

13 November 2012

Your ref:
Planning ref:
Our ref: J11002/DB/c02

Mr J Jones
Barratt David Wilson Homes Southampton
Tollbar House
Tollbar Way
Hedge End
Southampton
Hampshire
SO30 2UH

Dear Mr Jones,

RE: DENVILLES FARM SITE, HALLETT ROAD, HAVANT, HAMPSHIRE
PRE-PURCHASE DESK STUDY & GROUND INVESTIGATION LETTER REPORT
FOR THE PROPOSED RESIDENTIAL REDEVELOPMENT

Further to instruction from BDW Southampton, we have carried out desk study research and subsequently attended the above site to carry out a walkover survey and a phased ground investigation. This work has been carried out to provide information to assist with the redevelopment of the site through the construction of a new housing development comprising predominantly two storey housing, together with driveways, access roads, hardstanding for car parking, soft landscaping and areas of private domestic gardens.

The comments made in this letter are limited to those that can be made on the basis of the information obtained by Wilson Bailey Partnership as part of the limited research and site walkover visit carried out to date. Our comments should be viewed in the context of the limited scope of the investigation, the locations of the accessible sampling points and the range of data sources consulted, no liability can be accepted for information in other data sources. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by Wilson Bailey Partnership.

Scope of Work

A desk study has been carried out in accordance with current guidelines for best practice to establish the environmental site setting and development history of the site and the surrounding area.

The desk study has been followed by a pre-purchase ground investigation to provide information to assist with the design of new foundations, pavements, soakaways and facilitate the inspection of soils and recovery of soil samples for contaminated land assessment.

The ground investigation has been carried out in phases; the initial phase of investigation comprised and comprised a series of 6 small diameter boreholes drilled by means of an open drive percussive soil sampling rig to a depth of up to 5.45 m together with a series of 14 trial pits excavated using a rubber tyred mechanical excavator.

The second phase of ground investigation comprised a further series of 7 additional small diameter boreholes, the locations of which were generally constrained to the southwestern part of the site which is occupied by the farm yard, where a range of above ground fuel and oil tanks were noted together with a chemical store and other potential issues of concern with regards to ground contamination.

Combined soil gas and groundwater monitoring standpipes have been installed into a number of the boreholes located across the site to facilitate future monitoring. Falling head borehole percolation testing has been carried out in a number of the boreholes to assess the potential for soil soakage and the viability of soakaways as part of the proposed redevelopment. A programme of winter water level monitoring has also been carried out

The soils encountered in the boreholes were inspected by a Chartered Geologist and representative soil samples were recovered for subsequent laboratory testing for geotechnical properties and for contaminated land soil analyses to determine the presence of a wide range of potential soil contaminants. The scope of the ground investigation was limited by the continued use of the eastern part of the site as grazing for horses, which precluded the excavation of trial pits within this part of the site.

In accordance with current best practice, the findings of the desk study and ground investigation have been used to formulate a conceptual model for the site and facilitate a preliminary qualitative risk assessment and discussion of the implications of any identified issue of potential concerns with regards to ground contamination. On the basis of this assessment, the requirement for any further assessment or remedial action as part the redevelopment of this site for residential purposes has been determined.

Site Description

The site is irregular in shape with approximate maximum dimensions 210 m by 110 m. The western and southern boundaries to the site are formed by the extent of adjoining gardens to houses fronting onto Glenleigh Park, Hallett Road and Fifth Avenue, with Hallett Road providing vehicular access to the southern part of the site and Fifth Avenue providing occasional vehicular access to the northern part of the site. The northern boundary to the site is formed by a mature hedgerow, beyond which are a number of industrial scale glass houses. The eastern boundary to the site is formed by the remaining areas of open farm land that is currently in cultivation or lying fallow and is to remain outside of the development site.

The central southwestern part of the site is formed by the two storey brick built farm house and the associated farmyard, which comprises a range of timber portal frame buildings that are in various states of repair. These buildings are currently in use as a farm shop, storage of equipment and ancillary farm machinery, tools and packaging materials, with other stores used to storing produce and grain and rearing chickens. A single steel shipping container is used as a chemical store with a single skin steel fuel tank located within this part of the site, supported on an informal plinth constructed from railway timbers. The farm yard area has a rough and locally broken and heavily cracked concrete hardstanding which extends southwards towards the farmhouse and is used as a tarmac surfaced car and boat parking

To the north of the farm yard, adjoining the western site boundary is an area of rough grass and brambles that is used for the storage of larger items of agricultural equipment including ploughs, trailers and tractors. Within the northern part of the site within an area of rough grass and scrub vegetation, there is a small section of rough track and a single storey steel clad steel portal frame barn, which measures approximately 18 m by 12 m and is used for the storage of produce. The remaining eastern and southern parts of the site are given over to market gardening, with various crops including leaks, marrows, onions, potatoes, sweet-corn and beetroot grown in a series of strips, together with areas that are left fallow and limited areas of former pig huts and a chicken pen.

The majority of the site is sensibly level, although the northwestern corner of the site is noticeably lower lying with the ground level approximately 500 mm below that of the balance of the site to the east of a narrow tree lined ditch that bisects the northern part of the site from north to south. A rough track bisects the southern part of the site from west to east providing access to the remainder of the farm land to the east.

Site History

The history of the site and immediate surrounding area has been researched by reference to publically available historical Ordnance Survey (OS) maps together with supplementary information inspected at the Havant Local Studies Library.

The earliest map studied, dated 1866, indicates the site to have been occupied by open fields within a predominantly rural setting. The next map studied, dated 1897, indicates that by that time the area to the west of the site had become increasingly developed through the construction of new roads and houses, with a small brickfield and clay pit shown to have been located to the southeast of the site.

The next available map studied dates from 1909 and indicates that by that time the farm yard buildings had been established within the southwestern part of the site and that the northern part of the site was in use as a clay pit associated with a nearby off site brickworks. By the date of the next available map, which dates from 1932, the clay pit is shown to have ceased and the current farm house is shown to have been constructed albeit shown as a pair of semi-detached houses.

Subsequent maps dating from the 1950s onward to the present day indicate the gradual enhancement of the farm facilities and the construction of the additional ancillary timber portal frame structures on site, including the steel portal barn within the northern part of the site by 1993. Beyond the site boundaries, these maps indicate the on-going development of the land adjoining the site to the west through the construction of houses and to the north by the glass houses and commercial nursery.

Environmental Site Setting

Information provided by the British Geological Survey indicates the site to be underlain by River Terrace Deposits overlying London Clay.

Information provided by the Environment Agency indicates the near surface River Terrace Deposits to be classified as a Superficial Secondary A Aquifer. The site is not shown to be located within any class of Source Protection Zone associated with any licensed groundwater abstraction points; although the Inner Source Protection Zone associated with the Portsmouth Water Havant Springs abstraction points are shown to be located approximately 600 m to the south of the site.

Further information provided by the Environment Agency does not indicate the presence of any active or historical landfill sites or other indications of any other potentially contaminative land uses such as waste processing sites, fuel filling stations or pollution incidents have been recorded within 500 m of the site.

Information provided by the Health Protection Agency in searches indicate the site to be located in an area where between 1% and 3% of houses are affected by radon, such that radon protective measures should be incorporated into the design of any new buildings to be constructed at this site.

Preliminary Conceptual Site Model Summary and Risk Assessment

The historical and current use of the majority of the site for open agriculture is not considered to present a potentially contaminative history. The previous historical use of part of the northern part of the site as a clay pit for an off-site brick works is not considered to be potentially contaminative, particularly as the variation of ground levels within this part of the site suggests that the former clay extraction pit was not backfilled and the ground was left permanently lowered.

The long term use of the central southwestern part of the site as a farm yard is considered to be potentially contaminative by virtue of the potential use and storage of a wide range of potential contaminants, including fuels, oils, greases, agricultural chemicals and pesticides, together with machinery maintenance and repair activities. In addition, the site walkover has indicated the presence of rather poor provision for fuel in an un-bunded above ground tank although no significant signs of spillage or leakage were noted.

Ground Conditions

The ground conditions encountered across the site were found to be essentially consistent and comprised a locally substantial surfacing layer of topsoil measuring up to 600 mm thick, presumably as a result of long term enrichment and mixing associated with agricultural use of the site.

Underlying the topsoil, where present, and beneath the concrete and tarmac hardstanding within the areas of the farm yard, the soils of the River Terrace Deposits were generally found to comprise a low strength sandy clay to depths of between 1.25 m and 2.80 m below ground level, beneath which loose and locally very loose variable sand and gravel soils were encountered to the maximum depth of investigation at 4.00 m in the majority of the exploratory positions. Borehole No 5, which was drilled to the maximum depth of investigation at 5.45 m below ground level encountered firm gravel clay soils of the London Clay at a depth of 5.25 m below ground level.

The results of laboratory index testing carried out on selected soil samples indicates the near surface clay soils to be of medium plasticity.

Groundwater was encountered at shallow depth in each of the exploratory positions, with inflows encountered at depths of between 0.80 m and 2.80 m below ground level. Where encountered in the trial pits, ground water inflows were found to cause excavation instability below about 1.00 m below ground level

Winter water level monitoring of installed standpipes indicates rest levels at depths of between about 0.30 m and 1.20 m below ground level.

No visual or olfactory indications of ground contamination were noted as part of the fieldwork phase of the ground investigation.

