey fine to coarse flint GRAVEL with occasional cobble sized flint	1	
		1.50 1.50	D ES		2.05		Firm orange brown CLAY	2	
		2.50 2.50	D ES		3.00		End of Borehole at 3.00m	3	
								4	
								5	


Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						No water encountered

 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		<h1>Borehole Log</h1>				Borehole No. WS2 Sheet 1 of 1	
Project Name: Downend Road, Portchester		Project No. GE15996		Co-ords: 460291E - 106526N		Hole Type WLS	
Location: Downend Road, Portchester				Level:		Scale 1:25	
Client: Miller Homes				Dates: 14/12/2016		Logged By VB	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20 0.20	D ES		0.35			Greyish brown slightly SILT with some subangular flint gravel	
		0.50 0.50	D ES		0.75			Firm reddish brown and off-white sandy gravelly CLAY. Gravel is subangular flint and chalk.	
		2.00 2.00	D ES		3.00			Recovered as off-white CHALK composed of a silt size matrix with sand and gravel sized weak low density clasts. Possible CIRIA Grade Dc.	
							End of Borehole at 3.00m		


Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						No water encountered



 Unit 7, Danworth Farm Hurstpierpoint BN6 9GL www.gesl.net		<h1 style="text-align: center;">Borehole Log</h1>				Borehole No. <h2 style="text-align: center;">WS3</h2>	
Project Name: Downend Road, Portchester		Project No. GE15996		Co-ords: 460094E - 106309N		Sheet 1 of 1	
Location: Downend Road, Portchester				Level:		Hole Type WLS	
Client: Miller Homes				Dates: 14/12/2016		Scale 1:25	
Client: Miller Homes				Dates: 14/12/2016		Logged By VB	

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30 0.30	D ES		0.40		Greyish brown slightly SILT with some subangular flint gravel		
		0.75 0.75	D ES		1.50		Firm brown silty gravelly CLAY. Gravel is subangular flint.	1	
		2.00 2.00	D ES		3.00		Recovered as off-white CHALK compopsed of a silt size matrix with sand and gravel sized weak low density clasts. Possible CIRIA Grade Dc.	2	
							End of Borehole at 3.00m	3	
								4	
								5	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						No water encountered





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Unit 7, Danworth Farm
Hurstpierpoint
BN6 9GL

Borehole Log

Borehole No.

WS4

Sheet 1 of 1

Project Name: Downend Road, Portchester

Project No.
GE15996

Co-ords: 460089E - 106209N

Hole Type
WLS

Location: Downend Road, Portchester

Level:

Scale
1:25

Client: Miller Homes

Dates: 14/12/2016

Logged By
VB

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 0.20	D ES		0.10		Worn, broken concrete hardstanding.		
					0.50		Brown and black mottled silty clayey flint gravel with some fine gravel sized charcoal fragments		
					1.00		Reddish brown silty clayey fine to coarse flint GRAVEL.		
		1.00 1.00	D ES		2.00		Firm reddish brown gravelly CLAY. Gravel is fine to coarse size subangular flint.	1	
		2.50 2.50	D ES		3.00		Firm reddish brown silty CLAY	2	
							End of Borehole at 3.00m	3	
								4	
								5	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
						No water encountered





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Borehole Log

Borehole No.

WS6

Sheet 1 of 1

Project Name: Downend Road, Portchester

Project No.
GE15996

Co-ords: 459732E - 106397N

Hole Type	WLS
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Location: Downend Road, Portchester

Level:

Scale
1:25

Client: Miller Homes

Dates: 14/12/2016

Logged By
VB

[illegible]



