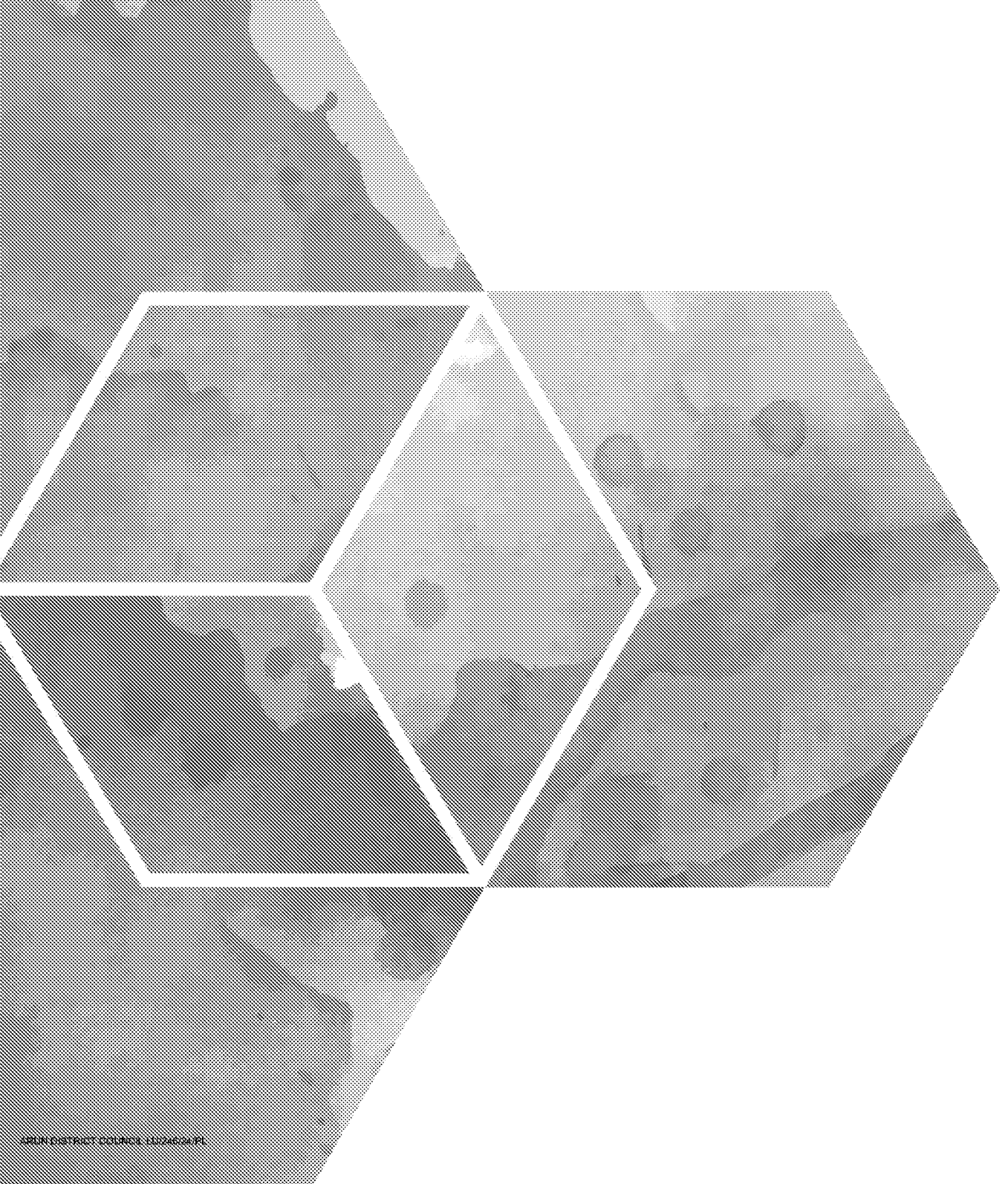

Land Science

LAND AT TODDINGTON LANE, LITTLEHAMPTON, BN17 7PP
GEOTECHNICAL AND GEO-ENVIRONMENTAL GROUND INVESTIGATION REPORT
BB PROPERTY INVESTMENTS LTD.
3RD MAY 2019