Foundation Design Advice

Moderate width pad or strip foundations may be designed to found within the natural low strength clay soils of the River Terrace Deposits with a minimum foundation width of 0.60 m and designed to apply a reduced net allowable bearing pressure of 60 kN/m² at a minimum depth of 1.00 m below ground level, deepened as necessary in the vicinity of trees in accordance with the NHBC guidelines.

Foundations within the clay soils will need to be deepened in the vicinity of existing and proposed trees and National House Building Council (NHBC) guidelines should be followed in this respect; medium shrinkability clays should be assumed where clay soils are present.

Where trees are to be removed the required founding depth should be determined on the basis of the existing tree height if it is less than 50% of the mature height and on the basis of full mature height if the current height is more than 50% of the mature height. Where a tree is to be retained the final mature height should be adopted and due allowance should be made for future growth of trees, with particular reference to the relatively dense additional planting that is proposed as part of the ecological mitigation measures. Notwithstanding NHBC guidelines, all foundations should extend beyond the zone of desiccation; in this respect it would be prudent to have all foundation excavations inspected by a suitably experienced engineer. The requirement for compressible material alongside foundations should be determined by reference to the NHBC guidelines.

Consideration could be given to the use of alternative foundation such as 'Insulslab' or other proprietary waffle raft foundation solutions at this site. Further investigation, testing and discussion may however be required in order for the use of a waffle raft foundation solution to be sanctioned by the NHBC at this site.

Consideration could also be given to the use of vibro-ground improvement in order to increase the carrying capacity of the founding strata, particularly for any large of heavily loaded structures which could require excessively wide or closely spaced spread foundations.

The detailed design of any foundations at this site will need to be given further consideration in due course, in particular, should consideration be given to raising site levels as part of the proposed development, this could affect the selection of the most viable foundation solution for the scheme.

Excavations

Shallow excavations for services and foundations are likely to encounter ground water inflows at shallow depth, together with associated excavation instability. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides considered in order to comply with normal safety requirements.

The risk of encountering groundwater at a shallow depth that will affect excavations is likely to be significantly greater during the winter months.

Ground Floor Slabs

The design of floor slabs to the proposed development will be effectively governed by the requirement to mitigate the potential for radon gas to ingress into buildings. As a result, ground floors slabs shall be designed as suspended over a void in accordance with the NHBC guidelines and to incorporate a proprietary radon protection gas membrane with sealed services penetrations and wall cavities.

Pavement Design

Depending upon the finalised design of the development and the proposed ground levels, the formation level for hardstandings and access roads across the majority of the site is likely to be within the near surface clay soils such that pavements may be designed on the basis of an assumed California Bearing Ratio (CBR) of "about 2%". Insitu CBR testing may be of assistance in the detailed design of new pavements.

Effect of Sulphates

Chemical analyses of selected soil samples have revealed generally low concentrations of soluble sulphate, corresponding to Class DS-1 AC-1 of Table 2 of BRE Special Digest 1: SD1 Part 1 (August 2001). The guidelines contained in the above digest should be followed in the design of foundation concrete.

Potable Water Supply

The requirement for protection of underground sections of potable water supplies will need to be confirmed through discussions with the proposed statutory provider of mains water to the site, although precautions are not likely to be required for the development at this site.

Soil Contamination Test Results

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a "suitable for use" approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

The results of comprehensive laboratory analyses carried out by an MCERTS accredited laboratory on a limited number of soil samples recovered from this site are enclosed. At the time of reporting only a relatively limited selection of Soil Guideline Values have been released following the withdrawal of the previous guidance. The significance of the measured concentrations of any chemicals of concern has therefore been assessed in relation to the available SGVs together with the revised and updated values that have been adopted by the Chartered Institute of Environmental Health (CIEH)¹. Whilst the values that have been adopted by the CIEH are not statutory, they are widely accepted as providing a suitable initial screening value against which measured concentrations of potential contaminants can be assessed to determine the requirement for site specific quantitative risk assessment.

From a review of the enclosed results it is apparent that elevated concentrations of a wide range of potential soil contaminants have not been detected within the selected representative soil samples submitted to laboratory analyses.

Contaminated Land Discussion

The historical and current use of the majority of the site as open agricultural land and grazing is not considered to present a potentially contaminative history or current use. The use of the central southwestern part of the site as a current and an historical farm yard is considered to be potentially contaminative. Whilst extensive ground investigation in this part of the site has not indicated the presence of ground contamination, it is conceivable that localised pockets of contamination could be present. It is therefore considered that the ground works for the proposed redevelopment at this site should be carried out under a geo-environmental watching brief in order that should any suspicious or contaminated soils be encountered, they can be appropriately investigated by a geo-environmental engineer and appropriately dealt with in consultation with the regulatory authorities.

Site workers should be made aware of the site history and the potential for contamination to be present and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE² and CIRIA³ and the requirements of the Local Authority Environmental Health Officer (EHO).

We trust that this letter provides sufficient information although please do not hesitate to contact me should you have any queries or questions.

Yours sincerely
Wilson Bailey Partnership

Dominic Brightman
BSc MSc DIC FGS CGeol ARSM
Principal Engineer

1 *The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd Edition) July 2009.*

2 *HSE (1992) HS(G)66 Protection of workers and the general public during the development of contaminated land HMSO*

3 *CIRIA (1996) A guide for safe working on contaminated site Report 132, Construction Industry Research & Information Association*

Project Name
 Denvilles Farm Site

 Project No.
 J11002

Co-ords: -

 Hole Type
 WLS

Location: Emsworth

Level: -

 Scale
 1:50

Client: BDW Southmapton

Dates: 20/01/2011

 Logged By
 DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			TOPSOIL	
								Low strength brown sandy silty CLAY with occasional roots and rootlets to 0.90 m	1
		1.00 1.00	SPT D	N=23 (2,2,3,5,7,8)					
		1.50	D		1.60			Orange-brown clayey GRAVEL	
		2.00 2.00	SPT D	N=19 (4,4,4,5,5,5)	1.90			Orange-brown silty sandy GRAVEL	2
	▽	2.50	D						
		3.00 3.00	SPT D	N=8 (2,2,2,2,2,2)					3
		3.50	D						
		4.00	D		3.80 4.00			SILT and fine sand	4
								End of Borehole at 4.00 m	
									5
									6
									7
									8
									9

Remarks: Groundwater encountered at 2.50 m.

Project Name
 Denvilles Farm Site

 Project No.
 J11002

Co-ords: -

 Hole Type
 WLS

Location: Emsworth

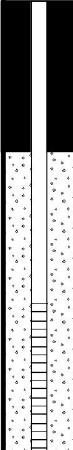
Level: -

 Scale
 1:50

Client: BDW Southmapton

Dates: 20/01/2011

 Logged By
 DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.60			TOPSOIL	
		1.00	D		1.30			Low becoming medium strength orange-brown, pale brown silty sandy CLAY	1
		1.50	D		1.50			Medium strength brown CLAY wih abundant flint gravel	
		2.00	D					Locally clayey flint GRAVEL	2
		2.30	D						
		3.00	D						3
		3.80	D		3.60			Fine pale brown sandy SILT	4
					4.00			End of Borehole at 4.00 m	
									5
									6
									7
									8
									9
		Type	Results						

Remarks: Groundwater encountered at 3.6 m. Standpipe installed with a response zone from 1 m to 3 m.

Project Name Denvilles Farm Site	Project No. J11002	Co-ords: -	Hole Type WLS
Location: Emsworth		Level: -	Scale 1:50
Client: BDW Southmapton		Dates: 20/01/2011	Logged By DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.20	D		0.20			MADE GROUND (reworked clay with brick and ash and concrete)	1	
							CLAY			
		1.00	D		1.20			GRAVEL with statining and odour	2	
		2.00	D		3.00					3
		2.40	D							
		3.00	D							
									End of Borehole at 3.00 m	
										5
										6
										7
						8				
						9				

Remarks: Groundwater encountered at 2.4 m.



Project Name
Denvilles Farm Site

Project No.
J11002

Co-ords: -

Hole Type
WLS

Location: Emsworth

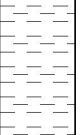
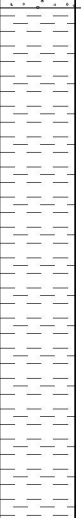
Level: -

Scale
1:50

Client: BDW Southampton

Dates: 20/01/2011

Logged By
DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	D		0.50			TOPSOIL	
		1.00 1.00	SPT D	N=10 (1,1,2,2,3,3)				Low strength pale brown and orange-brown CLAY with occasional roots and rootlets and organic flecks	1
					1.50			GRAVEL	
		2.00	SPT	N=10 (1,1,1,3,3,3)	1.90			Pale yellowish brown and orange-brown silty CLAY	2
		2.50	D						
		3.00	SPT	N=13 (2,2,3,3,3,4)					3
		4.00 4.00	SPT D	Error					4
		5.00	SPT	N=13 (2,2,3,3,3,4)					5
		5.45	D		5.35 5.45			CLAY	
								End of Borehole at 5.45 m	6
									7
									8
									9

Remarks: Standpipe installed with a reponse zone from 1 m to 5 m.