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 16-10012

Issue: 1

Date of Issue: 06/01/2017

Contact: Veronica Bennett

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

Quotation No: Q14-00021

Order No: Not Supplied

Customer Reference: GE15996

Date Received: 16/12/2016

Date Approved: 06/01/2017

Details: Downend Road, Portchester

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.: 16-10012

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
83927	TP2 0.25	14/12/2016	16/12/2016	Silty loam	
83928	TP3 0.25	14/12/2016	16/12/2016	Silty loam	
83929	TP5 0.25	14/12/2016	16/12/2016	Silty loam	
83930	WS1 0.15	14/12/2016	16/12/2016	Silty loam	
83931	WS2 0.20	14/12/2016	16/12/2016	Silty loam	c
83932	WS3 0.30	14/12/2016	16/12/2016	Silty loam	c
83933	WS4 0.20	14/12/2016	16/12/2016	Silty loam	c
83934	WS5 0.20	14/12/2016	16/12/2016	Silty loam	c
83935	WS6 0.10	14/12/2016	16/12/2016	Silty loam	
83936	BH1 2.50	14/12/2016	16/12/2016		
83937	BH2 0.20	14/12/2016	16/12/2016		
83938	BH3 0.30	14/12/2016	16/12/2016		
83939	BH4 0.20	14/12/2016	16/12/2016		
83940	BH4 1.00	14/12/2016	16/12/2016		
83941	BH5 0.20	14/12/2016	16/12/2016		
83942	BH6 0.10	14/12/2016	16/12/2016		
83943	WS1 1.50	14/12/2016	16/12/2016		
83944	TP1 0.26	14/12/2016	16/12/2016		
83945	TP2 0.68	14/12/2016	16/12/2016		
83946	TP3 0.67	14/12/2016	16/12/2016		
83947	TP3 1.06	14/12/2016	16/12/2016		
83948	TP4 0.33	14/12/2016	16/12/2016		
83949	TP4 1.20	14/12/2016	16/12/2016		
83950	TP4 2.40	14/12/2016	16/12/2016		
83951	TP5 1.00	14/12/2016	16/12/2016		
83952	TP5 2.80	14/12/2016	16/12/2016		
83953	TP6 0.25	14/12/2016	16/12/2016		
83954	TP6 1.00	14/12/2016	16/12/2016		

Results Summary

Report No.: 16-10012

ELAB Reference	83927	83928	83929	83930	83931
Customer Reference					
Sample ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP2	TP3	TP5	WS1	WS2
Sample Depth (m)	0.25	0.25	0.25	0.15	0.20
Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016

Determinand	Codes	Units	LOD					
Metals								
Arsenic	M	mg/kg	1	n/t	n/t	n/t	9.4	12.8
Barium	U	mg/kg	10	n/t	n/t	n/t	66.1	97.9
Beryllium	U	mg/kg	1	n/t	n/t	n/t	< 1.0	1.1
Cadmium	M	mg/kg	0.5	n/t	n/t	n/t	0.6	1.0
Chromium	M	mg/kg	5	n/t	n/t	n/t	22.1	32.3
Copper	M	mg/kg	5	n/t	12.4	n/t	18.6	18.5
Lead	M	mg/kg	5	n/t	n/t	n/t	37.0	43.0
Mercury	M	mg/kg	0.5	n/t	n/t	n/t	< 0.5	< 0.5
Nickel	M	mg/kg	5	n/t	15.1	n/t	15.1	24.8
Selenium	M	mg/kg	1	n/t	n/t	n/t	< 1.0	< 1.0
Vanadium	M	mg/kg	5	n/t	n/t	n/t	30.2	44.5
Zinc	M	mg/kg	5	n/t	55.3	n/t	65.8	89.9
Anions								
Water Soluble Chloride	M	mg/kg	40	n/t	n/t	n/t	< 40	< 40
Water Soluble Sulphate	M	g/l	0.02	n/t	n/t	n/t	0.03	0.02
Inorganics								
Carbonate	N	%	0.1	n/t	0.3	n/t	n/t	0.8
Elemental Sulphur	N	mg/kg	20	n/t	n/t	n/t	< 20	< 20
Hexavalent Chromium	N	mg/kg	0.8	n/t	n/t	n/t	< 0.8	< 0.8
Total Sulphide	N	mg/kg	2	n/t	n/t	n/t	< 2	< 2
Total Cyanide	M	mg/kg	1	n/t	n/t	n/t	< 1.0	< 1.0
Acid Soluble Sulphate (SO4)	U	%	0.02	n/t	n/t	n/t	0.04	0.06
Water Soluble Boron	N	mg/kg	0.5	n/t	n/t	n/t	0.9	0.9
Miscellaneous								
Electrical Conductivity (CaSO4 extract)	U	uS/cm	1	n/t	2140	n/t	n/t	1990
Carbon Nitrogen Ratio	N	ratio	0	n/t	35	n/t	n/t	33
Loss On Ignition (450°C)	M	%	0.01	n/t	1.57	n/t	n/t	3.64
pH	M	pH units	0.1	n/t	8.0	n/t	7.0	7.7
Total Organic Carbon	N	%	0.01	n/t	n/t	n/t	1.1	1.9
Total nitrogen	N	%	0.01	n/t	0.03	n/t	n/t	0.06
Extractable Potassium	N	mg/l	20	n/t	126	n/t	n/t	219
Extractable Magnesium	N	mg/l	20	n/t	22	n/t	n/t	< 20
Extractable Phosphate	N	mg/l	1	n/t	22	n/t	n/t	32
Sand content	US	%	1	n/t	27	n/t	n/t	37
Silt content	US	%	1	n/t	57	n/t	n/t	53
Clay content	US	%	1	n/t	16	n/t	n/t	10
Stones > 2mm	US	%	1	n/t	29	n/t	n/t	15
Stones > 20mm	US	%	1	n/t	12	n/t	n/t	< 1
Stones > 50mm	US	%	1	n/t	< 1	n/t	n/t	< 1
Total Visible Contaminants	N	%	0.01	n/t	< 0.01	n/t	n/t	< 0.01
Plastics	N	%	0.01	n/t	< 0.01	n/t	n/t	< 0.01
Sharps	N	n/kg	0	n/t	0	n/t	n/t	0
Phenols								
Total Phenols	N	mg/kg	6	n/t	n/t	n/t	< 6	c < 6