Site:	**LAND AT TODDINGTON LANE, LITTLEHAMPTON, WICK, WEST SUSSEX, BN17 7PP**
Title:	**GEOTECHNICAL AND GEO-ENVIRONMENTAL GROUND INVESTIGATION**
Development:	**ERECTION OF 10 RESIDENTIAL DWELLINGS WITH ASSOCIATED OPEN SPACE, LANDSCAPING AND PARKING**
Client:	**BB PROPERTY INVESTMENTS LTD.**
Architect:	**FOLKES ARCHITECTS**
Date:	**3rd MAY 2019**
Reference:	**LS 4160**
Version:	**V1.0**

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EXECUTIVE SUMMARY			
Appointment	Geotechnical and environmental ground investigation. The intrusive investigation included 3no dynamic sampler boreholes (DS1 to DS3) and 7no trial pits (TP1 to TP7). 3no. preliminary falling head soakage tests were carried out in the boreholes.		
Existing Site	Scaffolding storage yard with a metal shed and temporary office units		
Form of Development	Proposed 10no new residential plots of 2 to 4-bedroom flats and houses with soft landscaped gardens and open spaces.		
Ground Conditions	Strata	Base depth	Summary
	Made Ground	0.20 – 1.10m	Dark greyish brown, slightly clayey, very gravelly sand with brick and concrete
	River Terrace Deposits	2.80 – 5.00m+	Orangey brown, clayey, slightly gravelly sand
	New Pit Chalk Formation	5.00m+	Yellowish white, weak, structureless, low density chalk (Grade Dc)
Groundwater	No groundwater was encountered within a depth of 5.00m.		
Foundations	Traditional foundations designed to a maximum net allowable bearing capacity of 60 on the River Terrace Deposits. Further probing may enable this to be increased, to potentially 200 to 250 kN/m^2. The formation should be treated as having a low volume change potential.		
Excavations	The Made Ground is unlikely to remain stable. The River Terrace Deposits should remain marginally stable in the short term. Risk assessments should be prepared, and appropriate safety measures provided.		
Pavements	The formation level for pavements was noted to vary between Made Ground and River Terrace Deposits. CBR value of 2% recommended for the clays of the River Terrace Deposits. The formation is classified as being frost susceptible and a minimum pavement thickness of 450mm should be considered.		
Building Materials	DS1 and AC1 in accordance with BS8500. Water supply pipe work will not require protection from aggressive soil contaminants.		
Soakaways	Preliminary falling head soakage tests gave an infiltration rate of $1.5x10^{-6}$ m/s. Soakaways will perform satisfactorily on this site in the lower (sandy) River Terrace Deposits or New Pit Chalk. BRE Soakage tests should be considered.		
Ground gases	A characteristic situation of CS1 has been assigned to the site. No risks associated to ground gases have been identified.		
Contamination	Slightly elevated PAHs were identified in a sample of Made Ground taken from TP4. The Made Ground will need to be removed and replaced with 'clean' imported topsoil within the proposed gardens. The shallow soils within the existing yard areas is unsuitable for growing purposes for proposed gardens and landscaping areas.		
Waste Disposal	The majority of the Made Ground has been preliminary classified as Non - hazardous waste. Where WAC tests have been undertaken the Made Ground at TP3 and DS1 should be handled as Inert Waste an Non-Hazardous at DS3. Made Ground at DS2 and TP6 was preliminary classified as Hazardous Waste for disposal purposes due to elevated hydrocarbons. It is likely that natural soils could be handled as Inert Waste.		
Discovery strategy	Given the historical land uses and some field evidence of contamination was encountered (hydrocarbon odours) there is a potential for further contamination to be encountered. A discovery strategy should be employed, so that any evidence of possible unidentified contamination can be dealt with appropriately		
Further Action	Remediation will be required. This report should be submitted to relevant regulatory bodies and warranty providers in good time for approval.		
This Executive Summary is intended to provide a brief summary of the main findings and conclusions of the investigation. For detailed information, the reader is referred to the main report.			

1 INTRODUCTION

1.1 General

Land Science was instructed by Folkes Architects on behalf of BB Property Investments Ltd. (the Client) to undertake a Phase II geotechnical and geo-environmental investigation in relation to the proposed redevelopment of the Land at Toddington Lane, Littlehampton, Wick, West Sussex, BN17 7PP. The location of the site is shown on Figure 1, which is centred at grid reference TQ 0340 0385.

1.2 The Site

The area under investigation comprised a yard currently used for storing scaffolding with a fenced off area including a large two-storey warehouse with asbestos sheets, a temporary office unit, and grassy outskirts between the fence and Toddington Lane.

