HUMBERSIDE MATERIALS LABORATORY LIMITED

Atherton Way
Brigg
North Lincolnshire
DN20 8AR
Telephone & Fax 01652 652753

Site Investigation Report

For The Proposed Development

Off Dean Close Weston

Client Seagate Homes (UK) Ltd
Seagate Hall
Vicarage Lane
Long Sutton
Lincs PE12 9AF

Report Ref: 860/4067/P
Date: November 2016

SITE INVESTIGATION REPORT FOR THE

PROPOSED DEVELOPMENT

OFF DEAN CLOSE WESTON

INDEX OF CONTENTS

		Page.
1.0	**Introduction**	**3**
2.0	**Site Description**	**3**
3.0	**Site Investigation**	**4**
4.0	**Laboratory Testing**	**5**
5.0	**Discussions**	**6**
	5.1 Geotechnical	7
	5.2 Contamination	9
6.0	**Conclusion**	**11**

Appendix A - Site plans
Appendix B - Trial pit
Appendix C - Test data

1.0 Introduction

At the request of Seagate Homes, Humberside Materials Laboratory Limited was engaged to undertake an intrusive investigation for the proposed development on a site off Dean Close in Weston.

The aim of the investigation is to assess the geology on site and verify the site conceptual model with an initial suite of tests for potential contaminants within the site. The methodology and references used in the compilation of this report includes: -

- BS 5930:2015 - Code of practice for site investigations
- BS 1377- Soils for civil engineering purposes.
- Phase 1 desktop report September 2016 Ref 860/4067P
- BS 10175:2013 - Investigation of potentially contaminated sites - Code of practice.
- CLEA documents published by DEFRA and the Environment Agency.
- LQM/CIEH S4ULs. Copyright, Land Quality Management Limited reproduced with permission; Publication number S4UL3575. All rights reserved.
- NHBC standards.
- BRE Special digest 1

This report is produced solely for Seagate Homes and their consultants and should only be copied in full. When transmitted electronically the definitive copy of the report is held by Humberside Materials Laboratory Ltd.

2.0 Site Description

The site comprises of part of a field to the northeast of Weston near Spalding. The grid reference for the middle of the site is 529450 325080.

The site comprises of 3.67Ha of agricultural land. Access to the site is currently off Delgate Bank.

The A151 passes the site to the north. To the west is Dean Close off Small Drove which was constructed in circa 2009. The site is surrounded by open fields and residential housing.

The proposed development is for mix of affordable homes, semi-detached and detached houses and bungalows, totalling 60 dwelling with associated infrastructure of adoptable and private roads. The proposed layout plan is included in appendix A. Access will be off Dean Close post development but for the investigation access was from off Delgate Bank via a track on the side of the A151.

3.0 Site Investigation

Nine trial pits were excavated on the 21st October 2016 by the backhoe of a JCB excavator. The trial pits were logged as each trial pit was advanced. The logs are presented in appendix B. Disturbed samples were taken from the depths indicated on the trial pit logs. Samples for contamination were taken in amber coloured glass jars. All precautions were taken to prevent cross contamination during the sampling.

Shear strengths were determined at various depths on site by use of a hand shear vane tester. The data for which is presented on the trial pit logs at the relevant depths in appendix B.

Two trial pits were utilised for infiltration rate tests for soakaway design. This involved the addition of water to each trial pit and monitoring the level against time. Due to the slow rate of infiltration only one test was completed in each hole.

All samples were returned to the laboratory for logging and scheduling for testing. Bulk samples were taken from the depths indicated on the trial pit logs. The location for each trial pit is indicated on the site plan in appendix A.

Sample depths for contamination were shallow as this is the zone of most sensitive use. No visual or olfactory evidence was present to indicate contamination.

4.0 Laboratory Testing

Contamination testing was undertaken by a UKAS/MCERTS laboratory. Testing included basic suites of metals, organochlorides, organophosphates and speciated PAH which were the contaminants of concern identified by the phase 1 report. The ethos for the testing was as given in the phase 1 report. Testing was undertaken on general samples obtained during the investigation to test the hypothesis of the phase 1 report. This laboratory was also used for the sulphate analysis and soil organic matter content.

The criteria for the assessment for contamination of the site are based on the LQM/CIEH S4ULs report, for domestic gardens with plant uptake included. This is used as a tier 1 assessment based on a minimum risk criteria undertaken by LQM using the current CLEA model. The assessment for hydrocarbons is based on a soil organic matter content of 1% being proven by testing to be the general level within the site and also giving the most onerous assessment criteria.

Test reports for all the testing undertaken are included in appendix C.

Geotechnical property testing was undertaken in our own UKAS accredited laboratory. Analysis included moisture contents, plasticity index and CBR. These were to BS1377 test methods. CBR testing was undertaken on samples compacted with a 2.5kg rammer and a surcharged of 12kg.

The following test schedule was adopted for the investigation.

Trial pit No	Depth	metals	PAH	Organo phosphates	Organo chlorides
3	0.1-0.3	ü	ü	ü	ü
5	0.1-0.4	ü	ü	ü	ü
8	0.1-0.3	ü	ü	ü	ü
9	0.1-0.3	ü	ü	ü	ü

Trial pit No	Depth	Moisture content	Plasticity index	CBR	Sulphate	SOM
3	0.5-1	ü		ü		
4	0.5-1				ü	ü
	0.5-1	ü	ü	ü		
	1.5-2	ü	ü			
5	0.5-1	ü		ü	ü	ü
6	0.5-1	ü		ü		
7	0.1-0.6				ü	ü
	0.5-1	ü		ü	ü	ü
8	0.5-1	ü		ü	ü	ü
	2.1-2.3	ü	ü			
9	0.5-1	ü	ü	ü		

5.0 Discussions

Reference to the British Geological map for the area indicates the geology to be Terrington beds, alluvium being younger marine deposits of tidal creek and salt marsh, sandy silt, sand and clays. At depth is West Walton, Ampthill and Kimmeridge clay formations.

The investigation revealed a superficial layer of topsoil over sandy silt with occasional pockets of clay extending to between 1m and 2m bgl. Underlying this was soft becoming very soft grey brown clay.

5.1 Geotechnical

Two trial pits were used to determine the infiltration rate, Tp1 and Tp2, down to 1.3m. Water was added to each trial pit to a depth of 0.5m bgl the anticipated invert level. The level was monitored over a period of time. Due to the slow infiltration rate, only one test could be completed in each pit. Infiltration rates of $1.5x10^{-6}$ m/s and $1.6x10^{-6}$ m/s respectively was determined. Soakaway designs should be designed on this values.

Five samples were tested for sulphates. Water soluble sulphate was 0.01g/l. Total potential sulphate was <0.15% in near neutral conditions. Soil organic matter was circa 1%. From the BRE digest the design sulphate class is DS-1, ACEC class AC-1. No special requirements are needed for the design of below ground concrete.

Hand vane shear strengths were undertaken on site. The data is presented on the trial pit logs in appendix B and summarised below.

Trial pit / borehole No	Depth (m)	Shear vane (kPa)
3	0.5	
	1	70
	2	61
4	1	92
	1.8	46
5	1	58
7	1	72
	1.3	61
8	1	78
9	0.5	

The mean value of the shear vane tests at 1m is 74kPa. The mean at 2m is 56kPa. At depth the clay became very soft and would have negligible shear strength and therefore minimal bearing capacity.

Natural moisture contents from the CBR and plasticity tests indicate a range between 20% and 28% for the silty material and 15% for the silty clay.

In trial pit 9 the sample was clayey and therefore suitable for plasticity testing. With a liquid limit of 47 and a plastic limit of 17, giving a plasticity index of 30. This gives a clay of intermediate plasticity. Potential volume change is classified as medium. Due to the silt content the other three samples were tested by linear shrinkage. The estimate plasticity index from these tests range between 4 and 6, silt of low potential volume change.

Groundwater was not encountered in the trial pits but some seepage was noted at the base in some trial pits.

CBR values ranged between 0.6% and 1.7%, with a mean for seven tests of 1.1%. It was noted that during compaction of the samples some puddling occurred, this was to expected given the classification of the soils at formation depth. The highway within the development should be designed on a CBR of 1.1%. For a normal flexible construction 710mm comprising of 410mm of 6F5 capping and 300mm of type 1 subbase with a geotextile would be required.

Geotechnical summary

Based on the geology any soakaways would have to remain shallow. The infiltration rate was determined to be $1.5x10^{-6}$ m/s, soakaways if used should be designed on this value.