Results Summary

Report No.: 16-10012

ELAB Reference	83927	83928	83929	83930	83931
Customer Reference					
Sample ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP2	TP3	TP5	WS1	WS2
Sample Depth (m)	0.25	0.25	0.25	0.15	0.20
Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016

Determinand	Codes	Units	LOD					
Polyaromatic hydrocarbons								
Naphthalene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Acenaphthylene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Acenaphthene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Fluorene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Phenanthrene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Anthracene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Fluoranthene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Pyrene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Benzo(a)anthracene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Chrysene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Benzo (b) fluoranthene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Benzo(k)fluoranthene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Benzo (a) pyrene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Dibenzo(a,h)anthracene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Benzo[g,h,i]perylene	M	mg/kg	0.1	n/t	n/t	n/t	< 0.1	c < 0.1
Total PAH(16)	M	mg/kg	0.4	n/t	n/t	n/t	< 0.4	c < 0.4
BTEX								
Benzene	M	ug/kg	10	n/t	n/t	n/t	< 10.0	c < 10.0
Toluene	M	ug/kg	10	n/t	n/t	n/t	< 10.0	c < 10.0
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t	< 10.0	c < 10.0
Xylenes	M	ug/kg	10	n/t	n/t	n/t	< 10.0	c < 10.0
TPH CWG								
>C5-C6 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	c < 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	c < 0.01
>C8-C10 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C10-C12 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C12-C16 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C16-C21 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C21-C35 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	1.2	c < 1.0
>C35-C40 Aliphatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	c < 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	c < 0.01
>C8-C10 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C10-C12 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C12-C16 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C16-C21 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C21-C35 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
>C35-C40 Aromatic	N	mg/kg	1	n/t	n/t	n/t	< 1.0	c < 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	n/t	n/t	n/t	1.2	c < 1.0



Results Summary

Report No.: 16-10012

ELAB Reference	83927	83928	83929	83930	83931
Customer Reference					
Sample ID					
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP2	TP3	TP5	WS1	WS2
Sample Depth (m)	0.25	0.25	0.25	0.15	0.20
Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016	14/12/2016

Determinand	Codes	Units	LOD					
OrganoChlorine Pesticides								
alpha-HCH	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
beta_HCH	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
gamma-HCH	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
delta-HCH	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Heptachlor	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Aldrin	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Heptachlor expoxide	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
trans-Chlordane	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
alpha cis-Chlordane	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
p,p-DDE	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Dieldrin	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Endrin	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
p,p-DDD	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Endosulfan II	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Endrin aldehyde	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
p,p-DDT	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Endosulphan sulphate	M	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Methoxychlor	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t
Endrin ketone	N	ug/kg	10	< 10	n/t	< 10	n/t	n/t