Project Name
 Denvilles Farm Site

 Project No.
 J11002

Co-ords: -

 Hole Type
 WLS

Location: Emsworth

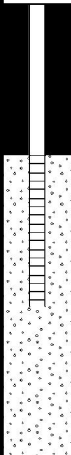
Level: -

 Scale
 1:50

Client: BDW Southmapton

Dates: 31/01/2011-31/01/2012

 Logged By
 DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			MADE GROUND (reworked cay with flint gravel)	
								Low strength pale brown sandy silty CLAY with scattered fine flint gravel	1
		1.00	D		1.40			Pale brown CLAY (dense)	
					1.90			Sandy GRAVEL - strong hydrocarbon odour	2
		2.30	D		3.00			End of Borehole at 3.00 m	3
									4
									5
									6
									7
									8
									9

Remarks: Groundwater encountered at 2 m. Standpipe installed with a response zone from 1 m to 3 m.

Project Name
Denvilles Farm Site

Project No.
J11002

Co-ords: -

Hole Type
WLS

Location: Emsworth

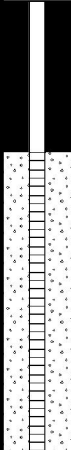
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Scale
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Client: BDW Southmapton

Dates: 31/01/2011-31/01/2012

Logged By
DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20			Weak CONCRETE	
		0.40			0.40			MADE GROUND (rubble and flint)	
		0.50	D					Low strength pale brown silty sandy CLAY becoming medium strength below 0.80 m	1
		1.00	D						
		1.40			1.40			Brown clayey GRAVEL	
		1.80	D		2.10			Pale brown silty sandy GRAVEL	2
		2.20	D						
					3.00			End of Borehole at 3.00 m	3
									4
									5
									6
									7
									8
									9

Remarks: Groundwater encountered at 2 m. Standpipe installed with a response zone from 1 m to 3 m.

Project Name Denvilles Farm Site	Project No. J11002	Co-ords: -	Hole Type WLS
Location: Emsworth		Level: -	Scale 1:50
Client: BDW Southmapton		Dates: 31/01/2011-31/01/2012	Logged By DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.20			Weak CONCRETE		
		0.50	D					Low strength pale brown CLAY with occasional scattered gravel becoming medium strength below 1 m	1	
		1.00	D							
						1.60			Pale brown sandy clayey GRAVEL	2
		2.00	D				3			
										4
						4.00				5
										6
										7
							8			
							9			

Remarks: Groundwater encountered at 2 m.



Project Name
 Denvilles Farm Site

 Project No.
 J11002

Co-ords: -

 Hole Type
 WLS

Location: Emsworth

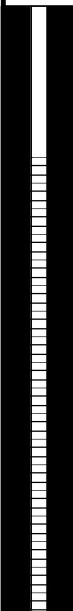
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 Scale
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Client: BDW Southampton

Dates: 31/01/2011-31/01/2012

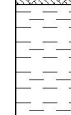
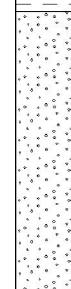
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 DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.20			Weak CONCRETE	
		0.50	D					Low strength pale orange-brown silty CLAY with scattered gravel	
		1.00	SPT	N=13 (1,1,1,2,4,6)	1.25			Pale orange-brown silty sandy GRAVEL	1
		1.80	D						
		2.00	SPT	N=39 (7,10,10,10,10,9)	2.30			Pale yellowish brown clayey silty SAND with abundant flint gravel - stained 2.3 m to 2.5 m - no odour	2
		2.40	D						
		3.00	SPT	N=4 (1,0,1,1,1,1)	3.00			Pale yellowish brown sandy fine to medium GRAVEL	3
					3.50			Low strength yellowish brown very silty clay / clayey SILT	
		4.00	SPT	N=12 (2,3,3,3,3,3)	4.00				4
								End of Borehole at 4.00 m	
									5
									6
									7
									8
									9

Remarks: Groundwater encountered at 2.3 m. Standpipe installed with a response zone from 1 m to 4 m.



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Location: Emsworth		Level: -	Scale 1:50
Client: BDW Southmapton		Dates: 31/01/2011-31/01/2012	Logged By DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
	▽	0.20	D	N=24 (2,3,5,6,6,7)	0.30			TOPSOIL	1
		1.00	SPT					Low strength pale orange-brown silty CLAY with occasional rootlets	
		1.00	D						
		2.00	SPT	N=28 (6,7,7,7,7,7)	1.10		Brown clayey GRAVEL	2	
		2.50	D						
		3.00						End of Borehole at 3.00 m	3
									4
									5
									6
									7
							8		
							9		

Remarks: Groundwater encountered at 2 m.





Project Name
 Denvilles Farm Site

 Project No.
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 Hole Type
 WLS

Location: Emsworth

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 Scale
 1:50

Client: BDW Southmapton

Dates: 31/01/2011-31/01/2012

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 DPB

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			MADE GROUND (concrete and rubble)	
		0.50	D					Low strength brown silty CLAY with roots and rootlets	
		1.00	D						1
					1.50			Pale brown clayey GRAVEL	
					2.00				2
								End of Borehole at 2.00 m	
									3
									4
									5
									6
									7
									8
									9

Remarks:

Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

 Date
 21/01/2011

Location: Emsworth

Dimensions: -

 Depth
 3.00m

 Scale
 1:25

Client: BDW Southampton

 Logged By
 DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D					TOPSOIL	
			0.50			Low strength dark orange-brown very silty CLAY	
			0.70			Low strength dark orange-brown very silty CLAY with scattered flint gravel	
1.00	D					Dark orange-brown clayey GRAVEL	1
			1.20				
1.50	D					Dark orange-brown very silty sandy clayey GRAVEL	2
			2.00				
			3.00			Trialpit Complete at 3.00 m	3
							4

Remarks: Groundwater not encountered, but damp below 2m. Trialpit excavated using a rubber tyred excavator (JCB 3cx) with a 600 mm bucket. Trial pit sides unstable below 2m.

Groundwater:



Project Name
Denvilles Farm Site

Project No.
J11002

Co-ords: -
Level: -

Date
21/01/2011

Location: Emsworth

Dimensions: -

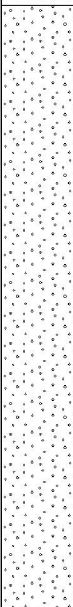
Depth
3.50m



Scale
1:25

Client: BDW Southmapton

Logged By
DPB

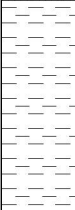
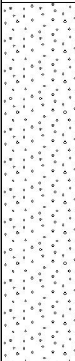
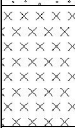
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50	D		0.60			TOPSOIL	
						CLAY	1
1.00	D						
1.50	D		1.50				
2.00	D					GRAVEL	2
							3
			3.50				
						Trialpit Complete at 3.50 m	4

Remarks: Groundwater encountered at 2.2m. Trial pit excavated using a rubber tyred excavaotr (JCB 3cx) with a 600 mm bucket. Trial pit sides very unstable.

Groundwater:



Project Name Denvilles Farm Site		Project No. J11002	Co-ords: - Level: -	Date 21/01/2011
Location: Emsworth			Dimensions: -	Scale 1:25
Client: BDW Southampton			Depth 2.80m	Logged By DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.50			TOPSOIL	
			1.20			CLAY	1
2.00	D		2.40			GRAVEL	2
			2.80			Pale yellowish brown clayey SILT very low strength very soft	
						Trialpit Complete at 2.80 m	3
							4

Remarks: Groundwater encountered at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable - hole collapsed.

Groundwater:



Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

 Date
 21/01/2011

Location: Emsworth

Dimensions: -

 Scale
 1:25

Client: BDW Southmapton

 Depth
 3.30m

 Logged By
 DPB

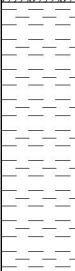
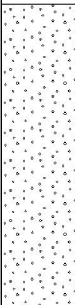
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D					TOPSOIL	
			0.60			Low strength silty CLAY	
1.00	D					Clayey GRAVEL	1
			1.10				
			1.70			Silty sandy GRAVEL	
2.20	D						2
			3.30				3
Trialpit Complete at 3.30 m							4

Remarks: Groundwater encountered at 2.30m. Trial pit excavated using a rubber tired excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable below 1.50m - collapsing at 2.30m.

Groundwater:



Project Name Denvilles Farm Site		Project No. J11002	Co-ords: - Level: -	Date 21/01/2011
Location: Emsworth			Dimensions: -	Scale 1:25
Client: BDW Southmapton			Depth 2.80m	Logged By DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.40			TOPSOIL	
1.00	D		1.30			Low strength dark orange-brown very silty CLAY with occasional gravel	1
			2.30			Orange-brown clayey GRAVEL becoming increasingly stiff below 2m.	2
			2.80			Pale yellowish brown sandy clayey SILT	
						Trialpit Complete at 2.80 m	3
							4

Remarks: Groundwater encountered at 2.20m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable - collapsed.