From the BRE digest the design sulphate class is DS-1, ACEC class AC-1. No special requirements are needed for the design of below ground concrete. This is applicable across the whole site.

It is recommended that the roads be designed on a CBR of 1.1%. For an adoptable road, a geotextile should be incorporated within the design.

The pockets of clay where encountered at shallow depth will be medium potential shrinkage. The silt is non-plastic.

The mean shear strength at 1m was 74kPa. The mean value at 2m was 56kPa. At depth the clay became very soft and would have negligible shear strength and therefore minimal bearing capacity.

Foundations should be designed by a competent engineer with due regard to the above factors.

5.2 Contamination

Four shallow samples were selected for contamination testing to prove the hypothesis of the phase 1 report.

Metals

The assessment criteria in mg/kg for domestic gardens with plant uptake included is presented below, taken from the LQM/CIEH S4ULs report. This presents a minimum risk assessment. The exception to this is for lead which is taken from the Atkin Atrisk report.

element	Residential with plant uptake included
Arsenic	37
Boron	290
Cadmium	11
chromium III	910
chromium VI	6
lead (atkin atrisk)	276-342
Mercury element	1.2
mercury inorganic	40
mercury methyl	11
selenium	250
copper	2400
nickel	180
zinc	3700

The analysis in the first instance has included total chromium, which exists in nine oxidation states. In natural soils the most common being chromium III. Chromium IV is typically only present in soils in the vicinity of industrial processes and waste deposition, which is not the case on this site.

All the analysis for metals are relatively consistent and well below the assessment criteria. No further evaluation is required.

Polyaromatic hydrocarbons

PAH analysis has been undertaken with speciation. The assessment criteria in mg/kg for domestic gardens with plant uptake included is taken from the LQM/CIEH S4ULs report, which uses the current CLEA model to give a minimum risk level based on 1% soil organic matter content. Testing has indicated 1% to be the site value.

Due to the low levels recorded, the double ratios and PAH profiling has not been undertaken, as it is not required.

The samples indicate PAH values to be at or below the detection limits and well below the assessment criteria. No further evaluation is required.

Pesticides & herbicides

Organochlorides and organophosphates have been determined on four samples from the site. The analysis indicates consistent values below the detection limits of the test and well below the assessment criteria. No further evaluation is required.

Source pathway receptor

Testing has proved that a source of contamination is not present and confirms the hypothesis of the phase 1 report. The source-pathway-receptor chain is severed by a lack of a source.

6.0 Conclusion

Reference to the British Geological map for the area indicates the geology to be Terrington beds, alluvium being younger marine deposits of tidal creek and salt marsh, sandy silt, sand and clays. At depth is West Walton, Ampthill and Kimmeridge clay formations.

The investigation revealed a superficial layer of topsoil over sandy silt with occasional pockets of clay extending to between 1m and 2m bgl. Underlying this was soft becoming very soft grey brown clay.

Contamination from metals, PAH, organochlorides and organophosphates was proven by the samples not to be present. This proves the hypothesis of the site conceptual model from the phase 1 desktop study that contamination was unlikely to be present. Remediation of the site is not required.

Any unforeseen contamination encountered during the development of the site should be reported to the local authority. Work should be halted in that area and the contamination investigated/assessed to the satisfaction of the local authority.

Based on the geology any soakaways would have to remain shallow. The infiltration rate was determined to be $1.5x10^{-6}$ m/s. Soakaways, if used, should be designed on this value.

From the BRE digest the design sulphate class is DS-1, ACEC class AC-1. No special requirements are needed for the design of below ground concrete. This is applicable across the whole site.

It is recommended that the roads be designed on a CBR of 1.1%. For an adoptable road, a geotextile should be incorporated within the design to the local authority's specification.

Pockets of clay where encountered at shallow depth will be medium potential shrinkage. The silt is non-plastic.

The mean shear strength at 1m was 74kPa. The mean value at 2m was 56kPa. At depth the clay became very soft and would have negligible shear strength and therefore minimal bearing capacity.

Foundations should be designed by a competent engineer with due regard to the above factors.

The comments given in this report and the opinions expressed assume that ground conditions do not vary beyond the range revealed by the investigation.

M.J. Green I.Eng. F.I.H.I.E.

APPENDIX A



Humberside Materials Laboratory Ltd
Atherton Way, Brigg
North Lincs, DN20 8AR
Tel Fax 01652 652753

SITE PLAN

SITE :- Weston

CLIENT :- Seagate Homes

APENDIX B

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

TRIAL PIT LOG

Trial pit No 1

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB

Depth (m)	Lithology / Description	Elevation	Samples	Water level	Notes
0 – 0.2	Dark brown TOPSOIL	0 – 0.2			
0.2 – 1.1	Orange brown slightly sandy SILT with occasional pockets of grey clay	0.2 – 1.1			
1.1 – 3.8		1.1 – 3.8			

Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

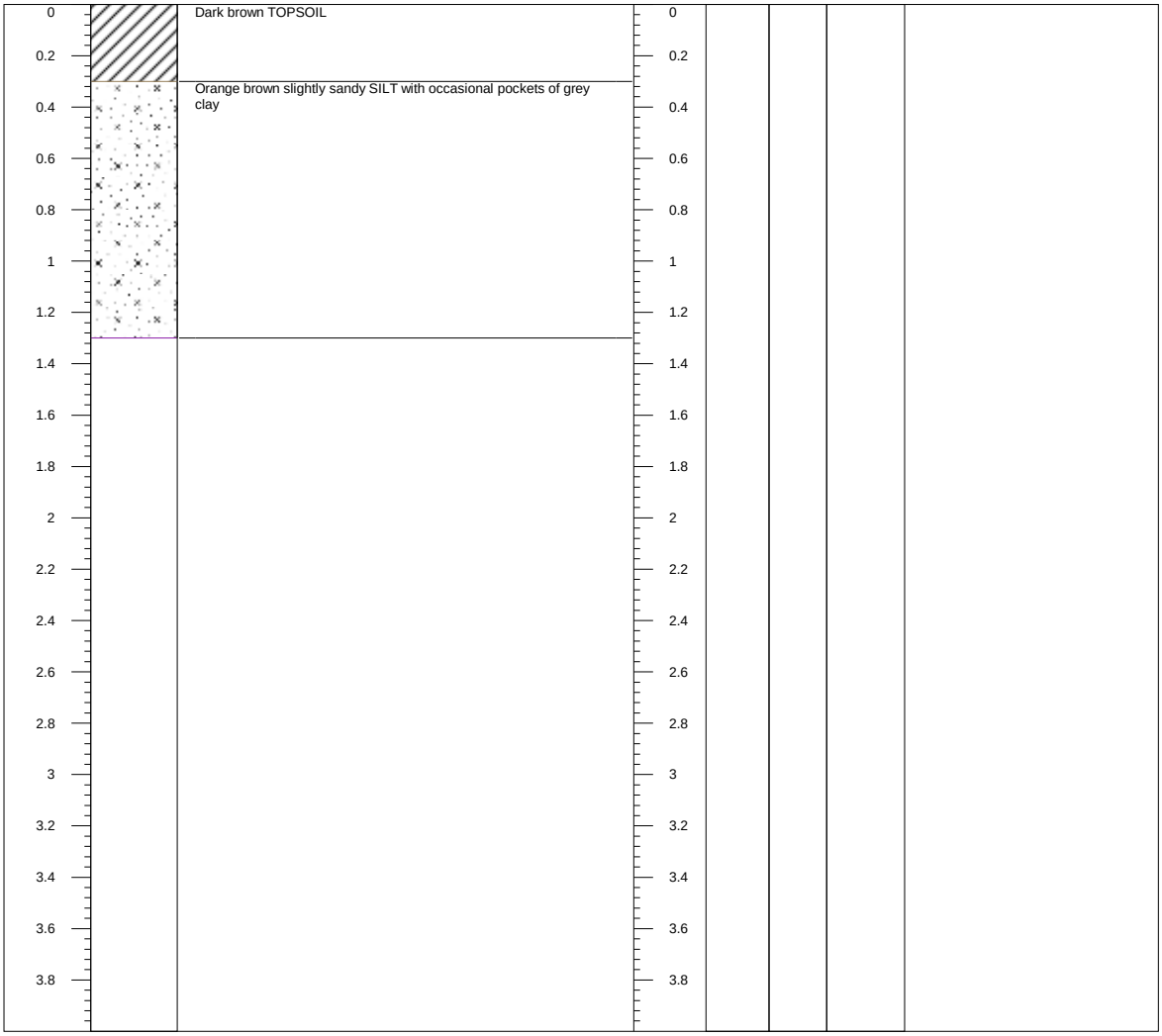
TRIAL PIT LOG

Trial pit No **2**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

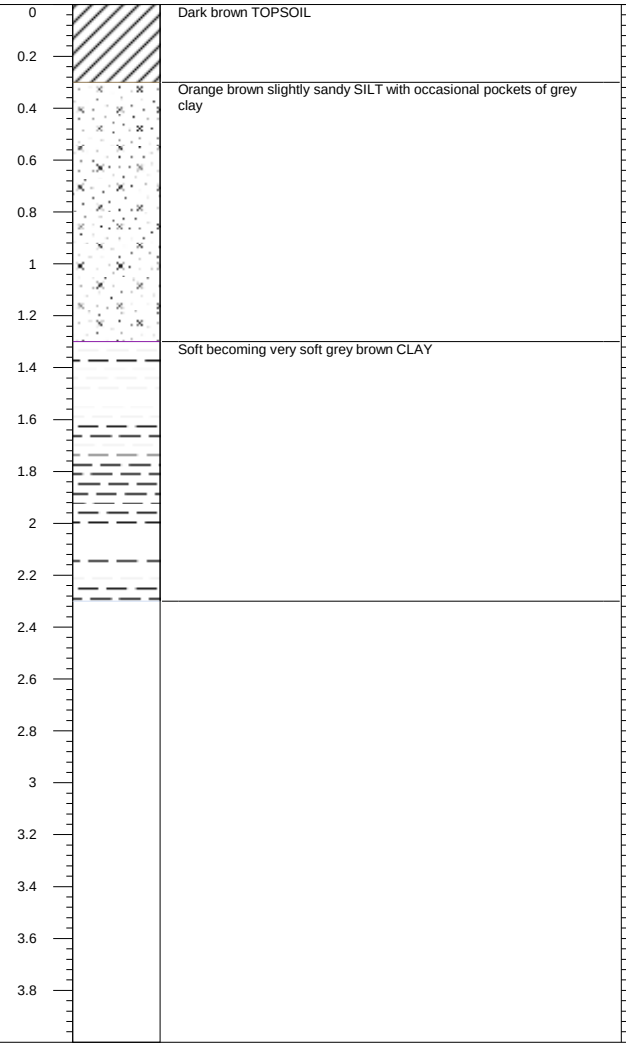
TRIAL PIT LOG

Trial pit No **3**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

TRIAL PIT LOG

Trial pit No **4**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

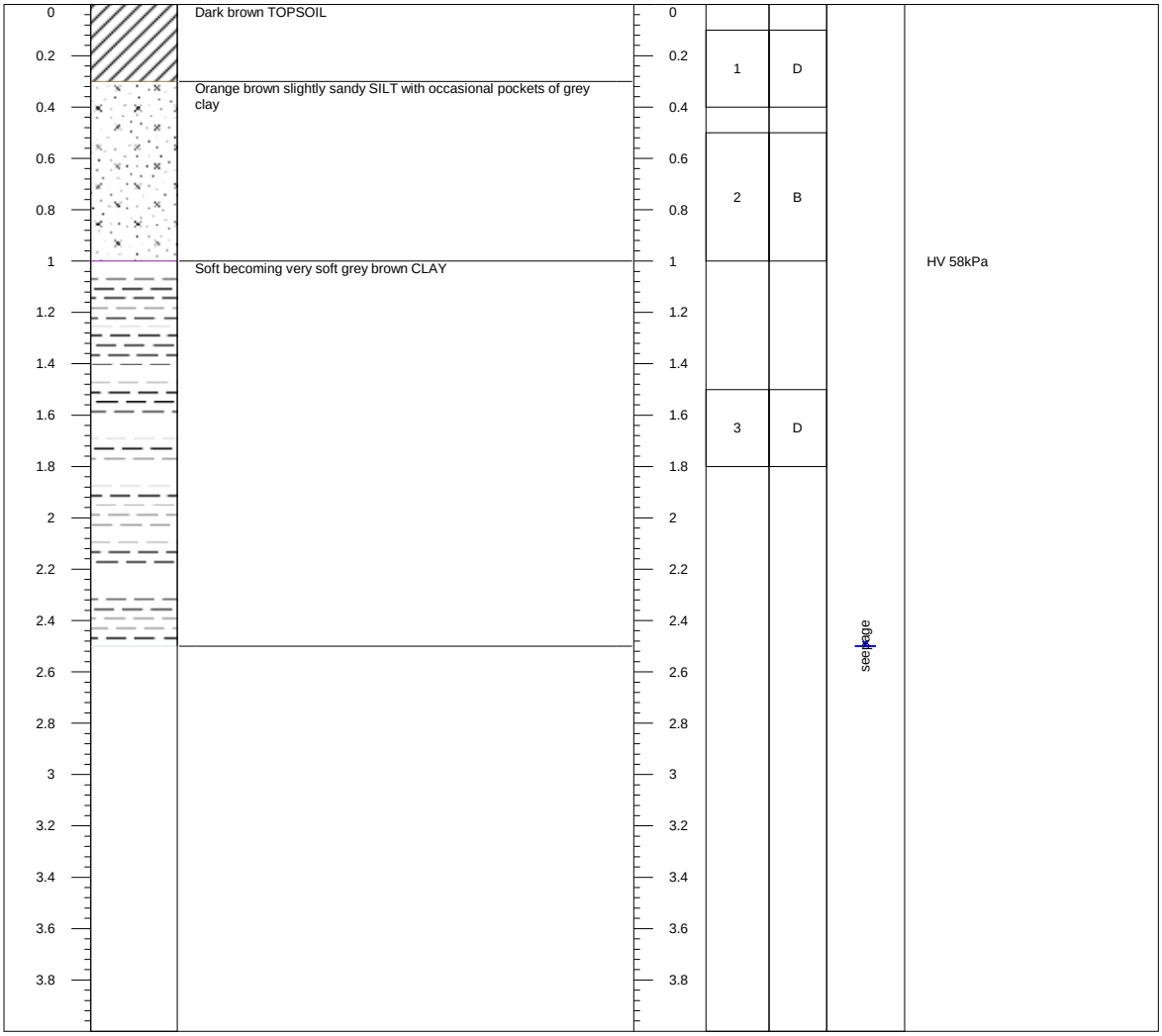
TRIAL PIT LOG

Trial pit No **5**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

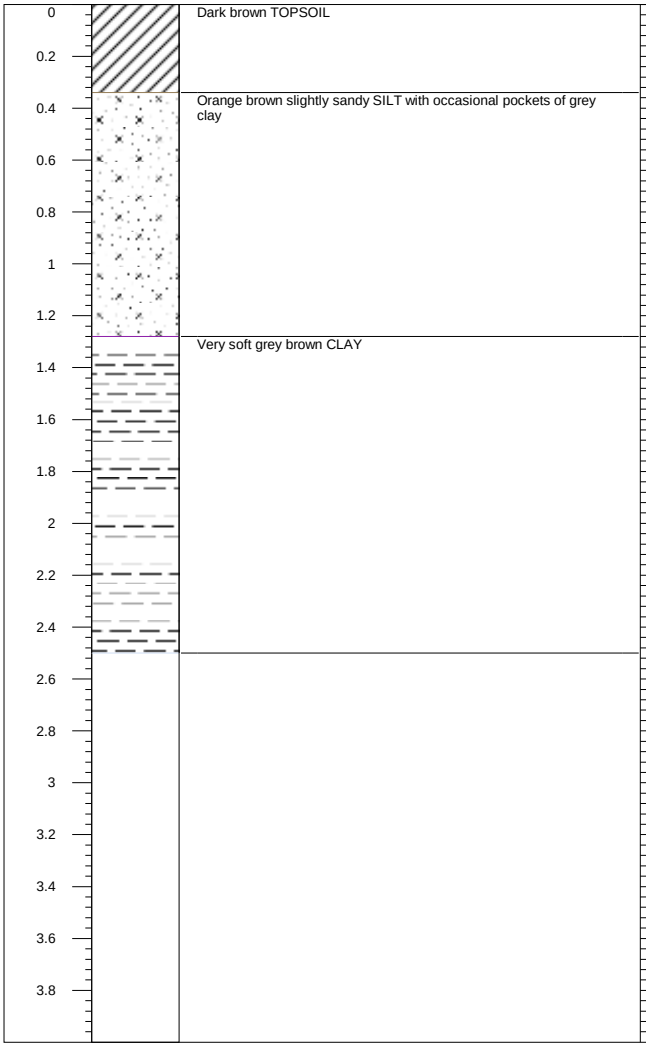
TRIAL PIT LOG

Trial pit No **6**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

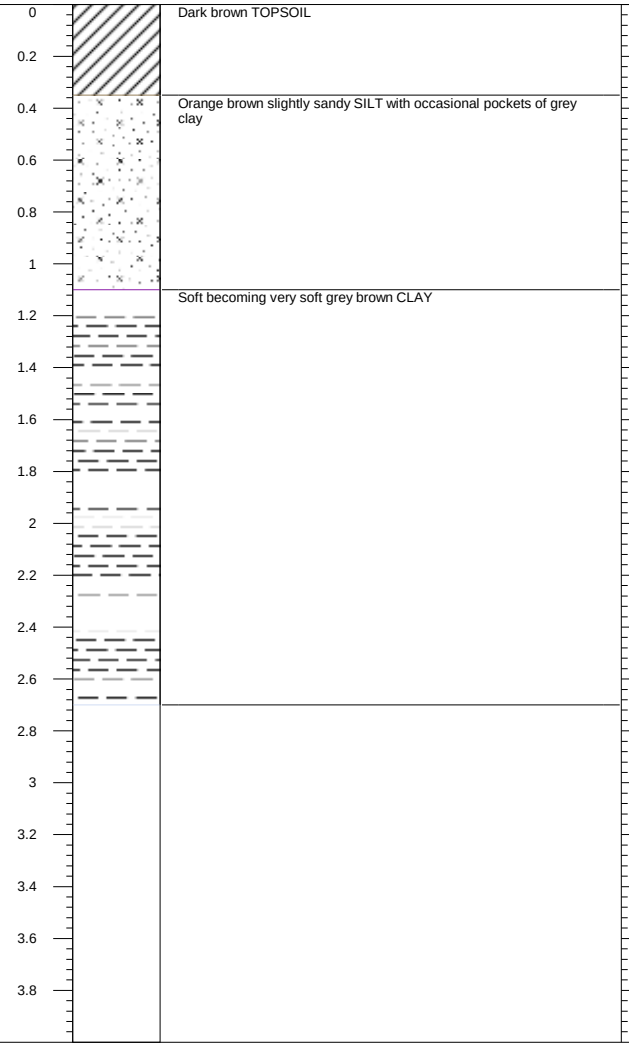
TRIAL PIT LOG

Trial pit No **7**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

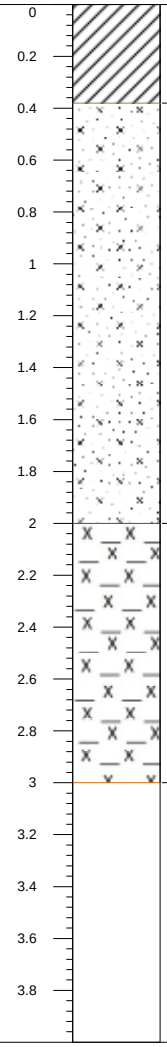
TRIAL PIT LOG

Trial pit No **8**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Depth (m)	Lithology / Description	Elevation	Samples		Water level	Notes
0 – 0.2	Dark brown TOPSOIL	0 – 0.2	1	D		
0.2 – 2	Orange brown slightly sandy SILT with occasional pockets of grey clay	0.2 – 2	2	B		HV 78kPa
2 – 3	Soft becoming very soft grey silty CLAY with traces of black organic matter	2 – 3	3	D		
3 – 3.8		3 – 3.8				

Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

HUMBERSIDE MATERIALS LABATORY Ltd.
Atherton Way, Brigg
North Lincs DN20 8AR
Tel & Fax 01652 652753

email info@humbersidematerialslab.co.uk

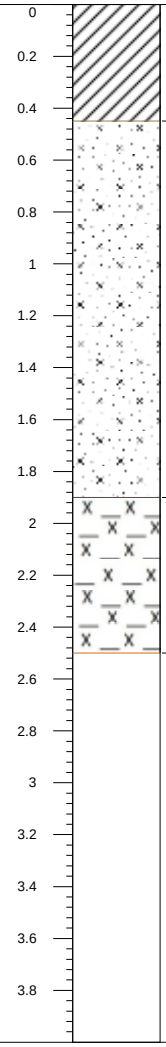
TRIAL PIT LOG

Trial pit No **9**

Client :- Seagate Homes
Site :- Weston
Project No :- 4067

Location :- see site plan
Date :- 21-Oct-16

Coordinates E: N:
Elevation :-
Excavated by :- JCB



Depth (m)	Lithology / Description	Elevation	Samples		Water level	Notes
0	Dark brown TOPSOIL	0				
0.2		0.2	1	D		
0.4		0.4				
0.6	Orange brown slightly sandy SILT with occasional pockets of grey clay	0.6	2	B		
0.8		0.8				
1		1				
1.2		1.2				
1.4		1.4				
1.6		1.6				
1.8		1.8				
2	Very soft grey SILT/CLAY	2	3	D		
2.2		2.2				
2.4		2.4				
2.6		2.6				
2.8		2.8				
3		3				
3.2		3.2				
3.4		3.4				
3.6		3.6				