Results Summary

Report No.: 16-10012

ELAB Reference	83932	83933	83934	83935
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	WS3	WS4	WS5	WS6
Sample Depth (m)	0.30	0.20	0.20	0.10
Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016

Determinand	Codes	Units	LOD				
Metals							
Arsenic	M	mg/kg	1	9.8	9.3	8.7	n/t
Barium	U	mg/kg	10	67.8	56.4	54.6	n/t
Beryllium	U	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t
Cadmium	M	mg/kg	0.5	0.5	< 0.5	< 0.5	n/t
Chromium	M	mg/kg	5	25.6	22.6	21.9	n/t
Copper	M	mg/kg	5	18.2	13.4	56.5	15.5
Lead	M	mg/kg	5	36.0	30.0	71.8	n/t
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t
Nickel	M	mg/kg	5	19.0	13.2	15.8	13.3
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t
Vanadium	M	mg/kg	5	36.0	39.5	29.6	n/t
Zinc	M	mg/kg	5	69.4	131	93.7	101
Anions							
Water Soluble Chloride	M	mg/kg	40	< 40	< 40	58	n/t
Water Soluble Sulphate	M	g/l	0.02	0.03	0.03	0.06	n/t
Inorganics							
Carbonate	N	%	0.1	n/t	n/t	n/t	2.4
Elemental Sulphur	N	mg/kg	20	< 20	< 20	< 20	n/t
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	n/t
Total Sulphide	N	mg/kg	2	< 2	< 2	< 2	n/t
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t
Acid Soluble Sulphate (SO4)	U	%	0.02	0.03	0.03	0.09	n/t
Water Soluble Boron	N	mg/kg	0.5	0.7	0.7	0.7	n/t
Miscellaneous							
Electrical Conductivity (CaSO4 extract)	U	uS/cm	1	n/t	n/t	n/t	2210
Carbon Nitrogen Ratio	N	ratio	0	n/t	n/t	n/t	37
Loss On Ignition (450°C)	M	%	0.01	n/t	n/t	n/t	2.26
pH	M	pH units	0.1	7.9	7.9	10.8	8.3
Total Organic Carbon	N	%	0.01	1.1	0.53	1.7	n/t
Total nitrogen	N	%	0.01	n/t	n/t	n/t	0.04
Extractable Potassium	N	mg/l	20	n/t	n/t	n/t	153
Extractable Magnesium	N	mg/l	20	n/t	n/t	n/t	22
Extractable Phosphate	N	mg/l	1	n/t	n/t	n/t	34
Sand content	US	%	1	n/t	n/t	n/t	37
Silt content	US	%	1	n/t	n/t	n/t	50
Clay content	US	%	1	n/t	n/t	n/t	13
Stones > 2mm	US	%	1	n/t	n/t	n/t	15
Stones > 20mm	US	%	1	n/t	n/t	n/t	< 1
Stones > 50mm	US	%	1	n/t	n/t	n/t	< 1
Total Visible Contaminants	N	%	0.01	n/t	n/t	n/t	< 0.01
Plastics	N	%	0.01	n/t	n/t	n/t	< 0.01
Sharps	N	n/kg	0	n/t	n/t	n/t	0
Phenols							
Total Phenols	N	mg/kg	6	c < 6	c < 6	c < 6	n/t

Results Summary

Report No.: 16-10012

ELAB Reference	83932	83933	83934	83935
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	WS3	WS4	WS5	WS6
Sample Depth (m)	0.30	0.20	0.20	0.10
Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016