Groundwater:



Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

 Date
 21/01/2011

Location: Emsworth

Dimensions: -

 Depth
 2.30m

 Scale
 1:25

Client: BDW Southmapton

 Logged By
 DPB

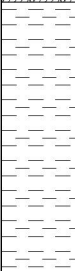
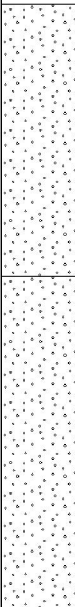
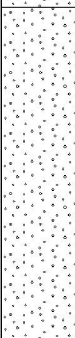
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.30			MADE GROUND (topsoil with gravel)	
						MADE GROUND (reworked topsoil)	
0.80	D		0.90			Reworked clayey yellowish GRAVEL	1
1.00	D		1.30			Yellowish brown clayey silty GRAVEL	
			2.30			Trialpit Complete at 2.30 m	
							2
							3
							4

Remarks: Groundwater encountered at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater:



Project Name Denvilles Farm Site		Project No. J11002	Co-ords: - Level: -	Date 21/01/2011
Location: Emsworth			Dimensions: -	Scale 1:25
Client: BDW Southmapton			Depth 3.30m	Logged By DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.40			TOPSOIL	
1.00	D		1.30			Low strength orange-brown silty CLAY	1
2.00	D		2.20			Yellowish brown clayey silty GRAVEL with occasional pockets of low strength brown clay	2
			3.30			Orange-brown clayey GRAVEL with chalk (damp). Reworked off white chalk with silt pockets below 3m.	3
Trialpit Complete at 3.30 m							4

Remarks: Groundwater encountered at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable - collapsed.

Groundwater:



Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

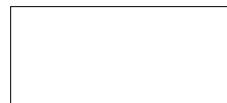
 Date
 21/01/2011

Location: Emsworth

Dimensions: -

 Scale
 1:25

Client: BDW Southampton

 Depth
 2.80m

 Logged By
 DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50	D					MADE GROUND (reworked topsoil and brick with tile and timber with clay)	
1.00	D		1.10			Yellowish brown clayey silty GRAVEL	1
			2.10			Orange-brown clayey sandy GRAVEL with pale brown and off white reqorked chalk and silt pockets below 2.5m	2
			2.80			Trialpit Complete at 2.80 m	3
							4

Remarks: Groundwater encountererd at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm buekt. Trial pit sides very unsable - collapsed.

Groundwater:



Project Name

Denvilles Farm Site

Project No.

J11002

Co-ords: -

Level: -

Date

21/01/2011

Location: Emsworth

Dimensions: -

Depth

1.90m

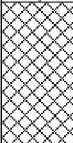
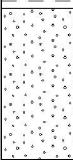
Scale

1:25

Client: BDW Southmapton

Logged By

DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50	D					MADE GROUND (reworked compost and pots)	
			0.30 0.40			Clayey GRAVEL	
1.00	D					MADE GROUNDN (reworked topsoil with tile)	
			0.90 1.10			CLAY with gravel	
1.50	D					Yellowish brown clayey GRAVEL	1
			1.60 1.90			Sandy orange-brown GRAVEL	
						Trialpit Complete at 1.90 m	2
							3
							4

Remarks: Groundwater encountered at 1.60m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable - collapsed.

Groundwater:



Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

 Date
 21/01/2011

Location: Emsworth

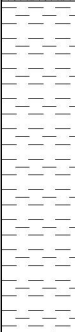
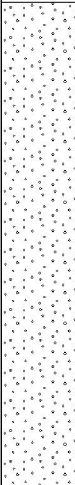
Dimensions: -

 Depth
 3.00m

 Scale
 1:25

Client: BDW Southmapton

 Logged By
 DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.00	D					TOPSOIL (GC)	
			0.30			Very soft and low strength orange-brown very silty CLAY	1
			1.40			Orange-brown clayey silty sandy GRAVEL	2
			3.00			Trialpit Complete at 3.00 m	3
							4

Remarks: Groundwater encountered at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable - collapsed.

Groundwater:



Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

 Date
 21/01/2011

Location: Emsworth

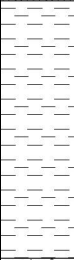
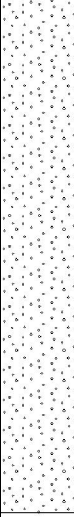
Dimensions: -

 Depth
 3.00m

 Scale
 1:25

Client: BDW Southmapton

 Logged By
 DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50	D		0.45			TOPSOIL	
1.00	D		1.30			Very soft orange-brown silty CLAY	1
			3.00			Orange-brown clayey silty GRAVEL wet below 1.90m	2
						Trialpit Complete at 3.00 m	3
							4

Remarks: Groundwater encountered at 1.9m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides very unstable below 2m - collapsed.

Groundwater:



Project Name
 Denvilles Farm Site

 Project No.
 J11002

 Co-ords: -
 Level: -

 Date
 21/01/2011

Location: Emsworth

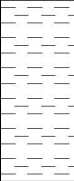
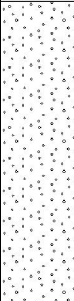
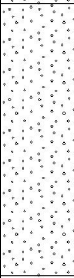
Dimensions: -

 Scale
 1:25

Client: BDW Southampton

 Depth
 3.00m

 Logged By
 DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.50			TOPSOIL	
1.00	D		1.10			Very soft orange-brown silty CLAY	1
			2.10			Orange-brown silty clayey GRAVEL locally pale yellowish brown pockets of silt with abundant fine chalk	
							2
2.30	D					Yellowish brown silty fine GRAVEL - wet and dense	
			3.00			Trialpit Complete at 3.00 m	3
							4

Remarks: Groundwater encountered at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket.

Groundwater:



Project Name Denvilles Farm Site		Project No. J11002	Co-ords: - Level: -	Date 21/01/2011
Location: Emsworth			Dimensions: -	Scale 1:25
Client: BDW Southampton			Depth 3.00m	Logged By DPB

Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.50	D		0.50			TOPSOIL	
1.00	D		1.30			CLAY	1
2.00	D		2.10			Clayey GRAVEL	2
			3.00			Yellowish brown silty sandy GRAVEL - dense and wet	3
						Trialpit Complete at 3.00 m	4

Remarks: Groundwater encountered at 2m. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket.

Groundwater:



Project Name Denvilles Farm Site		Project No. J11002	Co-ords: - Level: -	Date 21/01/2011
Location: Emsworth			Dimensions: -	Scale 1:25
Client: BDW Southmapton			Depth 3.00m	Logged By DPB

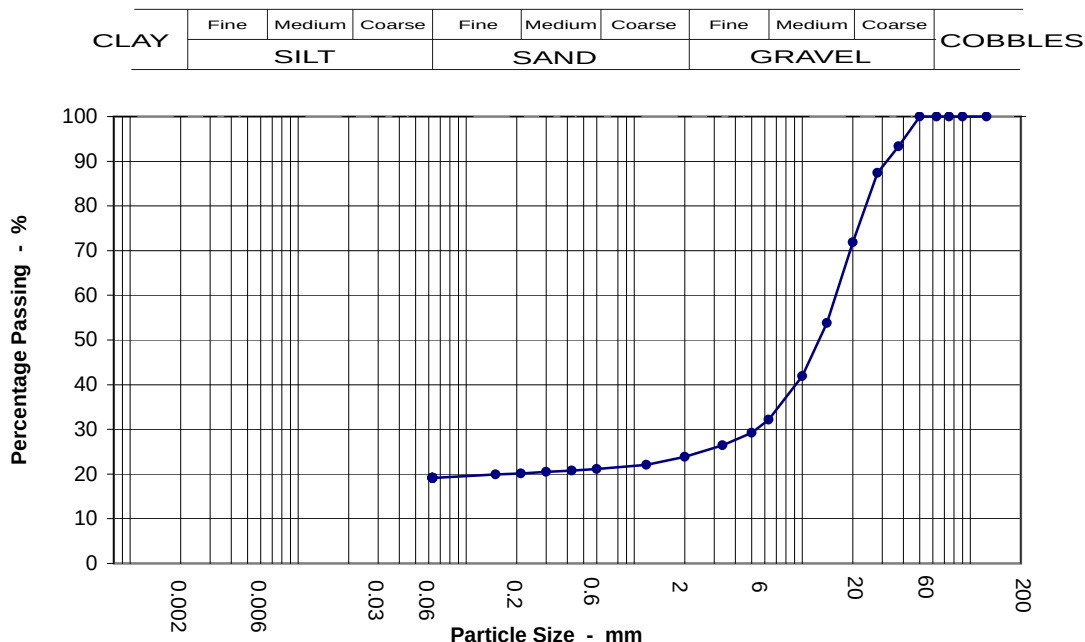
Samples & In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
Depth (m)	Type	Results					
0.30	D		0.50			TOPSOIL	
1.00	D					CLAY	1
			1.20			Yellowish brown and orange-brown clayey GRAVEL	
			3.00				2
						Trialpit Complete at 3.00 m	3
							4

Remarks: Groundwater not encountered. Trial pit excavated using a rubber tyred excavator (JCB 3cx) with a 600mm bucket. Trial pit sides stable.