3.8		3.8				

Sample Key
B Bulk
D Disturbed
W Water
SS Split spoon
C Cone

Notes :-

File Ref :- 860 / 4067
Logged by :- M Green

APENDIX C

HUMBERSIDE MATERIALS LABORATORY LTD
7 East Cross Street, Kirton in Lindsey
North Lincolnshire DN21 4DT
Tel & Fax 01652 640295

DETERMINATION OF SOIL INFILTRATION RATE

Sample Ref **S/42981/05** Client Seagate Homes

Order No verbal

Site	Dean Close Weston
Location	Tp1
Date tested	21/10/16
Determined by	M Green

Calculation of Soil Infiltration Rate

Calculation Data				
Trial pit No				
Dimensions (l x w x d)	1.4	0.4	1.3	m
Effective Depth (75% - 25%)	Determination 1		0.350	m
	Determination 2			m
Effective volume (75% - 25%)	Determination 1		0.196	m^3
	Determination 2			m^3
Effective Surface Area	Determination 1		1.820	m^2
	Determination 2			m^2
Voids for gravel in fill		N/A		
Time for soakaway (75%-25% effective depth)				
	Determination 1		73200	secs
	Determination 2			secs
Soil Infiltration Rate				
	Determination 1	**$1.5x10^{-6}$**		**m/s**
	Determination 2			**m/s**

Comments

Due to slow infiltration rate only one determination was undertaken

File ref 860/4067/P
Date tested 20/10/2016
Date reported 24/10/2016

Signed M.J. Green C. Driver
Director

HUMBERSIDE MATERIALS LABORATORY LTD
7 East Cross Street, Kirton in Lindsey
North Lincolnshire DN21 4DT
Tel & Fax 01652 640295

DETERMINATION OF SOIL INFILTRATION RATE

Sample Ref **S/42981/06** Client Seagate Homes

Order No verbal

Site	Dean Close Weston
Location	Tp2
Date tested	21/10/16
Determined by	M Green

Calculation of Soil Infiltration Rate

Calculation Data				
Trial pit No				
Dimensions (l x w x d)		1.6	0.4	1.08 m
Effective Depth (75% - 25%)	Determination 1			0.240 m
	Determination 2			m
Effective volume (75% - 25%)	Determination 1			0.1536 m^3
	Determination 2			m^3
Effective Surface Area	Determination 1			1.600 m^2
	Determination 2			m^2
Voids for gravel in fill			N/A	
Time for soakaway (75%-25% effective depth)				
	Determination 1			61800 secs
	Determination 2			secs
Soil Infiltration Rate				
	Determination 1		**$1.6x10^{-6}$**	**m/s**
	Determination 2			**m/s**