Determinand	Codes	Units	LOD				
Polyaromatic hydrocarbons							
Naphthalene	M	mg/kg	0.1	c < 0.1	c < 0.1	c < 0.1	n/t
Acenaphthylene	M	mg/kg	0.1	c < 0.1	c < 0.1	c < 0.1	n/t
Acenaphthene	M	mg/kg	0.1	c < 0.1	c < 0.1	c < 0.1	n/t
Fluorene	M	mg/kg	0.1	c < 0.1	c < 0.1	c < 0.1	n/t
Phenanthrene	M	mg/kg	0.1	c < 0.1	c < 0.1	c 0.1	n/t
Anthracene	M	mg/kg	0.1	c < 0.1	c < 0.1	c < 0.1	n/t
Fluoranthene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.3	n/t
Pyrene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.2	n/t
Benzo(a)anthracene	M	mg/kg	0.1	c < 0.1	c < 0.1	c 0.1	n/t
Chrysene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.2	n/t
Benzo (b) fluoranthene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.2	n/t
Benzo(k)fluoranthene	M	mg/kg	0.1	c 0.2	c < 0.1	c 0.4	n/t
Benzo (a) pyrene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.2	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.3	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.1	c 0.1	c < 0.1	c 0.1	n/t
Benzo[g,h,i]perylene	M	mg/kg	0.1	c < 0.1	c < 0.1	c 0.2	n/t
Total PAH(16)	M	mg/kg	0.4	c 0.9	c < 0.4	c 2.4	n/t
BTEX							
Benzene	M	ug/kg	10	c < 10.0	c < 10.0	c < 10.0	n/t
Toluene	M	ug/kg	10	c < 10.0	c < 10.0	c < 10.0	n/t
Ethylbenzene	M	ug/kg	10	c < 10.0	c < 10.0	c < 10.0	n/t
Xylenes	M	ug/kg	10	c < 10.0	c < 10.0	c < 10.0	n/t
TPH CWG							
>C5-C6 Aliphatic	N	mg/kg	0.01	c < 0.01	c < 0.01	c < 0.01	n/t
>C6-C8 Aliphatic	N	mg/kg	0.01	c < 0.01	c < 0.01	c < 0.01	n/t
>C8-C10 Aliphatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C10-C12 Aliphatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C12-C16 Aliphatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C16-C21 Aliphatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C21-C35 Aliphatic	N	mg/kg	1	c < 1.0	c < 1.0	c 1.6	n/t
>C35-C40 Aliphatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C5-C7 Aromatic	N	mg/kg	0.01	c < 0.01	c < 0.01	c < 0.01	n/t
>C7-C8 Aromatic	N	mg/kg	0.01	c < 0.01	c < 0.01	c < 0.01	n/t
>C8-C10 Aromatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C10-C12 Aromatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C12-C16 Aromatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C16-C21 Aromatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
>C21-C35 Aromatic	N	mg/kg	1	c 1.7	c < 1.0	c 4.7	n/t
>C35-C40 Aromatic	N	mg/kg	1	c < 1.0	c < 1.0	c < 1.0	n/t
Total (>C5-C40) Ali/Aro	N	mg/kg	1	c 1.7	c < 1.0	c 6.3	n/t

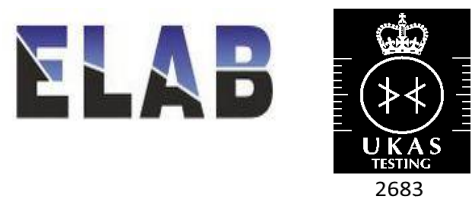


Results Summary

Report No.: 16-10012

ELAB Reference	83932	83933	83934	83935
Customer Reference				
Sample ID				
Sample Type	SOIL	SOIL	SOIL	SOIL
Sample Location	WS3	WS4	WS5	WS6
Sample Depth (m)	0.30	0.20	0.20	0.10
Sampling Date	14/12/2016	14/12/2016	14/12/2016	14/12/2016

Determinand	Codes	Units	LOD				
OrganoChlorine Pesticides							
alpha-HCH	M	ug/kg	10	c < 10	n/t	n/t	n/t
beta_HCH	M	ug/kg	10	c < 10	n/t	n/t	n/t
gamma-HCH	M	ug/kg	10	c < 10	n/t	n/t	n/t
delta-HCH	N	ug/kg	10	c < 10	n/t	n/t	n/t
Heptachlor	N	ug/kg	10	c < 10	n/t	n/t	n/t
Aldrin	M	ug/kg	10	c < 10	n/t	n/t	n/t
Heptachlor expoxide	N	ug/kg	10	c < 10	n/t	n/t	n/t
trans-Chlordane	N	ug/kg	10	c < 10	n/t	n/t	n/t
alpha cis-Chlordane	N	ug/kg	10	c < 10	n/t	n/t	n/t
p,p-DDE	M	ug/kg	10	c < 10	n/t	n/t	n/t
Dieldrin	M	ug/kg	10	c < 10	n/t	n/t	n/t
Endrin	N	ug/kg	10	c < 10	n/t	n/t	n/t
p,p-DDD	M	ug/kg	10	c < 10	n/t	n/t	n/t
Endosulfan II	N	ug/kg	10	c < 10	n/t	n/t	n/t
Endrin aldehyde	N	ug/kg	10	c < 10	n/t	n/t	n/t
p,p-DDT	M	ug/kg	10	c < 10	n/t	n/t	n/t
Endosulphan sulphate	M	ug/kg	10	c < 10	n/t	n/t	n/t
Methoxychlor	N	ug/kg	10	c < 10	n/t	n/t	n/t
Endrin ketone	N	ug/kg	10	c < 10	n/t	n/t	n/t