The layout of the existing site is indicated on Figure 2. The area was approximately 0.36 hectares. It was understood that the Client was in ownership of the site, that this investigation was not a pre-purchase appraisal and that the current scaffolding business would have left the site by August 2019.

1.3 Form of Development

The proposed development was understood to comprise the demolition of the current building and the construction of 10no 2 – 4 bed flats and houses, with associated open space, landscaping, parking and access. The proposed development was covered under appeal application APP/C3810/W/18/3197149. Figure 3 illustrates the layout of the proposed redevelopment.

1.4 Previous Investigations

The following previous investigations relevant to the site were made available:

- Phase I Geo-environmental Assessment, Land Science, LS2711, dated May 2017.

The phase II ground investigation has been carried out in accordance with the recommendations of the previous report.

1.5 Scope of Works

In accordance with the scope based on the Phase I Geo-environmental Assessment, the investigation comprised the following:

- 3no. dynamic (windowless) sampler boreholes (DS1 to DS3)
- 3no. super heavy dynamic probes (DP1 to DP3)
- 3no. standpipe installations, to be monitored on six return visits
- 3no. falling head soakage tests (undertaken at DS1, DS2 and DS3)
- 7no. trial pits excavated using a JCB-type excavator (TP1 to TP7)
- 6no. in-situ CBR determinations using a TRRL dynamic cone penetrometer (DCP1 to DCP6)
- VOC screening in head space using a Photoionisation Detector (PID)

The fieldwork was conducted on the 11th and 12th March 2019 under the supervision of Land Science. The six return monitoring visits were conducted between 22nd March and 25th April 2019.

1.6 Geotechnical Objectives

A geotechnical investigation was required to provide an interpretation of ground conditions with respect to foundations, pavements, soakaways, concrete specification, and excavations.

1.7 Geo-Environmental Objectives

A geo-environmental investigation was required to provide a soil contamination assessment, gas risk assessment and waste acceptance criteria for disposal purposes.

1.8 Standards

Where practicable, the investigation was undertaken in accordance with the following standards and guidance:

- Model Procedures for the Management of Contaminated Land, DEFRA and Environment Agency, September 2004 ("CLR11").
- Guiding Principles for Land Contamination, Environment Agency, March 2010, ("GPLC").

- National Planning Policy Framework, July 2018.
- Building Regulations Approved Document C: Site preparation and resistance to contaminants and moisture, HM Government, July 2013.
- NHBC Standards Chapter 4.1: Land Quality - Managing Ground Conditions, 2018 edition.
- BS 5930:2015 Code of Practice for Site Investigations
- BS 1377:2018 Soils for Civil Engineering Purposes

Other technical sources have been cited in respect of specific aspects of the investigation, as referenced throughout the text.

1.9 Confidentiality and Limitations

This report may be relied upon by the Client and their agents and consultants, and should be read and used only in full.

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2 INTRUSIVE INVESTIGATION

A factual record of the conditions encountered during the physical investigation of the site is presented in the following sections.

A site walkover was carried out prior to the intrusive site investigation. No significant changes to the site since the site walkover for the Phase I geo-environmental assessment were noted that required the investigation strategy to be revised.

2.1 Investigation Strategy

Based on the findings of the conceptual site model from the Phase I assessment and the geotechnical objectives, the intrusive investigation was based on the following strategy:

Aspect	Position	Target depth	Existing Location	Proposed Location	Testing, installations etc
Dynamic Sampler boreholes	DS1	5.00m	North west corner of the yard	Proposed building on plots 7 and 8	SHDP, FHST, MW
	DS2		Central area of the yard	Proposed building on plots 4, 5 and 6	SHDP, FHST, MW, DCP
	DS3		Area to the east of the existing yard	Proposed building on plots 1, 2 and 3	SHDP, FHST, MW, DCP
Trial Pits	TP1	3.00m		Plot 1 garden	-
	TP2			Plot 2 garden	-
	TP3		Area to the south east of the yard	Access road	DCP
	TP4		Central area of the yard	Plot 4 garden	-
	TP5			Plot 8 garden	DCP
	TP6			North of car barns for plots 1 – 3 and plots 9 - 10	DCP
	TP7	3.00m	North west corner of the yard	Gardens of plots 6 and 7	DCP

TP4 was completed at 3.50m in an attempt to prove the base of the River Terrace Deposits. All other positions achieved the target depth.