Comments

Due to slow infiltration rate only one determination was undertaken

File ref 860/4067/P
Date tested 20/10/2016
Date reported 24/10/2016

Signed M.J. Green C. Driver
Director

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

DETERMINATION OF CALIFORNIA BEARING RATIO

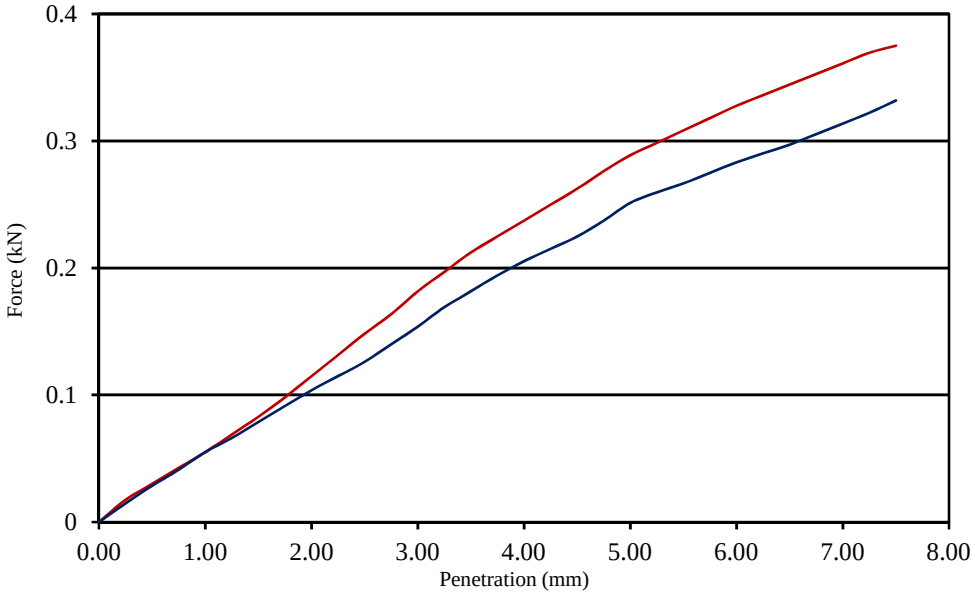
Sample Ref S/42987/03 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 6		
Date/Time sampled	21/10/2016	TP/BH	6
Client sample No	1	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Orange brown sandy SILT/CLAY

				Top	Bottom	Mean
Compaction method	2.5kg rammer (light)					
Surcharge wt	12kg					
Bulk density	1.97 Mg/m^3	Moisture (%)		23	23	23
Dry density	1.60 Mg/m^3	**C.B.R. (%)**		**1.4**	**1.3**	**1.4**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

DETERMINATION OF CALIFORNIA BEARING RATIO

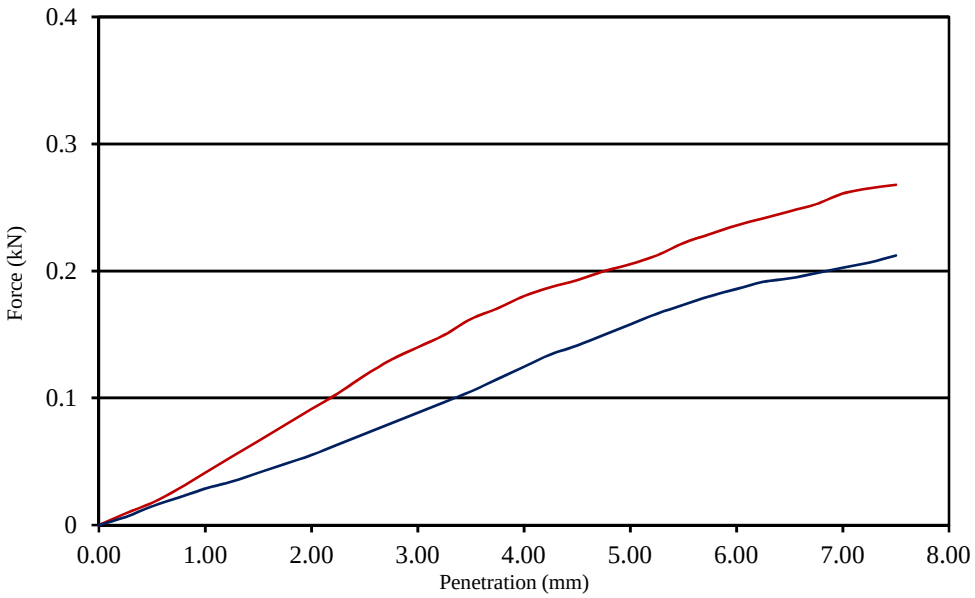
Sample Ref S/42989/02 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 7		
Date/Time sampled	21/10/2016	TP/BH	7
Client sample No	2	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Orange brown SILT/CLAY

Compaction method	2.5kg rammer (light)				
Surcharge wt	12kg		Top	Bottom	Mean
Bulk density	1.91 Mg/m^3	Moisture (%)	25	25	25
Dry density	1.52 Mg/m^3	**C.B.R. (%)**	**1.0**	**0.8**	**0.9**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

DETERMINATION OF CALIFORNIA BEARING RATIO

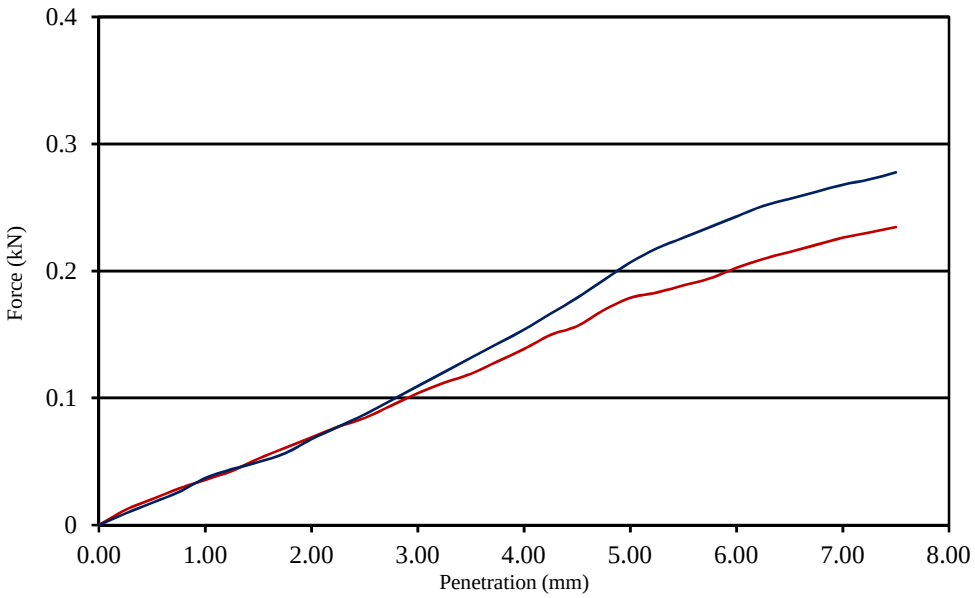
Sample Ref S/42991/02 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 8		
Date/Time sampled	21/10/2016	TP/BH	8
Client sample No	2	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Very soft, brown Friable SILT/CLAY

Compaction method	2.5kg rammer (light)				
Surcharge wt	12kg		Top	Bottom	Mean
Bulk density	1.96 Mg/m^3	Moisture (%)	22	22	11
Dry density	1.60 Mg/m^3	**C.B.R. (%)**	**0.9**	**1.0**	**1.0**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

UKAS TESTING 1890

DETERMINATION OF CALIFORNIA BEARING RATIO

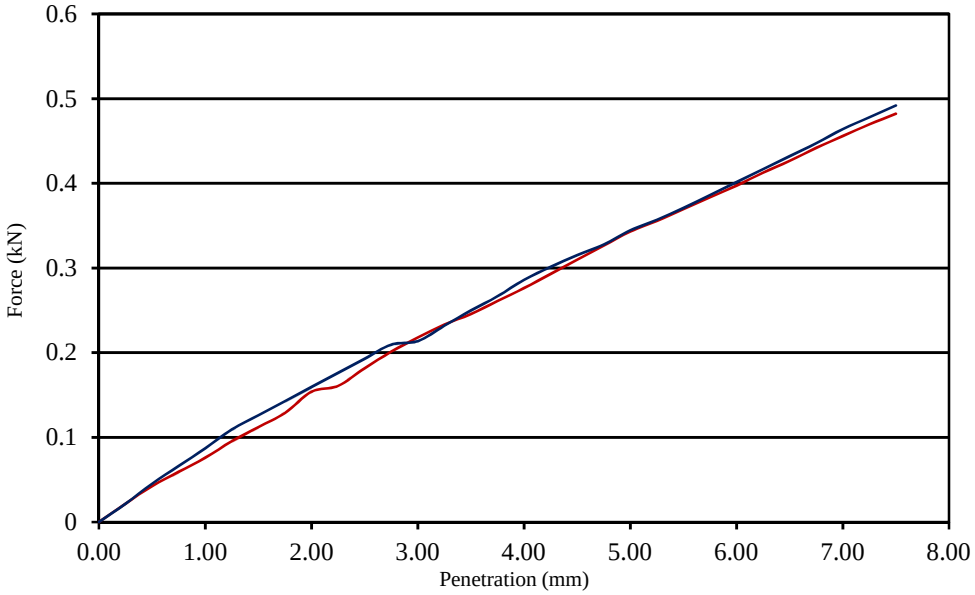
Sample Ref S/42986/02 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 5		
Date/Time sampled	21/10/2016	TP/BH	5
Client sample No	2	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Soft, orange brown SILT/CLAY