Groundwater:



K4 SOILS 	PARTICLE SIZE DISTRIBUTION BS 1377 : Part 2 : 1990 : Clause 9	Job/report no:	10596
		Project No	-
Location	Manor Farm, Denvilles, Havant	Borehole / Pit No	TP1
		Depth	1.50 m
Visual Soil Description	Brown slightly sandy clayey GRAVEL (gravel is fmc and angular to sub angular)	Sample Type/No	-



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	87		
20	72		
14	54		
10	42		
6.3	32		
5	29		
3.35	26		
2	24		
1.18	22		
0.6	21		
0.425	21		
0.3	20		
0.212	20		
0.15	20		
0.063	19		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause
Sedimentation	N/A
Suitable Amount Of Sample Received	Yes

Sample Proportions	
Cobbles	0.0
Gravel	76.2
Sand	4.7
Silt & Clay	19.1

Grading Analysis	
D100	125.0
D60	16.1
D10	
Uniformity Coefficient	N/A

K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU. E-mail: k4soils@aol.com	Approved Signatories: K.Phaure(Tech.Mgr)J.Phaure(Lab.Mgr) Test results relate only to the sample numbers shown above	Checked and Approved Initials:kp Date:03/03/2011	 UKAS TESTING
All samples connected with this report, incl any on 'hold' will be disposed off according to company policy. A copy of this policy is available on request. Sheet 3/3 MSF-11/R9			
			2519

BS 1377 : Part 2 : 1990 : Clause 9

10596

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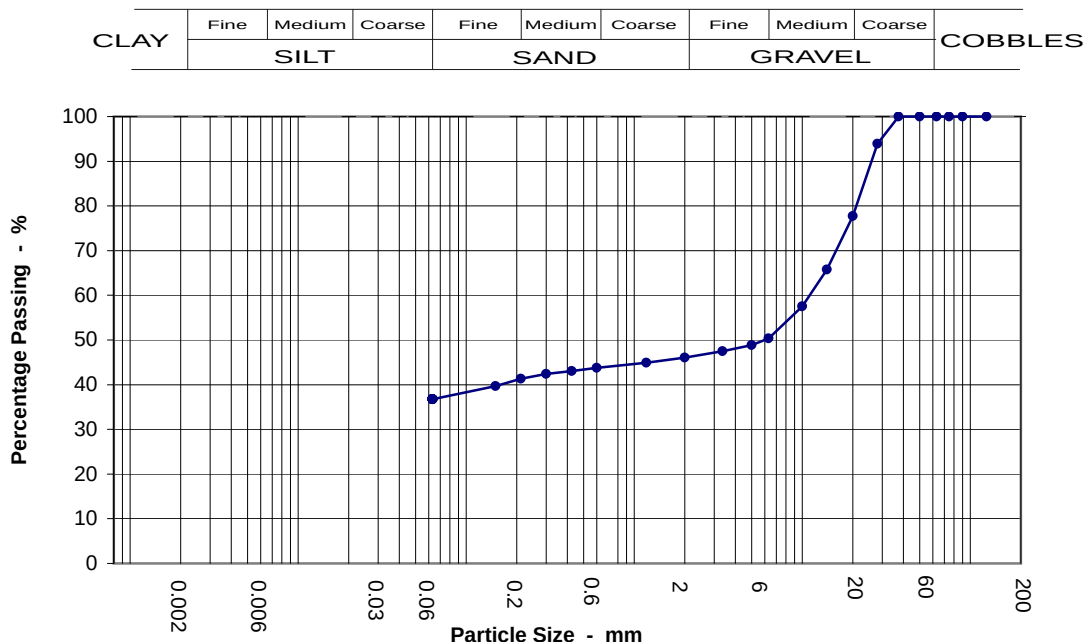
Manor Farm, Denvilles, Havant

TP7

Brown slightly sandy clayey GRAVEL (gravel is fmc and angular to sub angular)

2.00

—



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	78		
14	66		
10	58		
6.3	50		
5	49		
3.35	47		
2	46		
1.18	45		
0.6	44		
0.425	43		
0.3	42		
0.212	41		
0.15	40		
0.063	37		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause
Sedimentation	N/A
Suitable Amount Of Sample Received	Yes

Sample Proportions	
Cobbles	0.0
Gravel	54.0
Sand	9.3
Silt & Clay	36.7

Grading Analysis	
D100	125.0
D60	11.2
D10	
Uniformity Coefficient	N/A

BS 1377 : Part 2 : 1990 : Clause 9

10596

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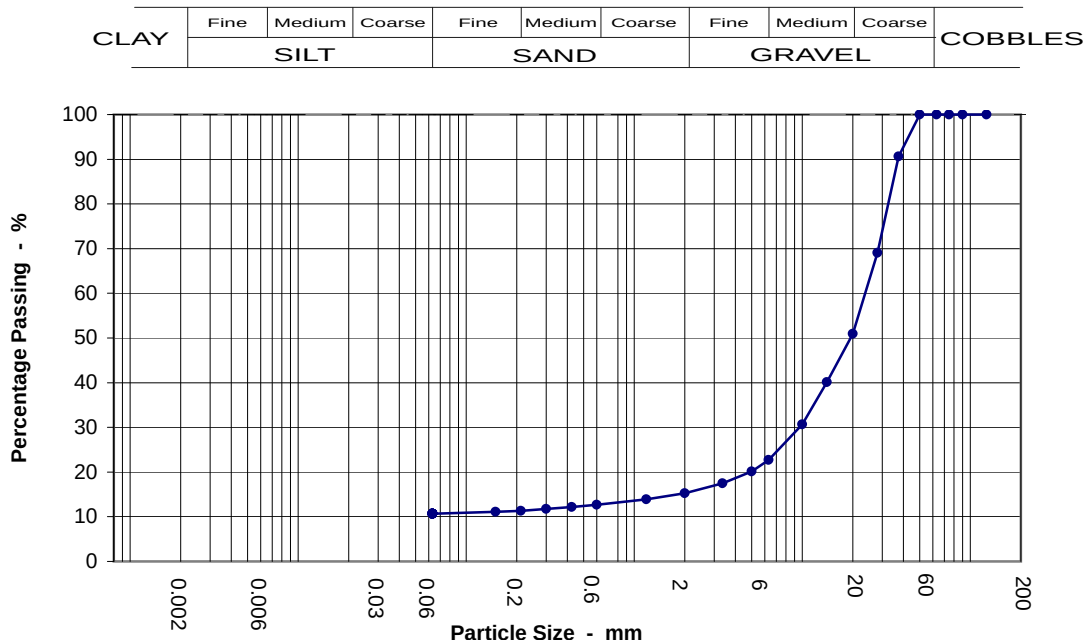
Manor Farm, Denvilles, Havant

IP12

**Brown slightly sandy slightly clayey GRAVEL (gravel is
fmc and angular)**

2.30

—



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	91		
28	69		
20	51		
14	40		
10	31		
6.3	23		
5	20		
3.35	17		
2	15		
1.18	14		
0.6	13		
0.425	12		
0.3	12		
0.212	11		
0.15	11		
0.063	11		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause
Sedimentation	N/A
Suitable Amount Of Sample Received	Yes

Sample Proportions	
Cobbles	0.0
Gravel	84.7
Sand	4.6
Silt & Clay	10.7

Grading Analysis	
D100	125.0
D60	24.0
D10	
Uniformity Coefficient	N/A

Project Name: Manor Farm, Denvilles, Havant					K4 SOILS 
Client: Environmental		Project no: -			
Our job no: 10596					
Borehole No:	Sample No:	Depth m	Description	pH	Sulphate content (g/l)
BH2		1.00	Brown slightly sandy slightly gravelly CLAY (gravel is fm and sub angular to angular)	7.5	0.26
TP5		1.00	Brown slightly sandy slightly gravelly CLAY (gravel is fm and sub angular to angular)	7.5	0.20
TP9		1.00	Brown slightly sandy gravelly CLAY (gravel is fm and sub angular)	7.5	0.22
Date 03/03/2011	Summary of Test Results				Checked and Approved Initials : kp
	BS 1377 : Part 3 :Clause 5 : 1990				
	Determination of sulphate content of soil and ground water : gravimetric method				



Dominic Brightman
Wilson Bailey Ltd
Forge Farm Yard
Compton Chamberlayne
Wiltshire SP3 5DS



QTS Environmental Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 851105
russell.jarvis@qtsenvironmental.com

QTS Environmental Report No: 5092

Site Reference: Manor Farm, Denvilles

Project / Job Ref: None Supplied

Order No: None Supplied

Sample Receipt Date: 11/02/11

Sample Scheduled Date: 11/02/11

Report Issue Number: 1

Reporting Date: 21/02/2011

Authorised by:

Russell Jarvis
Director

On behalf of QTS Environmental Ltd

Authorised by:

Kevin Old
Director

On behalf of QTS Environmental Ltd



QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 851105



Soil Analysis Certificate						
QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH2	BH3	BH4	BH4	TP3
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.20	0.50	1.00	0.30
Reporting Date: 21/02/2011	QTSE Sample No	21848	21849	21850	21851	21852

Determinand	Unit	MDL	Accreditation					
Stone Content	%	<0.1	NONE	<0.1	<0.1	<0.1	<0.1	<0.1

General Inorganics	Unit	MDL	Accreditation					
pH	pH Units	+ / - 0.1	MCERTS	7.3	7.4	7.7	7.8	7.2
Total Organic Carbon (TOC)	%	<0.1	NONE	1.4	1.3	0.6	0.1	0.6
Total Phenols (monohydric)	mg/kg	<2	NONE	<2	<2	<2	<2	<2

Metals	Unit	MDL	Accreditation					
Arsenic (As)	mg/kg	<2	MCERTS	6	5	9	10	6
W/S Boron	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Cadmium (Cd)	mg/kg	<0.5	MCERTS	<0.5	<0.5	<0.5	0.6	<0.5
Chromium (hexavalent)	mg/kg	<2	NONE	<2	<2	<2	<2	<2
Chromium (Cr)	mg/kg	<2	MCERTS	18	17	25	37	22
Copper (Cu)	mg/kg	<4	MCERTS	18	11	14	16	11
Lead (Pb)	mg/kg	<3	MCERTS	53	42	17	19	16
Mercury (Hg)	mg/kg	<1	NONE	<1	<1	<1	1.1	<1
Nickel (Ni)	mg/kg	<3	MCERTS	12	12	21	40	15
Selenium (Se)	mg/kg	<3	NONE	<3	<3	<3	<3	<3
Zinc (Zn)	mg/kg	<3	MCERTS	125	64	47	65	51