An explanation of the excavation and testing types are given in the following sections.

2.2 Dynamic (Windowless) Sampling (DS)

Dynamic Sampling entails 1m long hollow tubes with liners driven into the ground and retracted in order to obtain samples. The process is repeated sequentially to the target depth, unless impenetrable strata or borehole instability prevent further progress. The liners are split, logged, tested, and subsampled. Sample compression can occur within the liners, and the sampler can sometimes become blocked. Sample recovery is typically class 2 as defined in Eurocode 7.

2.3 Super Heavy Dynamic Probing (SHDP)

Dynamic Probing involves hammering a cone point into the ground and recording the number of blows required for each increment of penetration. The mass and falling height of the hammer, the energy efficiency, the dimensions of the cone, the rod specifications and rod friction are important considerations. A range of configurations are prescribed in Eurocode 7 and EN ISO 22476-2; the type deployed was *DPSH-A*.

2.4 Monitoring Wells (MW)

Monitoring wells were installed in all three boreholes. The installation was sealed through the Made Ground, with the response zone in the River Terrace Deposits and New Pit Chalk Formation. The pipework was 50mm diameter HDPE, sealed using hydrated bentonite pellets and the slotted response zone packed with 10mm pea shingle.

2.5 Trial Pits (TP)

Seven machine excavated trial pits were undertaken across the site to enable shallow soil samples to be taken and an assessment of the composition of Made Ground to be undertaken.

2.6 Dynamic Cone Penetrometer (DCP)

In-situ CBR determinations were undertaken using a TRL DCP. The test involves driving a 20mm diameter (60^0) cone attached to a penetration rod with an 8kg weight in a 'slide

hammer' action and recording each blow's penetration. The weight is dropped from a height of 575mm.

2.7 Falling Head Soakage Tests (FHST)

Preliminary falling head soakage tests were carried out within the boreholes. A standpipe is installed into the drilled borehole before it is filled with water. A dipmeter is used to measure the depth of the water as it falls over time. Readings are taken at faster increments at the start of the test, with readings being taken with longer intervals towards the end.

3 GROUND CONDITIONS

3.1 General

The expected ground conditions were anticipated to comprise Made Ground over River Terrace Deposits over New Pit Chalk Formation to depth. The investigation confirmed the anticipated ground conditions. A summary of the encountered conditions is presented below.

Base Depth m										Strata
DS1	DS2	DS3	TP1	TP2	TP3	TP4	TP5	TP6	TP7	
0.20	0.30	1.10	0.20	0.70	0.30	0.40	0.40	0.30	0.20	Made Ground
5.00 +	5.00 +	3.70	3.00 +	2.40	3.00 +	3.30	3.00 +	3.00 +	2.80	River Terrace Deposits
-	-	5.00 +	-	3.00 +	-	3.50 +	-	-	3.00 +	New Pit Chalk Formation

All holes achieved target depth. The target depth for TP4 was 3.00m but was extended to 3.50m to prove the base of the River Terrace Deposits.

The identification of materials encountered as specific geological strata is tentative and should be used as a guide, and interpolation between or below investigation points should be treated with caution.

3.2 Made Ground (MG)

The base of the Made Ground was proved in all positions, typically between 0.20m to 0.40mbgl (disturbed ground) and deeper within two boreholes; DS3 (1.10m) and TP2 (0.70m) which were both located on an area of raised ground.

The Made Ground generally comprised a sandy gravelly CLAY, with various fragments including brick, clinker, flint, chalk, concrete, plastic and wood. In addition, a reworked chalk was encountered between 0.40m to 0.70mbgl within TP2.

3.3 River Terrace Deposits (RTD)

River Terrace Deposits were encountered to the full depth of the investigation in most positions. DS3, TP2, TP4 and TP7 proved the base depth of the River Terrace Deposits at 3.70m, 2.40m, 3.30m and 2.80m respectively.

The formation generally comprised orangish brown sandy, slightly gravelly CLAY becoming slightly gravelly, clayey sand, gravels comprised of fine to coarse sub-angular to sub-rounded flints. Chalk fragments were also noted towards the base of TP1 at a depth of 2.90mbgl.

3.4 New Pit Chalk Formation (NPCF)

The New Pit Chalk Formation was encountered in DS3, TP2, TP4 and TP7 and was encountered to a maximum depth of 5.00mbgl.