Compaction method	2.5kg rammer (light)					
Surcharge wt	12kg			Top	Bottom	Mean
Bulk density	1.94 Mg/m^3	Moisture (%)		25	25	25
Dry density	1.55 Mg/m^3	**C.B.R. (%)**		**1.7**	**1.7**	**1.7**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

DETERMINATION OF CALIFORNIA BEARING RATIO

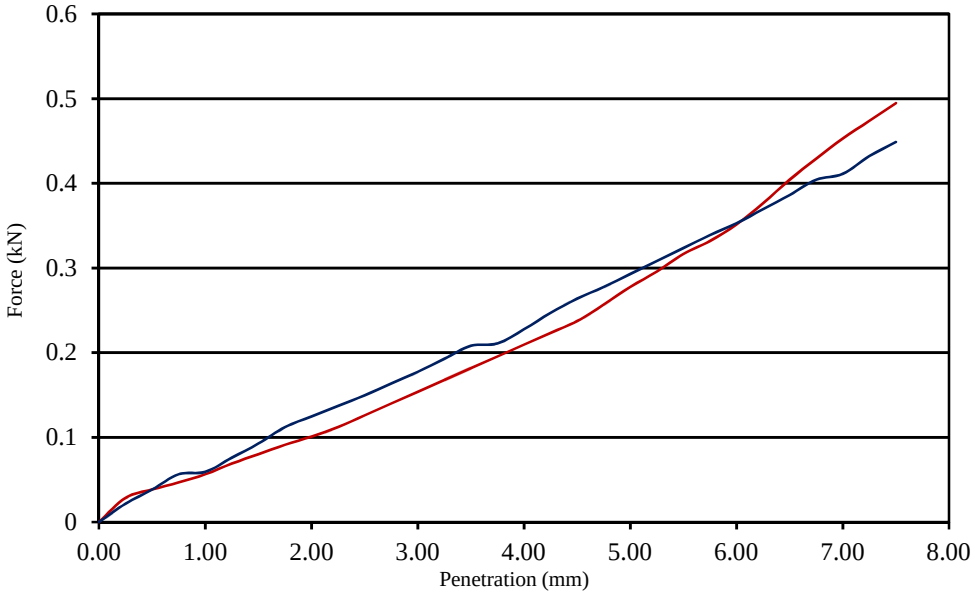
Sample Ref S/42983/04 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 4		
Date/Time sampled	21/10/2016	TP/BH	4
Client sample No	1	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Soft, orange brown SILT/CLAY

Compaction method	2.5kg rammer (light)				
Surcharge wt	12kg		Top	Bottom	Mean
Bulk density	1.97 Mg/m^3	Moisture (%)	20	21	20
Dry density	1.64 Mg/m^3	**C.B.R. (%)**	**1.4**	**1.5**	**1.5**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

UKAS TESTING 1890

DETERMINATION OF CALIFORNIA BEARING RATIO

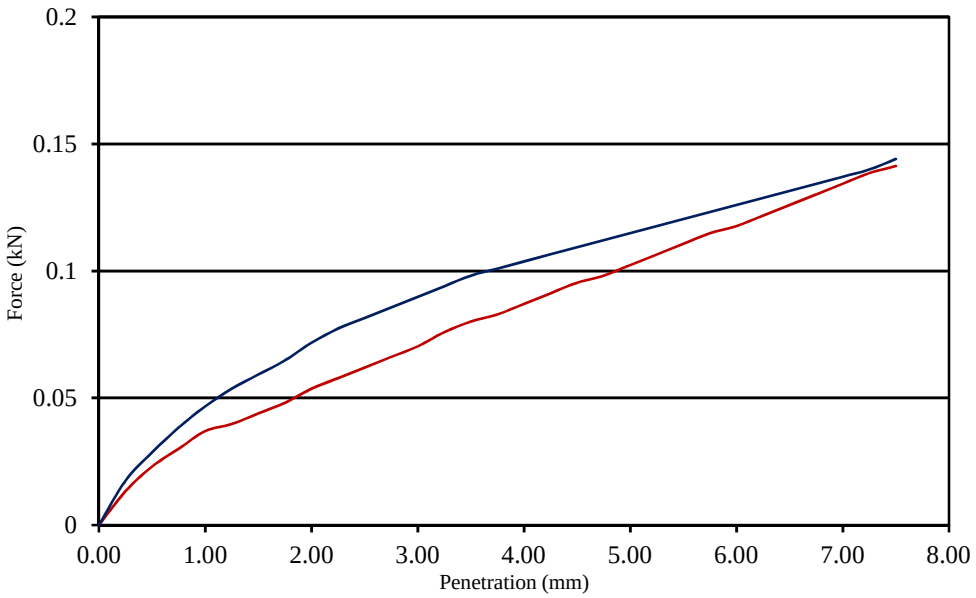
Sample Ref S/42994/03 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 9		
Date/Time sampled	21/10/2016	TP/BH	9
Client sample No	2	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Soft, brown SILT/CLAY

Compaction method	2.5kg rammer (light)				
Surcharge wt	12kg		Top	Bottom	Mean
Bulk density	1.93 Mg/m^3	Moisture (%)	28	29	28
Dry density	1.50 Mg/m^3	**C.B.R. (%)**	**0.5**	**0.6**	**0.6**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

HUMBERSIDE MATERIALS LABORATORY
Atherton way, Brigg,
North Lincolnshire, DN20 8AR
Tel & Fax 01652 652753

Linear Shrinkage

Sample Ref **S/42983/01** Client Seagate Homes

Site	Weston		
Location	Tp4 0.5-1m		
Material	Silt		
Date sampled	21/10/16		
Client sample no		Sampled by	M Green

Linear Shrinkage
Test method BS 1377

Description - Brown orange friable SILT

% passing 0.425mm	**-**	**100%**
Natural Moisture content	**-**	**20%**
Linear Shrinkage	**-**	**2.8%**

Estimate PI from linear shrinkage 6

Comments

File ref	860/4067/G
Date tested	1/11/16
Date reported	8/11/16

Signed: - M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

HUMBERSIDE MATERIALS LABORATORY
Atherton way, Brigg,
North Lincolnshire, DN20 8AR
Tel & Fax 01652 652753

Linear Shrinkage

Sample Ref **S/42984/01** Client Seagate Homes

Site	Weston
Location	Tp4 1.5-2m
Material	Silt
Date sampled	21/10/16
Client sample no	
Sampled by	M Green

Linear Shrinkage
Test method BS 1377

Description - Brown orange friable sandy SILT

% passing 0.425mm	**-**	**100%**
Natural Moisture content	**-**	**22%**
Linear Shrinkage	**-**	**2.1%**

Estimate PI from linear shrinkage 5

Comments

File ref	860/4067/G
Date tested	1/11/16
Date reported	8/11/16

Signed: - M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

HUMBERSIDE MATERIALS LABORATORY
Atherton way, Brigg,
North Lincolnshire, DN20 8AR
Tel & Fax 01652 652753

Linear Shrinkage

Sample Ref **S/42992/01** Client Seagate Homes

Site	Weston		
Location	Tp 8 2.1-2.3		
Material	Silt		
Date sampled	21/10/166		
Client sample no	3	Sampled by	M Green

Linear Shrinkage
Test method BS 1377

Description - Very soft fine sandy SILT

% passing 0.425mm	**-**	**100%**
Natural moisture content	**-**	**33**
Linear Shrinkage	**-**	**2.1%**