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Results Summary

Report No.: 16-10012

Asbestos 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 #	Asbestos Identification	Gravimetric Analysis Total (%)	Gravimetric Analysis by ACM Type (%)	Free Fibre Analysis (%)	Total Asbestos (%)
83930	0.15	WS1	Brown soil with stones,flint	No asbestos detected	n/t	n/t	n/t	n/t
83931	0.20	WS2	Brown soil with stones	No asbestos detected	n/t	n/t	n/t	n/t
83932	0.30	WS3	Brown soil with stones	Chrysotile	n/t	n/t	n/t	n/t
83933	0.20	WS4	Brown soil with stones,flint	No asbestos detected	n/t	n/t	n/t	n/t
83934	0.20	WS5	Dark brown soil with	No asbestos detected	n/t	n/t	n/t	n/t

Method Summary

Report No.: 16-10012

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Extr. Phos	N	Air dried sample	22/12/2016		ICPMS
Extractable cations - BS3882	N	Air dried sample	22/12/2016		ICPMS
Total nitrogen in soil	N	Air dried sample	22/12/2016		
Visible Contaminants	N		20/12/2016		
Sulphide	N	As submitted sample	21/12/2016	109	Colorimetry
Hexavalent chromium	N	As submitted sample	20/12/2016	110	Colorimetry
pH	M	Air dried sample	21/12/2016	113	Electromeric
Electrical conductivity of soil	U	As submitted sample	22/12/2016	114	Electromeric
Acid Soluble Sulphate	U	Air dried sample	21/12/2016	115	Ion Chromatography
Aqua regia extractable metals	M	Air dried sample	21/12/2016	118	ICPMS
Phenols in solids	N	As submitted sample	20/12/2016	121	HPLC
Elemental Sulphur	N	Air dried sample	21/12/2016	122	HPLC
Loss on ignition at 450 deg C	M	Air dried sample	22/12/2016	129	Gravimetry
PAH (GC-FID)	M	As submitted sample	20/12/2016	133	GC-FID
Water soluble anions	M	Air dried sample	21/12/2016	172	Ion Chromatography
Organochlorine Pesticides in solids	M	As submitted sample	20/12/2016	173	GC-MS
BTEX in solids	M	As submitted sample	21/12/2016	181A	GC-MS
Water soluble boron	N	Air dried sample	21/12/2016	202	Colorimetry
Total cyanide	M	As submitted sample	20/12/2016	204	Colorimetry
Total organic carbon/Total sulphur	N	Air dried sample	21/12/2016	210	IR
Aliphatic hydrocarbons in soil	N	As submitted sample	20/12/2016	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	N	As submitted sample	21/12/2016	214	GC-FID
Aromatic hydrocarbons in soil	N	As submitted sample	20/12/2016	214	GC-FID
Low range Aliphatic hydrocarbons soil	N	As submitted sample	21/12/2016	214	GC-MS
Low range Aromatic hydrocarbons soil	N	As submitted sample	21/12/2016	214	GC-MS
Asbestos identification	U	As submitted sample	20/12/2016	PMAN	Microscopy

Tests marked N are not UKAS accredited

Report Information

Report No.: 16-10012

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 (dried at < 30°C)