The chalk comprised a yellowish/off-white, weak, structureless, low density chalk melange with gravel sized relic chalk clasts and corresponded to the description and classification of the chalk was in accordance with CIRIA guide C574 (Grade Dc).

3.5 Roots and Rootlets

Details of roots and rootlets are presented below.

Position	Roots	Rootlets
DS1	0.20 to 0.80m; occasional roots	0.00 to 0.20m; occasional rootlets
DS2	-	0.00 to 0.10m; abundant rootlets
DS3	0.00 to 1.10m; abundant roots	0.00 to 1.10m; abundant rootlets
TP1	0.00 to 0.20m; abundant roots	0.00 to 0.20m; abundant rootlets
TP2	0.00 to 0.40m; abundant roots	0.00 to 0.40m; abundant rootlets
TP3	0.00 to 0.30m; occasional roots	0.00 to 0.30m; abundant rootlets
TP4	-	-
TP5	0.00 to 0.40m; occasional roots	0.00 to 0.40m; occasional rootlets
TP6	-	-
TP7	0.20 to 0.50m; occasional roots	0.20 to 0.50m; occasional rootlets

3.6 Field Evidence of Contamination

Made Ground within DS2 at 0.10mbgl was noted to be stained black and had a strong hydrocarbon malodour. No evidence of contamination was noted at any of the other positions or in the natural soils.

Made Ground was identified to base depths between 0.20 and 1.10m, and such materials may be imported from an unknown source or mixed with hazardous materials, and as such may contain a wide range of potential contaminants. All such materials should be treated as suspect unless proven otherwise. Testing for these compounds has been carried out, as described in section 5.0.

3.7 Groundwater

Groundwater was not encountered during excavation of any of the investigative positions.

3.8 Stability

Although all boreholes and pits encountered granular material (River Terrace Deposits), they all remained stable during the investigation.

4 MONITORING DATA

4.1 Groundwater Monitoring

Groundwater was not encountered during any of the six return monitoring visits.

4.2 Ground Gas Monitoring

The results of the ground gas monitoring are summarised on the following table. Depending on the parameter with the maximum (peak) or minimum readings are reported, as stated.

Measurement	(22/03/2019)	DS1	DS2	DS3
Carbon Dioxide %	Maximum	2.6	3.8	5.8
Methane %	Maximum	0.0	0.0	0.0
Oxygen %	Minimum	16.0	11.3	13.2
VOCs ppm	Maximum	1.0	0.0	0.1
Flow rate l/hr	Maximum	0.0	0.0	0.0
	Steady (after 15s)	0.0	0.0	0.0

Measurement	(28/03/2019)	DS1	DS2	DS3
Carbon Dioxide %	Maximum	0.9	2.6	8.6
Methane %	Maximum	0.0	0.0	0.0
Oxygen %	Minimum	19.7	15.1	11.9
VOCs ppm	Maximum	0.2	0.2	0.3
Flow rate l/hr	Maximum	0.0	0.1	0.0
	Steady (after 15s)	0.0	0.0	0.0

Measurement	(04/04/2019)	DS1	DS2	DS3
Carbon Dioxide %	Maximum	3.9	4.2	10.9
Methane %	Maximum	0.0	0.0	0.0
Oxygen %	Minimum	14.8	11.6	9.3
VOCs ppm	Maximum	0.0	0.1	0.1
Flow rate l/hr	Maximum	0.0	0.7	0.0
	Steady (after 15s)	0.0	0.3	0.0

Measurement	(12/04/2019)	DS1	DS2	DS3
Carbon Dioxide %	Maximum	3.2	2.1	8.5
Methane %	Maximum	0.0	0.0	0.0
Oxygen %	Minimum	15.9	15.8	12.8
VOCs ppm	Maximum	0.0	0.1	0.0
Flow rate l/hr	Maximum	1.0	0.9	0.7
	Steady (after 15s)	0.7	0.00	0.0

Measurement	(17/04/2019)	DS1	DS2	DS3
Carbon Dioxide %	Maximum	1.9	3.0	11.8
Methane %	Maximum	0.0	0.0	0.0
Oxygen %	Minimum	19.4	15.9	8.8
VOCs ppm	Maximum	0.0	0.1	0.1
Flow rate l/hr	Maximum	0.0	0.1	0.1
	Steady (after 15s)	0.0	0.0	0.0