Analytical results are expressed on a dry weight basis where samples are dried at less than 30 °C
 Analysis carried out on the dried sample is corrected for the stone content



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Soil Analysis Certificate						
QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	TP5	TP8	TP8	TP6	TP9
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.50	1.00	0.30	0.50
Reporting Date: 21/02/2011	QTSE Sample No	21853	21854	21855	21856	21857

Determinand	Unit	MDL	Accreditation					
Stone Content	%	<0.1	NONE	<0.1	<0.1	<0.1	<0.1	<0.1

General Inorganics	Unit	MDL	Accreditation					
pH	pH Units	+ / - 0.1	MCERTS	7.1	7.2	7.4	7.5	7.5
Total Organic Carbon (TOC)	%	<0.1	NONE	1.1	1	0.9	1	0.8
Total Phenols (monohydric)	mg/kg	<2	NONE	<2	<2	<2	<2	<2

Metals	Unit	MDL	Accreditation					
Arsenic (As)	mg/kg	<2	MCERTS	6	8	7	8	9
W/S Boron	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Cadmium (Cd)	mg/kg	<0.5	MCERTS	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (hexavalent)	mg/kg	<2	NONE	<2	<2	<2	<2	<2
Chromium (Cr)	mg/kg	<2	MCERTS	20	24	24	21	19
Copper (Cu)	mg/kg	<4	MCERTS	13	33	34	34	52
Lead (Pb)	mg/kg	<3	MCERTS	52	52	57	51	91
Mercury (Hg)	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Nickel (Ni)	mg/kg	<3	MCERTS	12	17	18	17	16
Selenium (Se)	mg/kg	<3	NONE	<3	<3	<3	<3	<3
Zinc (Zn)	mg/kg	<3	MCERTS	60	77	85	75	91

Analytical results are expressed on a dry weight basis where samples are dried at less than 30 °C
 Analysis carried out on the dried sample is corrected for the stone content



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Soil Analysis Certificate						
QTS Environmental Report No: 5092	Date Sampled	None Supplied				
Wilson Bailey Ltd	Time Sampled	None Supplied				
Site Reference: Manor Farm, Denvilles	TP / BH No	BH6				
Project / Job Ref: None Supplied	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	1.00				
Reporting Date: 21/02/2011	QTSE Sample No	21858				

Determinand	Unit	MDL	Accreditation				
Stone Content	%	<0.1	NONE	<0.1			

General Inorganics	Unit	MDL	Accreditation				
pH	pH Units	+ / - 0.1	MCERTS	7.3			
Total Organic Carbon (TOC)	%	<0.1	NONE	0.5			
Total Phenols (monohydric)	mg/kg	<2	NONE	<2			

Metals	Unit	MDL	Accreditation				
Arsenic (As)	mg/kg	<2	MCERTS	6			
W/S Boron	mg/kg	<1	NONE	<1			
Cadmium (Cd)	mg/kg	<0.5	MCERTS	<0.5			
Chromium (hexavalent)	mg/kg	<2	NONE	<2			
Chromium (Cr)	mg/kg	<2	MCERTS	22			
Copper (Cu)	mg/kg	<4	MCERTS	10			
Lead (Pb)	mg/kg	<3	MCERTS	20			
Mercury (Hg)	mg/kg	<1	NONE	<1			
Nickel (Ni)	mg/kg	<3	MCERTS	13			
Selenium (Se)	mg/kg	<3	NONE	<3			
Zinc (Zn)	mg/kg	<3	MCERTS	65			

Analytical results are expressed on a dry weight basis where samples are dried at less than 30 °C
 Analysis carried out on the dried sample is corrected for the stone content



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Soil Analysis Certificate - Speciated PAHs

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH2	BH3	BH4	BH4	TP3
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.20	0.50	1.00	0.30
Reporting Date: 21/02/2011	QTSE Sample No	21848	21849	21850	21851	21852

Determinand	Unit	MDL	Accreditation					
Naphthalene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	MCERTS	0.22	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	MCERTS	0.19	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	MCERTS	0.12	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	<0.1	MCERTS	0.37	<0.1	<0.1	<0.1	<0.1
Dibenz(a,h)anthracene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1

Total EPA-16 PAHs	mg/kg	<1.6	MCERTS	<1.6	<1.6	<1.6	<1.6	<1.6
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Soil Analysis Certificate - Speciated PAHs

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	TP5	TP8	TP8	TP6	TP9
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.50	1.00	0.30	0.50
Reporting Date: 21/02/2011	QTSE Sample No	21853	21854	21855	21856	21857

Determinand	Unit	MDL	Accreditation					
Naphthalene	mg/kg	<0.1	MCERTS	<0.1	0.13	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	MCERTS	<0.1	1.24	0.54	0.49	0.21
Anthracene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	MCERTS	<0.1	0.97	0.62	0.57	0.24
Pyrene	mg/kg	<0.1	MCERTS	<0.1	0.67	0.46	0.41	0.19
Benzo(a)anthracene	mg/kg	<0.1	MCERTS	<0.1	0.13	0.14	<0.1	<0.1
Chrysene	mg/kg	<0.1	MCERTS	<0.1	0.36	0.27	0.26	<0.1
Benzo(b)fluoranthene	mg/kg	<0.1	MCERTS	<0.1	0.13	0.14	0.12	<0.1
Benzo(k)fluoranthene	mg/kg	<0.1	MCERTS	<0.1	0.23	0.13	0.18	<0.1
Benzo(a)pyrene	mg/kg	<0.1	MCERTS	<0.1	0.14	<0.1	0.13	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	<0.1	MCERTS	<0.1	0.41	0.39	<0.1	<0.1
Dibenz(a,h)anthracene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	<0.1	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1

Total EPA-16 PAHs	mg/kg	<1.6	MCERTS	<1.6	4.40	2.69	2.15	<1.6
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Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - Speciated PAHs

QTS Environmental Report No: 5092	Date Sampled	None Supplied				
Wilson Bailey Ltd	Time Sampled	None Supplied				
Site Reference: Manor Farm, Denvilles	TP / BH No	BH6				
Project / Job Ref: None Supplied	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	1.00				
Reporting Date: 21/02/2011	QTSE Sample No	21858				

Determinand	Unit	MDL	Accreditation				
Naphthalene	mg/kg	<0.1	MCERTS	<0.1			
Acenaphthylene	mg/kg	<0.1	MCERTS	<0.1			
Acenaphthene	mg/kg	<0.1	MCERTS	<0.1			
Fluorene	mg/kg	<0.1	MCERTS	<0.1			
Phenanthrene	mg/kg	<0.1	MCERTS	<0.1			
Anthracene	mg/kg	<0.1	MCERTS	<0.1			
Fluoranthene	mg/kg	<0.1	MCERTS	0.15			
Pyrene	mg/kg	<0.1	MCERTS	0.13			
Benzo(a)anthracene	mg/kg	<0.1	MCERTS	<0.1			
Chrysene	mg/kg	<0.1	MCERTS	<0.1			
Benzo(b)fluoranthene	mg/kg	<0.1	MCERTS	<0.1			
Benzo(k)fluoranthene	mg/kg	<0.1	MCERTS	<0.1			
Benzo(a)pyrene	mg/kg	<0.1	MCERTS	<0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	<0.1	MCERTS	<0.1			
Dibenz(a,h)anthracene	mg/kg	<0.1	MCERTS	<0.1			
Benzo(ghi)perylene	mg/kg	<0.1	MCERTS	<0.1			

Total EPA-16 PAHs	mg/kg	<1.6	MCERTS	<1.6			
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Soil Analysis Certificate - TPH CWG Banded

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH2	BH3	BH4	BH4	TP3
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.20	0.50	1.00	0.30
Reporting Date: 21/02/2011	QTSE Sample No	21848	21849	21850	21851	21852

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	mg/kg	<0.01	NONE	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatic >C6 - C8	mg/kg	<0.05	NONE	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic >C8 - C10	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C10 - C12	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C12 - C16	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C16 - C21	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C21 - C34	mg/kg	<6	NONE	<6	<6	<6	<6	<6

Aliphatic (C5 - C34)	mg/kg	<6	NONE	<6	<6	<6	<6	<6
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Aromatic >C5 - C7	mg/kg	<0.01	NONE	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatic >C7 - C8	mg/kg	<0.05	NONE	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic >C8 - C10	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C10 - C12	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C12 - C16	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C16 - C21	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C21 - C35	mg/kg	<6	NONE	8	<6	<6	<6	<6

Aromatic (C5 - C35)	mg/kg	<6	NONE	8	<6	<6	<6	<6
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Soil Analysis Certificate - TPH CWG Banded

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	TP5	TP8	TP8	TP6	TP9
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.50	1.00	0.30	0.50
Reporting Date: 21/02/2011	QTSE Sample No	21853	21854	21855	21856	21857

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	mg/kg	<0.01	NONE	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatic >C6 - C8	mg/kg	<0.05	NONE	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic >C8 - C10	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C10 - C12	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C12 - C16	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C16 - C21	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C21 - C34	mg/kg	<6	NONE	<6	<6	<6	<6	<6