Estimate PI from linear shrinkage 4

Comments

File ref	860/4067/G
Date tested	25/10/16
Date reported	28/10/16

Signed: - M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

Humberside Materials Laboratory
Atherton Way, Brigg
North Lincolnshire, DN20 8AR

Humbersidematerials lab.co.uk

UKAS TESTING 1890

DETERMINATION OF CALIFORNIA BEARING RATIO

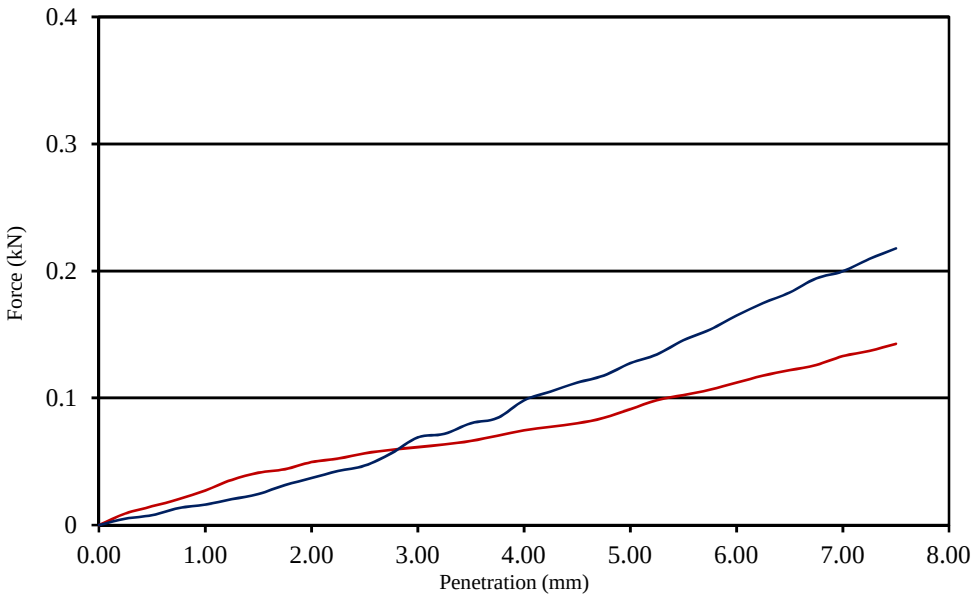
Sample Ref S/42982/03 **Client** Seagate Homes

Site	Weston		
Location	Trial Pit 3		
Date/Time sampled	21/10/2016	TP/BH	3
Client sample No	2	Depth (m)	0.50-1.00
Sampled by	M. Green	Sample Type	bulk

Determination of California Bearing Ratio Test method BS 1377 Part 4 1990

Description Orange brown sandy SILT/CLAY

Compaction method	2.5kg rammer (light)				
Surcharge wt	12kg		Top	Bottom	Mean
Bulk density	1.93 Mg/m^3	Moisture (%)	24	24	24
Dry density	1.56 Mg/m^3	**C.B.R. (%)**	**0.5**	**0.6**	**0.6**



Comments

Percentage retained 20mm removed nil
Sample tested in unsoaked condition

File ref 860/4067
Date tested 25/10/2016
Date reported 27/10/2016

Signed M.J. Green C. Driver
Director

Certificate of sampling when submitted is retained by the Laboratory and available upon request
Samples will normally be kept for 14 days from the date reported

HUMBERSIDE MATERIALS LABORATORY LTD
Atherton Way, Brigg
North Lincolnshire, DN20 8AR
Tel _Fax 01652 652753
e-mail info@humbersidematerialslab.co.uk

UKAS TESTING 1890

SOIL CLASSIFICATION TESTS

Sample Ref S 42994

Client

Seagate Homes
seagate Homes
Seagate Hall, Vicarage Ln
Long Sutton
Lincolnshire
PE12 9AF

Site Weston
Location TP 9-2
Date/Time sampled 21/10/16
Client sample No 2
Sampled by M. Green
Sample point Trial pit

Trial pit / Bore hole No 9
Depth of sample 0.50-1.00 m
Sample type Small Bulk
Description Soft Brown SILT/CLAY

comments

Determination of moisture content
Test method BS 1377 Part 2 1990

Portion No	01
Method	Oven dried
% Moisture	**15**

Determination of liquid limit, Plastic limit and Plasticity index
Test method BS 1377 Part 2 1990

Portion No	01
Test condition	Natural state
Method	Single point cone pen
% retained 0.425mm sieve	
Liquid limit	**47**
% passing 0.425mm sieve	
Plastic limit	**17**
Plasticity Index	**30**

File ref 860 4067 / P
Date tested 24/10/16
Date reported 31/10/16
Date received 24/10/16

Signed :- M.J. Green C. Driver
Director

Certificates of sampling when submitted are retained by the Laboratory and is available upon request
Samples will normally be kept for 14 days from the date reported

SCIENTIFIC ANALYSIS LABORATORIES

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

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 609666-1

Date of Report: 08-Nov-2016

Customer: Humberside Materials Laboratory Ltd
Atherton Way
Brigg
North Lincolnshire
DN20 8AR

Customer Contact: Mr Mick Green

Customer Job Reference: 860/4067
Customer Purchase Order: 2909
Customer Site Reference: Weston
Date Job Received at SAL: 25-Oct-2016
Date Analysis Started: 26-Oct-2016
Date Analysis Completed: 08-Nov-2016

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with Section 25 of the SAL Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Mr Richard Wong
Project Manager

Issued by :
Mr Richard Wong
Project Manager

This document has been printed from a digitally signed master copy

SAL Reference: 609666
Project Site: Weston
Customer Reference: 860/4067

Soil Analysed as Soil
ICRCL (Table 3:metals)

					SAL Reference	**609666 001**	**609666 003**	**609666 007**	**609666 009**
					Customer Sample Reference	**S/42981 TP3-1**	**S/42985 TP5-1**	**S/42990 TP8-1**	**S/42993 TP9-1**
					Top Depth	**0.10**	**0.10**	**0.10**	**0.10**
					Depth	**0.30**	**0.40**	**0.30**	**0.30**
					Date Sampled	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Arsenic	T6	A40	1	mg/kg		**6**	**7**	**7**	**8**
Boron (water-soluble)	T6	AR	1	mg/kg		<1	<1	<1	<1
Cadmium	T6	A40	1	mg/kg		<1	<1	<1	<1
Chromium	T6	A40	1	mg/kg		**15**	**14**	**15**	**12**
Copper	T6	A40	1	mg/kg		**11**	**6**	**7**	**5**
Lead	T6	A40	1	mg/kg		**17**	**8**	**8**	**6**
Mercury	T6	A40	1	mg/kg		<1	<1	<1	<1
Nickel	T6	A40	1	mg/kg		**13**	**12**	**13**	**11**
Selenium	T6	A40	3	mg/kg		<3	<3	<3	<3
Zinc	T6	A40	1	mg/kg		**51**	**33**	**32**	**26**

SAL Reference: 609666
Project Site: Weston
Customer Reference: 860/4067

Soil Analysed as Soil
TRL Standard Mcr

					SAL Reference	**609666 002**	**609666 004**	**609666 005**	**609666 006**	**609666 008**
					Customer Sample Reference	**S/42983 TP4-1**	**S/42986 TP5-2**	**S/42988 TP7-1**	**S/42989 TP7-2**	**S/42991 TP8-2**
					Top Depth	**0.50**	**0.50**	**0.10**	**0.50**	**0.50**
					Depth	**1.00**	**1.00**	**0.60**	**1.00**	**1.00**
					Date Sampled	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Sulphur (total)	T21	A40	0.05	%		<0.05	<0.05	<0.05	<0.05	<0.05
Soil Organic Matter	T287	A40	0.1	%		**1.1**	**0.9**	**1.3**	**1.2**	**1.0**
(Total Potential) SO4(Total) Expressed as SO4	T402	A40	0.15	%		<0.15	<0.15	<0.15	<0.15	<0.15
(Acid Soluble) SO4--	T192	A40	0.01	%		**0.03**	**0.02**	**0.04**	**0.03**	**0.02**
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	0.010	g/l		<0.010	**0.011**	<0.010	<0.010	<0.010
(Oxidisable) Sulphide Expressed as SO4	T194	A40	0.01	%		<0.12	<0.13	<0.11	<0.12	<0.13
(Acid Soluble) S expressed as S	T241	A40	0.01	%		**0.01**	<0.01	**0.01**	**0.01**	<0.01
(Water Soluble) S expressed as S	T240	AR	0.001	%		<0.001	<0.001	<0.001	<0.001	<0.001
pH	T7	AR				**8.1**	**8.1**	**8.1**	**8.3**	**8.2**