Measurement	(25/04/2019)	DS1	DS2	DS3
Carbon Dioxide %	Maximum	3.8	2.2	Buried before the final visit on the 25th April
Methane %	Maximum	0.0	0.0	
Oxygen %	Minimum	16.1	17.8	
VOCs ppm	Maximum	0.0	0.0	
Flow rate l/hr	Maximum	0.0	1.0	
	Steady (after 15s)	0.0	0.1	

Below is a summary of the atmospheric pressure conditions during the monitoring visits:

Visit	Pressure (recorded on site)	Published pressure trend
22/03/2019	1029mB	Fluctuating high
28/03/2019	1035mB	Fluctuating high
04/04/2019	993mB	Falling low
12/04/2019	1025mB	Rising high
17/04/2019	1019mB	Fluctuating high
25/04/2019	998mB	Fluctuating low

5 GEO-ENVIRONMENTAL TESTING

5.1 PID Screening

VOC analysis in headspace was carried-out in all soil samples broadly in accordance with the methodology set-out in CIRIA C682. Samples which exhibited VOC's above the detection limit (<0.1ppm) are summarised below.

Position	Strata	Result
DS1	MG	0.20m (5.1ppm)
	RTD	0.50m (2.1ppm), 1.00m (3.2ppm), 1.50m (0.6ppm)
DS2	MG	0.10m (1.4ppm)
	RTD	1.00m (0.1ppm), 2.00m (0.1ppm), 3.00m (0.3ppm), 3.50m (0.1ppm)
TP2	MG	0.20m (0.3ppm), 0.50m (0.3ppm)
	RTD	1.00m (0.2ppm), 1.50m (0.1ppm)
	NPCF	3.00m (0.1ppm)
TP3	MG	0.20m (0.4ppm)
	RTD	0.50m (0.4ppm), 1.00m (0.3ppm), 1.50m (0.4ppm), 2.00m (0.4ppm), 2.50m (0.2ppm), 3.00m (0.2ppm)
TP4	MG	0.20m (0.4ppm)
	RTD	0.50m (0.1ppm), 1.00m (0.3ppm), 1.50m (0.3ppm), 2.00m (0.1ppm), 2.50m (0.2ppm), 3.00m (0.2ppm),
	NPCF	3.40m (0.2ppm)
TP5	MG	0.20m (0.1ppm)
	RTD	0.50m (0.1ppm), 1.00m (0.1ppm), 1.50m (6.2ppm), 2.00m (1.2ppm), 2.50m (0.3ppm), 3.00m (0.2ppm)
TP6	MG	0.10m (0.6ppm)
	RTD	0.50m (0.2ppm), 1.00m (0.4ppm), 1.50m (1.0ppm), 2.00m (0.2ppm), 2.50m (0.1ppm), 2.90m (0.2ppm)
TP7	MG	0.10m (0.3ppm)
	RTD	0.50m (0.3ppm), 1.00m (0.3ppm), 1.50m (0.2ppm), 2.00m (0.9ppm), 2.50m (0.1ppm)
	NPCF	3.00m (0.1ppm)

MG – Made Ground, RTD – River Terrace Deposits, NPCF – New Pit Chalk Formation

The purpose of the screening was to identify samples which may be impacted by organic contaminants (such as VOC's, SVOC's, petroleum hydrocarbons, diesel, etc) and to assist in prioritising samples for laboratory analysis.

5.2 Geochemical Laboratory Analysis

Samples were selected for geochemical analysis, based on the following rationale:

- Representative samples of Made Ground were analysed for a routine screening suite with asbestos screening (LS1A). The samples were taken from a shallow depth, given the exposure pathways identified in the CSM.
- Samples with higher PID readings were screened for speciated TPH's (TPH7), speciated volatile organic compounds (VOC's) and semi-volatile organic compounds (SVOC's)
- Two random shallow samples of Made Ground were screened for ammonia and herbicide/pesticide given the historical agricultural land uses; potential agro-chemical storage.
- Three samples of Made Ground were also tested for a waste acceptance criteria test (LS2) to provide preliminary information on waste disposal/potential reuse.