Aliphatic (C5 - C34)	mg/kg	<6	NONE	<6	<6	<6	<6	<6
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Aromatic >C5 - C7	mg/kg	<0.01	NONE	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatic >C7 - C8	mg/kg	<0.05	NONE	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic >C8 - C10	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C10 - C12	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C12 - C16	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C16 - C21	mg/kg	<1	NONE	<1	3	<1	<1	<1
Aromatic >C21 - C35	mg/kg	<6	NONE	<6	8	<6	<6	<6

Aromatic (C5 - C35)	mg/kg	<6	NONE	<6	11	<6	<6	<6
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Soil Analysis Certificate - TPH CWG Banded

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH6	BH3	BH3	BH3	BH6
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	1.00	1.00	2.00	2.40	2.30
Reporting Date: 21/02/2011	QTSE Sample No	21858	21859	21860	21861	21862

Determinand	Unit	MDL	Accreditation					
Aliphatic >C5 - C6	mg/kg	<0.01	NONE	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatic >C6 - C8	mg/kg	<0.05	NONE	<0.05	<0.05	<0.05	<0.05	<0.05
Aliphatic >C8 - C10	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aliphatic >C10 - C12	mg/kg	<1	NONE	<1	<1	<1	3	<1
Aliphatic >C12 - C16	mg/kg	<1	NONE	<1	<1	<1	21	<1
Aliphatic >C16 - C21	mg/kg	<1	NONE	<1	<1	<1	27	<1
Aliphatic >C21 - C34	mg/kg	<6	NONE	<6	<6	<6	12	<6

Aliphatic (C5 - C34)	mg/kg	<6	NONE	<6	<6	<6	63	<6
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Aromatic >C5 - C7	mg/kg	<0.01	NONE	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatic >C7 - C8	mg/kg	<0.05	NONE	<0.05	<0.05	<0.05	<0.05	<0.05
Aromatic >C8 - C10	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C10 - C12	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C12 - C16	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C16 - C21	mg/kg	<1	NONE	<1	<1	<1	<1	<1
Aromatic >C21 - C35	mg/kg	<6	NONE	7	<6	<6	<6	<6

Aromatic (C5 - C35)	mg/kg	<6	NONE	7	<6	<6	<6	<6
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Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - TPH CWG Banded

QTS Environmental Report No: 5092	Date Sampled	None Supplied				
Wilson Bailey Ltd	Time Sampled	None Supplied				
Site Reference: Manor Farm, Denvilles	TP / BH No	BH7				
Project / Job Ref: None Supplied	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	2.20				
Reporting Date: 21/02/2011	QTSE Sample No	21863				

Determinand	Unit	MDL	Accreditation				
Aliphatic >C5 - C6	mg/kg	<0.01	NONE	<0.01			
Aliphatic >C6 - C8	mg/kg	<0.05	NONE	<0.05			
Aliphatic >C8 - C10	mg/kg	<1	NONE	<1			
Aliphatic >C10 - C12	mg/kg	<1	NONE	<1			
Aliphatic >C12 - C16	mg/kg	<1	NONE	<1			
Aliphatic >C16 - C21	mg/kg	<1	NONE	<1			
Aliphatic >C21 - C34	mg/kg	<6	NONE	<6			

Aliphatic (C5 - C34)	mg/kg	<6	NONE	<6			
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Aromatic >C5 - C7	mg/kg	<0.01	NONE	<0.01			
Aromatic >C7 - C8	mg/kg	<0.05	NONE	<0.05			
Aromatic >C8 - C10	mg/kg	<1	NONE	<1			
Aromatic >C10 - C12	mg/kg	<1	NONE	<1			
Aromatic >C12 - C16	mg/kg	<1	NONE	<1			
Aromatic >C16 - C21	mg/kg	<1	NONE	<1			
Aromatic >C21 - C35	mg/kg	<6	NONE	<6			

Aromatic (C5 - C35)	mg/kg	<6	NONE	<6			
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Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - BTEX & MTBE

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH2	BH3	BH4	BH4	TP3
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.20	0.50	1.00	0.30
Reporting Date: 21/02/2011	QTSE Sample No	21848	21849	21850	21851	21852

Determinand	Unit	MDL	Accreditation					
Benzene	µg/kg	<2	MCERTS	<2	<2	<2	<2	<2
Toluene	µg/kg	<5	MCERTS	<5	<5	<5	<5	<5
Ethylbenzene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
p & m-xylene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
o-xylene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
MTBE	µg/kg	<5	MCERTS	<5	<5	<5	<5	<5

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



QTS Environmental Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 851105



Soil Analysis Certificate - BTEX & MTBE						
QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	TP5	TP8	TP8	TP6	TP9
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	0.30	0.50	1.00	0.30	0.50
Reporting Date: 21/02/2011	QTSE Sample No	21853	21854	21855	21856	21857

Determinand	Unit	MDL	Accreditation					
Benzene	µg/kg	<2	MCERTS	<2	<2	<2	<2	<2
Toluene	µg/kg	<5	MCERTS	<5	<5	<5	<5	<5
Ethylbenzene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
p & m-xylene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
o-xylene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
MTBE	µg/kg	<5	MCERTS	<5	<5	<5	<5	<5

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - BTEX & MTBE

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH6	BH3	BH3	BH3	BH6
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	1.00	1.00	2.00	2.40	2.30
Reporting Date: 21/02/2011	QTSE Sample No	21858	21859	21860	21861	21862

Determinand	Unit	MDL	Accreditation					
Benzene	µg/kg	<2	MCERTS	<2	<2	<2	<2	<2
Toluene	µg/kg	<5	MCERTS	<5	<5	<5	<5	<5
Ethylbenzene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
p & m-xylene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
o-xylene	µg/kg	<10	MCERTS	<10	<10	<10	<10	<10
MTBE	µg/kg	<5	MCERTS	<5	<5	<5	<5	<5

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Soil Analysis Certificate - BTEX & MTBE						
QTS Environmental Report No: 5092	Date Sampled	None Supplied				
Wilson Bailey Ltd	Time Sampled	None Supplied				
Site Reference: Manor Farm, Denvilles	TP / BH No	BH7				
Project / Job Ref: None Supplied	Additional Refs	None Supplied				
Order No: None Supplied	Depth (m)	2.20				
Reporting Date: 21/02/2011	QTSE Sample No	21863				

Determinand	Unit	MDL	Accreditation				
Benzene	µg/kg	<2	MCERTS	<2			
Toluene	µg/kg	<5	MCERTS	<5			
Ethylbenzene	µg/kg	<10	MCERTS	<10			
p & m-xylene	µg/kg	<10	MCERTS	<10			
o-xylene	µg/kg	<10	MCERTS	<10			
MTBE	µg/kg	<5	MCERTS	<5			

Analytical results are expressed on a dry weight basis where samples are dried at less than 30°C



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Water Analysis Certificate - TPH CWG Banded

QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Manor Farm, Denvilles	TP / BH No	BH3	BH6	BH7	BH9
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 21/02/2011	QTSE Sample No	21864	21865	21866	21867

Determinand	Unit	MDL	Accreditation				
Aliphatic >C5 - C6	µg/l	<10	NONE	<10	<10	<10	<10
Aliphatic >C6 - C8	µg/l	<10	NONE	<10	<10	<10	<10
Aliphatic >C8 - C10	µg/l	<10	NONE	27	<10	<10	<10
Aliphatic >C10 - C12	µg/l	<10	NONE	44	<10	<10	<10
Aliphatic >C12 - C16	µg/l	<10	NONE	104	<10	<10	<10
Aliphatic >C16 - C21	µg/l	<10	NONE	135	<10	<10	<10
Aliphatic >C21 - C34	µg/l	<10	NONE	22	<10	<10	<10

Aliphatic (C5 - C34)	µg/l	<10	NONE	333	<10	<10	<10
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Aromatic >C5 - C7	µg/l	<10	NONE	<10	<10	<10	<10
Aromatic >C7 - C8	µg/l	<10	NONE	<10	<10	<10	<10
Aromatic >C8 - C10	µg/l	<10	NONE	<10	<10	<10	<10
Aromatic >C10 - C12	µg/l	<10	NONE	<10	<10	<10	<10
Aromatic >C12 - C16	µg/l	<10	NONE	12	<10	<10	<10
Aromatic >C16 - C21	µg/l	<10	NONE	37	<10	<10	<10
Aromatic >C21 - C35	µg/l	<10	NONE	<10	<10	<10	<10

Aromatic (C5 - C35)	µg/l	<10	NONE	49	<10	<10	<10
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Water Analysis Certificate - BTEX & MTBE						
QTS Environmental Report No: 5092	Date Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Wilson Bailey Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Manor Farm, Denvilles	TP / BH No	BH3	BH6	BH7	BH9	
Project / Job Ref: None Supplied	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	
Reporting Date: 21/02/2011	QTSE Sample No	21864	21865	21866	21867	

Determinand	Unit	MDL	Accreditation					
Benzene	µg/l	<1	NONE	<1	<1	<1	<1	
Toluene	µg/l	<1	NONE	<1	<1	<1	<1	
Ethylbenzene	µg/l	<1	NONE	<1	<1	<1	<1	
p & m-xylene	µg/l	<1	NONE	<1	<1	<1	<1	
o-xylene	µg/l	<1	NONE	<1	<1	<1	<1	
MTBE	µg/l	<1	NONE	<1	<1	<1	<1	