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

Project: Downend Road, Portchester
 Ref: GE15996
 Client: Miller Homes



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	09/02/17	10	0.0	1.0	18.5	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	09/02/17	20	0.0	1.0	18.3	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	09/02/17	30	0.0	1.0	18.3	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	09/02/17	60	0.0	0.9	18.3	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	09/02/17	120	0.0	0.9	18.3	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	09/02/17	10	0.0	1.3	18.7	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	09/02/17	20	0.0	1.3	18.6	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	09/02/17	30	0.0	1.4	18.5	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	09/02/17	60	0.0	1.4	18.5	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	09/02/17	120	0.0	1.4	18.4	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	09/02/17	10	0.0	1.6	18.3	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	09/02/17	20	0.0	1.6	18.2	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	09/02/17	30	0.0	1.6	18.1	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	09/02/17	60	0.0	1.6	18.1	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	09/02/17	120	0.0	1.6	18.0	0.0	0.0	1020	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	09/02/17	10	0.0	0.9	18.9	-0.2	0.0	1020	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	09/02/17	20	0.0	0.9	18.9	-0.2	0.0	1020	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	09/02/17	30	0.0	0.9	18.8	-0.2	0.0	1020	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	09/02/17	60	0.0	0.9	18.9	-0.2	0.0	1020	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	09/02/17	120	0.0	0.9	18.9	-0.2	0.0	1020	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	14/02/17	10	0.0	0.2	20.4	-0.2	0.0	1015	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	14/02/17	20	0.0	0.2	20.3	-0.2	0.0	1015	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	14/02/17	30	0.0	0.2	20.2	-0.2	0.0	1015	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	14/02/17	60	0.0	0.2	20.2	-0.2	0.0	1015	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	14/02/17	120	0.0	0.2	20.1	-0.2	0.0	1015	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	14/02/17	10	0.0	1.8	16.0	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	14/02/17	20	0.0	1.9	17.6	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	14/02/17	30	0.0	2.0	17.5	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	14/02/17	60	0.0	2.0	17.4	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	14/02/17	120	0.0	2.0	17.3	0.0	0.0	1018	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	14/02/17	10	0.0	1.5	18.5	0.0	0.0	1016	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	14/02/17	20	0.0	1.8	18.2	0.0	0.0	1016	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	14/02/17	30	0.0	1.8	18.1	0.0	0.0	1016	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	14/02/17	60	0.0	1.8	18.1	0.0	0.0	1016	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	14/02/17	120	0.0	1.8	18.0	0.0	0.0	1016	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	14/02/17	10	0.0	0.2	20.2	-1.2	0.0	1018	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	14/02/17	20	0.0	0.2	20.3	-1.2	0.0	1018	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	14/02/17	30	0.0	0.2	19.9	-1.2	0.0	1018	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	14/02/17	60	0.0	0.2	20.2	-1.2	0.0	1018	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	14/02/17	120	0.0	0.2	20.3	-1.2	0.0	1018	Dry	0.000	-0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	23/02/2017	10	0.0	1.0	18.6	0.0	0.0	992	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	23/02/2017	20	0.0	1.9	17.9	0.0	0.0	992	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	23/02/2017	30	0.0	1.9	17.8	0.0	0.0	992	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	23/02/2017	60	0.0	2.0	17.6	0.0	0.0	992	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	23/02/2017	120	0.0	2.0	17.6	0.0	0.0	992	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	23/02/2017	10	0.0	0.3	20.0	-3.0	0.0	991	Dry	0.000	-0.009	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	23/02/2017	20	0.0	0.1	20.3	-3.0	0.0	991	Dry	0.000	-0.003	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	23/02/2017	30	0.0	0.0	20.4	-3.0	0.0	991	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN

Project: Downend Road, Portchester
 Ref: GE15996
 Client: Miller Homes



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.
WS3	23/02/2017	60	0.0	0.0	20.4	-3.0	0.00	991	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	23/02/2017	120	0.0	0.0	20.4	-3.0	0.00	991	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	23/02/2017	10	0.0	1.7	18.3	-0.2	0.2	992	Dry	0.000	-0.003	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	23/02/2017	20	0.0	1.9	18.1	-0.2	0.20	992	Dry	0.000	-0.004	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	23/02/2017	30	0.0	2.0	18.0	-0.2	0.20	992	Dry	0.000	-0.004	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	23/02/2017	60	0.0	2.0	17.9	-0.2	0.20	992	Dry	0.000	-0.004	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	23/02/2017	120	0.0	2.1	17.8	-0.2	0.20	992	Dry	0.000	-0.004	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	23/02/2017	10	0.0	1.5	18.3	0.1	0.0	988	Dry	0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	23/02/2017	20	0.0	1.4	18.0	0.1	0.00	988	Dry	0.000	0.001	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	23/02/2017	30	0.0	1.4	17.9	0.1	0.00	988	Dry	0.000	0.001	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	23/02/2017	60	0.0	1.3	17.9	0.1	0.00	988	Dry	0.000	0.001	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	23/02/2017	120	0.0	1.3	17.9	0.1	0.00	988	Dry	0.000	0.001	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	28/02/2017	10	0.0	0.6	19.6	0.0	0.1	986	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	28/02/2017	20	0.0	0.6	19.4	0.0	0.10	986	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	28/02/2017	30	0.0	0.6	19.3	0.0	0.10	986	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	28/02/2017	60	0.0	0.7	19.1	0.0	0.10	986	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	28/02/2017	120	0.0	0.7	18.8	0.0	0.10	986	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	28/02/2017	10	0.0	0.9	19.8	-1.0	0.2	985	Dry	0.000	-0.009	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	28/02/2017	20	0.0	0.9	19.8	-1.0	0.20	985	Dry	0.000	-0.009	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	28/02/2017	30	0.0	0.9	19.8	-1.0	0.20	985	Dry	0.000	-0.009	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	28/02/2017	60	0.0	0.9	19.8	-1.0	0.20	985	Dry	0.000	-0.009	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	28/02/2017	120	0.0	0.9	19.7	-1.0	0.20	985	Dry	0.000	-0.009	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	28/02/2017	10	0.0	0.0	20.6	0.0	0.1	985	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	28/02/2017	20	0.0	0.0	20.4	0.0	0.10	985	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	28/02/2017	30	0.0	0.0	20.4	0.0	0.10	985	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	28/02/2017	60	0.0	0.0	20.4	0.0	0.10	985	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	28/02/2017	120	0.0	0.0	20.3	0.0	0.10	985	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	28/02/2017	10	0.0	0.9	19.9	0.0	0.1	983	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	28/02/2017	20	0.0	1.3	18.1	0.0	0.10	983	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	28/02/2017	30	0.0	1.4	18.0	0.0	0.10	983	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	28/02/2017	60	0.0	1.4	17.9	0.0	0.10	983	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	28/02/2017	120	0.0	1.4	17.8	0.0	0.10	983	Dry	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	10/03/17	10	0.0	1.4	18.0	0.0	0.0	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	10/03/17	20	0.0	1.5	17.8	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	10/03/17	30	0.0	1.5	17.7	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	10/03/17	60	0.0	1.6	17.6	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS4	10/03/17	120	0.0	1.6	17.5	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	10/03/17	10	0.0	0.0	20.8	-0.1	0.0	1017	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	10/03/17	20	0.0	0.0	20.8	-0.1	0.00	1017	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	10/03/17	30	0.0	0.0	20.7	-0.1	0.00	1017	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	10/03/17	60	0.0	0.0	20.7	-0.1	0.00	1017	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS3	10/03/17	120	0.0	0.0	20.7	-0.1	0.00	1017	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	10/03/17	10	0.0	1.9	18.6	0.0	0.0	1016	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	10/03/17	20	0.0	1.9	18.6	0.0	0.00	1016	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	10/03/17	30	0.0	1.9	18.6	0.0	0.00	1016	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	10/03/17	60	0.0	1.9	18.4	0.0	0.00	1016	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS2	10/03/17	120	0.0	1.9	18.3	0.0	0.00	1016	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	10/03/17	10	0.0	0.9	18.6	0.0	0.0	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN

Project: Downend Road, Portchester
Ref: GE15996
Client: Miller Homes



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	10/03/17	20	0.0	1.3	18.4	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	10/03/17	30	0.0	1.3	18.4	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	10/03/17	60	0.0	1.3	18.4	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
WS1	10/03/17	120	0.0	1.3	18.2	0.0	0.00	1014	DRY	0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
Max values			0.0	2.1	20.8	0.1	0.2	1020.0		0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
Min Vaules			0.0	0.0	16.0	-3.0	0.0	983.0		0.000	0.000	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN
BH Flow LoD check			0.0	2.1	20.8	0.1	0.2	1020.0		0.000	0.002	CS1	CS1	NO	NO	NO	GREEN	GREEN	GREEN	GREEN