SCIENTIFIC ANALYSIS LABORATORIES

SAL Reference: 609666
Project Site: Weston
Customer Reference: 860/4067

Soil Analysed as Soil
PAH US EPA 16 (B and K split)

				SAL Reference	**609666 001**	**609666 003**	**609666 007**	**609666 009**
				Customer Sample Reference	**S/42981 TP3-1**	**S/42985 TP5-1**	**S/42990 TP8-1**	**S/42993 TP9-1**
				Top Depth	**0.10**	**0.10**	**0.10**	**0.10**
				Depth	**0.30**	**0.40**	**0.30**	**0.30**
				Date Sampled	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**				
Naphthalene	T149	AR	0.01	mg/kg	<0.01	**0.01**	**0.01**	<0.01
Acenaphthylene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Acenaphthene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Fluorene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Phenanthrene	T149	AR	0.01	mg/kg	**0.01**	**0.01**	**0.01**	**0.01**
Anthracene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Fluoranthene	T149	AR	0.01	mg/kg	**0.02**	<0.01	**0.01**	<0.01
Pyrene	T149	AR	0.01	mg/kg	**0.02**	<0.01	**0.01**	<0.01
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	**0.01**	**0.01**	**0.01**	**0.01**
Chrysene	T149	AR	0.01	mg/kg	**0.01**	<0.01	**0.01**	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
PAH(total)	T149	AR	0.01	mg/kg	**0.07**	**0.03**	**0.06**	**0.02**

SAL Reference: 609666
Project Site: Weston
Customer Reference: 860/4067

Soil Analysed as Soil
Organochlorine insecticides

				SAL Reference	**609666 001**	**609666 003**	**609666 007**	**609666 009**
				Customer Sample Reference	**S/42981 TP3-1**	**S/42985 TP5-1**	**S/42990 TP8-1**	**S/42993 TP9-1**
				Top Depth	**0.10**	**0.10**	**0.10**	**0.10**
				Depth	**0.30**	**0.40**	**0.30**	**0.30**
				Date Sampled	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**	**21-OCT-2016**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**				
Hexachlorocyclohexane	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Hexachlorobenzene	T1	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Heptachlor	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Aldrin	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Chlordane	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Endosulphan	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
DDE	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Dieldrin	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
Endrin	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
DDD	T16	AR	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01
DDT	T16	AR	0.01	mg/kg	(36) <0.05	(36) <0.05	(36) <0.05	(36) <0.05

SAL Reference: 609666
Project Site: Weston
Customer Reference: 860/4067

Soil Analysed as Soil
Organophosphorous insecticides

	SAL Reference	609666 001	609666 003	609666 007	609666 009
	Customer Sample Reference	S/42981 TP3-1	S/42985 TP5-1	S/42990 TP8-1	S/42993 TP9-1
	Top Depth	0.10	0.10	0.10	0.10
	Depth	0.30	0.40	0.30	0.30
	Date Sampled	21-OCT-2016	21-OCT-2016	21-OCT-2016	21-OCT-2016
Determinand	**Method** / **Test Sample** / **LOD** / **Units**				
Dichlorvos	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Mevinphos	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Dimethoate	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Diazinon	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Pirimiphos methyl	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Malathion	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Fenitrothion	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Parathion	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01
Azinphos methyl	T16 / AR / 0.01 / mg/kg	<0.01	<0.01	<0.01	<0.01

Index to symbols used in 609666-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
36	LOD Raised due to low Matrix spike recovery
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T192	HCl Extraction/ICP/OES (TRL 447 T2)
T6	ICP/OES
T194	Calc (TRL 447 T 4.11)
T241	Calc (TRL 477 T2)
T287	Calc TOC/0.58
T21	OX/IR
T7	Probe
T240	Calc (TRL 477 T1)
T16	GC/MS
T1	GC/MS (HR)
T149	GC/MS (SIR)
T402	Calc (TRL 447 T4.13 OX/IR)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Arsenic	T6	A40	1	mg/kg	U	001,003,007,009
Boron (water-soluble)	T6	AR	1	mg/kg	N	001,003,007,009
Cadmium	T6	A40	1	mg/kg	U	001,003,007,009
Chromium	T6	A40	1	mg/kg	U	001,003,007,009
Copper	T6	A40	1	mg/kg	U	001,003,007,009
Lead	T6	A40	1	mg/kg	U	001,003,007,009
Mercury	T6	A40	1	mg/kg	U	001,003,007,009
Nickel	T6	A40	1	mg/kg	U	001,003,007,009
Selenium	T6	A40	3	mg/kg	U	001,003,007,009
Zinc	T6	A40	1	mg/kg	U	001,003,007,009
Hexachlorocyclohexane	T16	AR	0.01	mg/kg	U	001,003,007,009
Hexachlorobenzene	T1	AR	0.01	mg/kg	U	001,003,007,009
Heptachlor	T16	AR	0.01	mg/kg	U	001,003,007,009
Aldrin	T16	AR	0.01	mg/kg	U	001,003,007,009
Heptachlor epoxide	T16	AR	0.01	mg/kg	U	001,003,007,009

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Chlordane	T16	AR	0.01	mg/kg	U	001,003,007,009
Endosulphan	T16	AR	0.01	mg/kg	U	001,003,007,009
DDE	T16	AR	0.01	mg/kg	U	001,003,007,009
Dieldrin	T16	AR	0.01	mg/kg	U	001,003,007,009
Endrin	T16	AR	0.01	mg/kg	U	001,003,007,009
DDD	T16	AR	0.01	mg/kg	U	001,003,007,009
DDT	T16	AR	0.01	mg/kg	U	001,003,007,009
Dichlorvos	T16	AR	0.01	mg/kg	U	001,003,007,009
Mevinphos	T16	AR	0.01	mg/kg	U	001,003,007,009
Dimethoate	T16	AR	0.01	mg/kg	U	001,003,007,009
Diazinon	T16	AR	0.01	mg/kg	U	001,003,007,009
Pirimiphos methyl	T16	AR	0.01	mg/kg	U	001,003,007,009
Malathion	T16	AR	0.01	mg/kg	U	001,003,007,009
Fenitrothion	T16	AR	0.01	mg/kg	U	001,003,007,009
Parathion	T16	AR	0.01	mg/kg	U	001,003,007,009
Azinphos methyl	T16	AR	0.01	mg/kg	U	001,003,007,009
Naphthalene	T149	AR	0.01	mg/kg	U	001,003,007,009
Acenaphthylene	T149	AR	0.01	mg/kg	U	001,003,007,009
Acenaphthene	T149	AR	0.01	mg/kg	U	001,003,007,009
Fluorene	T149	AR	0.01	mg/kg	U	001,003,007,009
Phenanthrene	T149	AR	0.01	mg/kg	U	001,003,007,009
Anthracene	T149	AR	0.01	mg/kg	U	001,003,007,009
Fluoranthene	T149	AR	0.01	mg/kg	U	001,003,007,009
Pyrene	T149	AR	0.01	mg/kg	U	001,003,007,009
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	001,003,007,009
Chrysene	T149	AR	0.01	mg/kg	U	001,003,007,009
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	001,003,007,009
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	001,003,007,009
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	001,003,007,009
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	001,003,007,009
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	001,003,007,009
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	001,003,007,009
PAH(total)	T149	AR	0.01	mg/kg	U	001,003,007,009
Sulphur (total)	T21	A40	0.05	%	N	002,004-006,008
Soil Organic Matter	T287	A40	0.1	%	N	002,004-006,008
(Total Potential) SO4(Total) Expressed as SO4	T402	A40	0.15	%	N	002,004-006,008
(Acid Soluble) SO4--	T192	A40	0.01	%	N	002,004-006,008
(Water Soluble) SO4(2:1) expressed as SO4	T242	AR	0.010	g/l	N	002,004-006,008
(Oxidisable) Sulphide Expressed as SO4	T194	A40	0.01	%	N	002,004-006,008
(Acid Soluble) S expressed as S	T241	A40	0.01	%	N	002,004-006,008
(Water Soluble) S expressed as S	T240	AR	0.001	%	N	002,004-006,008
pH	T7	AR			U	002,004-006,008

SCIENTIFIC ANALYSIS LABORATORIES