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4480

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Soil Analysis Certificate - Methodology & Miscellaneous Information	
QTS Environmental Report No: 5092	
Wilson Bailey Ltd	
Site Reference: Manor Farm, Denvilles	
Project / Job Ref: None Supplied	
Order No: None Supplied	
Reporting Date: 21/02/2011	

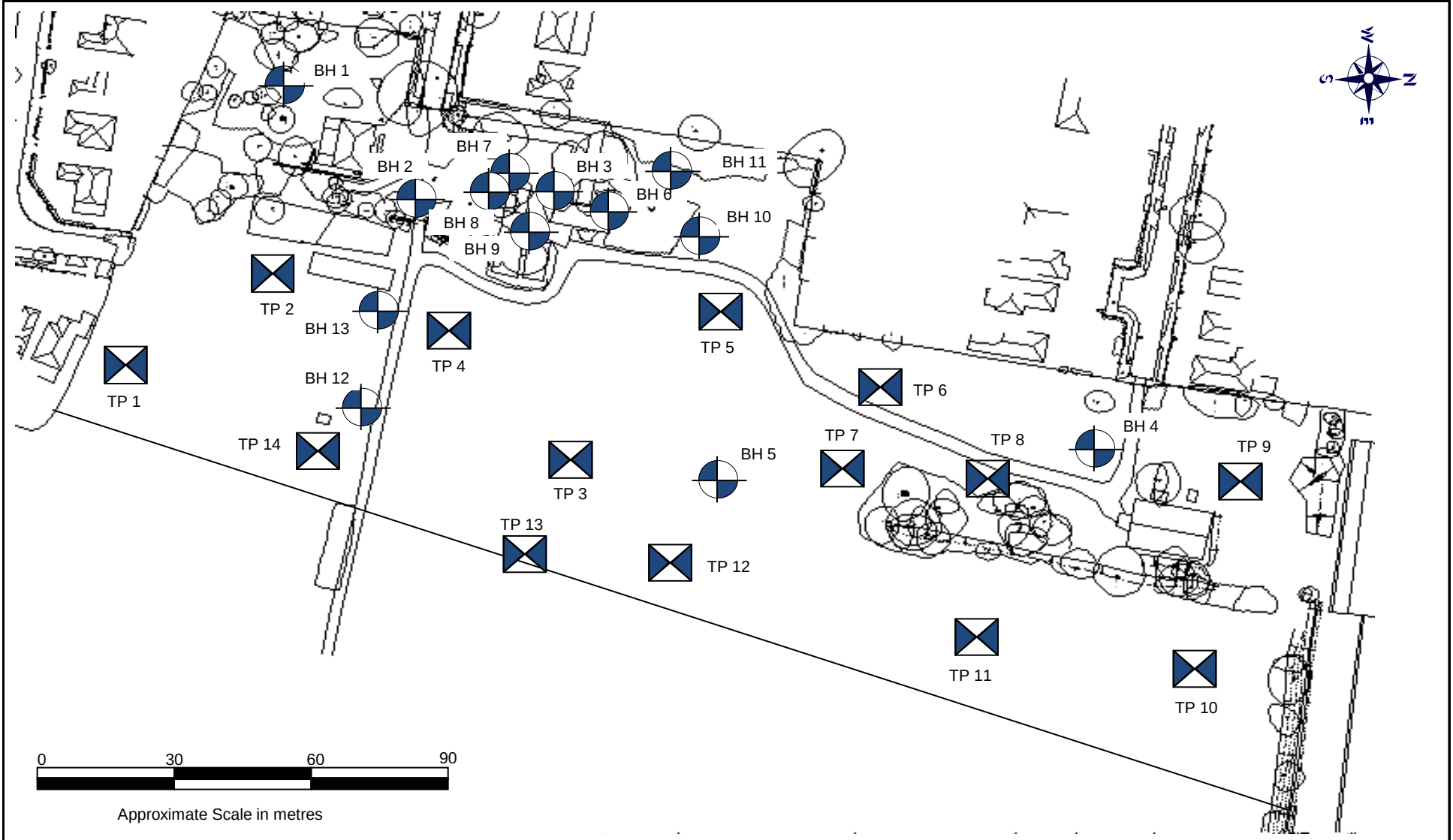
Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry	E016
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	AR	Asbestos Screening	Visual screening of samples for fibrous material	E024
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water followed by titration using silver nitrate	E021
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by turbidimeter	E020
Soil	D	Fluoride - Water Soluble	Test Kit	E023
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	D	Phosphorus	Determination of phosphorus by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	AR	Sulphide	Determination of sulphide by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia, potassium iodide/iodate followed by ICP-OES	E002
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E011
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E009
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E009
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E010
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E009
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VPH (C6 - C10)	Determination of hydrocarbons C6-C10 by headspace GC-MS	E001
Soil	AR	EPH TEXAS	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	TPH CWG	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	TPH LQM	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	EPH (with florilil cleanup)	Determination of acetone/hexane extractable hydrocarbons with florilil cleanup step by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001

Key

D Dried
AR As Received

Site Manor Farm, Denvilles

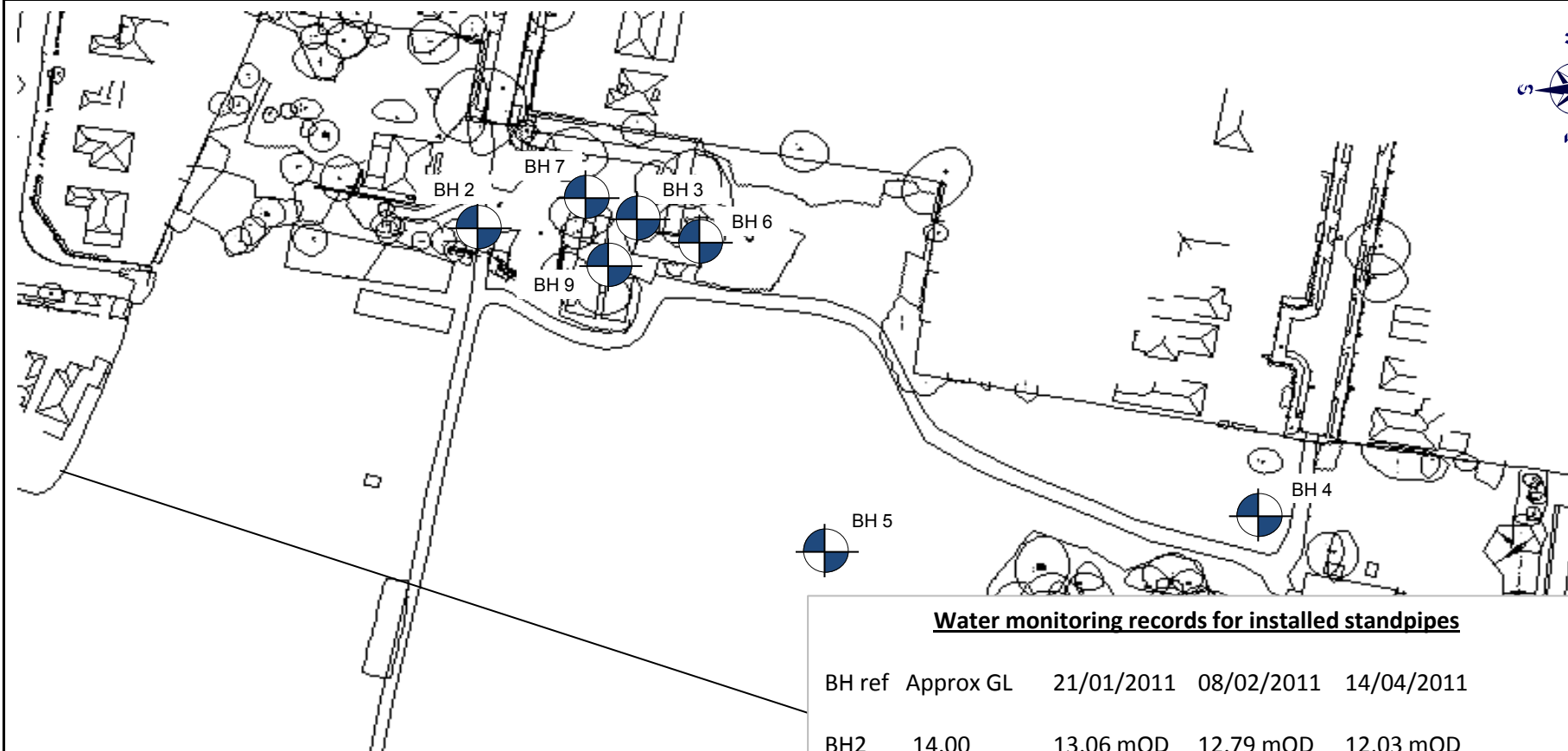
Client BDW Southampton



Site Plan

Site Manor Farm, Denvilles

Client BDW Southampton



Water monitoring records for installed standpipes

BH ref	Approx GL	21/01/2011	08/02/2011	14/04/2011
BH2	14.00	13.06 mOD	12.79 mOD	12.03 mOD
BH3	14.05	13.62 mOD	12.74 mOD	12.22 mOD
BH4	13.50	13.20 mOD	13.05 mOD	12.72 mOD
BH5	13.60	13.14 mOD	12.94 mOD	12.68 mOD
BH6	14.10	--	12.68 mOD	12.23 mOD
BH7	14.20	--	13.00 mOD	12.48 mOD
BH9	14.10	--	12.72 mOD	12.28 mOD

Approximate Scale in metres