A summary of the testing scheduled is given below:

Sample	Strata	Suite			
		LS1A	LS2	TPH7 / Volatiles	Ammonia / Herbicide/ Pesticide
DS1 0.20m	Made Ground	✓	✓	✓	✓
DS2 0.10m		✓	-	✓	-
DS3 0.70m		✓	✓	✓	✓
TP1 0.20m		✓	-	-	-
TP2 0.20m		✓	-	✓	-
TP3 0.20m		✓	✓	✓	-
TP4 0.20m		✓	-	-	-
TP5 0.20m		✓	-	-	-
TP5 1.50m	River Terrace Deposits	-	-	✓	-
TP6 0.20m	Made Ground	✓	-	✓	-
TP7 0.20m		-	-	✓	-

The relevant screening suites are defined below. Where duplicate analysis exists between suites, each test is performed only once:

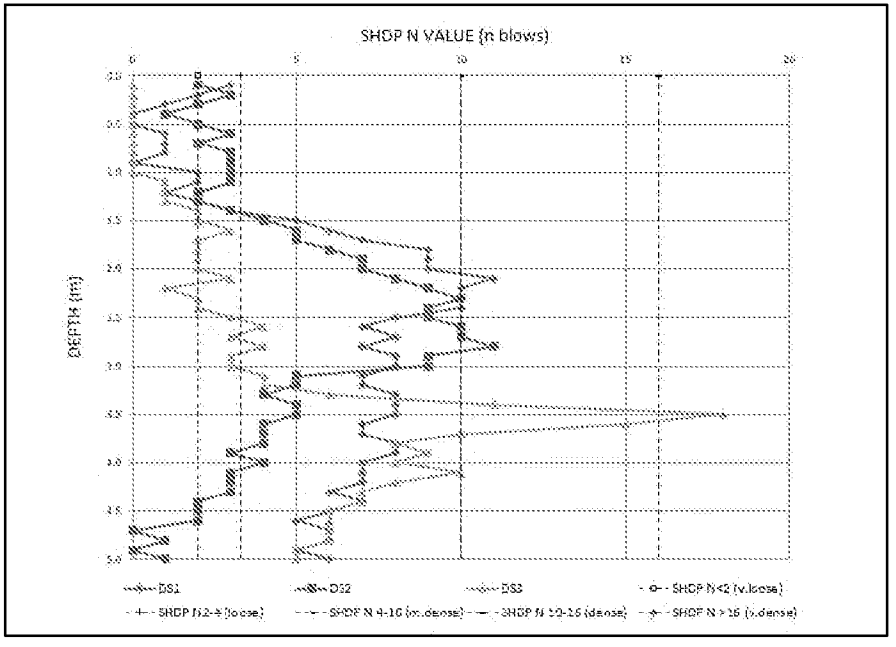
Suite	Definition
LS1A (soil)	**Screening suite**: pH, fraction of organic carbon, Metals and Non Metals, water soluble Sulphate, Sulphide, total Cyanide, total Phenols, speciated PAH's, asbestos screening.
LS2	**Waste Acceptance Criteria**: Total Organic Carbon, Loss on Ignition, BTEX, speciated PCB's, Mineral Oil (EC10 – EC40), pH, Acid Neutralisation Capacity, speciated PAH's, 10:1 leachable Metals and Non Metals.
TPH7	**Speciated TPH**: Total petroleum hydrocarbons CWG banding incl. aliphatic and aromatic split plus BTEX and MTBE.
Volatiles	**VOC/SVOC**: Determination of volatile and semi volatile organic compounds in soil by headspace GC-MS.
Ammonia	**Ammonia:** Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.
Herbicide/ Pesticide	**Pesticides and herbicides screen** – determination of presence or absence of pesticides / herbicides.

The results of geochemical analysis are discussed in section 8.0.

6 GEOTECHNICAL TESTING

6.1 Geotechnical Field Tests

A super heavy dynamic probe (SHDP) was undertaken at each dynamic sampler position. The test is used as a measure of the relative density of granular soils (as defined in BS5930:1999). The test provides limited data in cohesive soils but may be used to illustrate changes in consistency with depth. The test may be used in Chalk to assess the density grade. A typical range of results is summarised below.



A falling head soakage test was undertaken in all three dynamic sampler boreholes from within the monitoring wells. The water level fell at a steady rate in all positions. The results gave preliminary infiltration rates in the order of 8.6×10^{-6}m/s (DS1), 6.6×10^{-6}m/s (DS2) and 1.5×10^{-6}m/s (DS3).

The in-situ CBR tests results are summarised below:

Position	Strata	Results
DCP1 (TP7)	Made Ground	0.00 to 0.15m (1.7%)
	River Terrace Deposits	0.15 to 0.30m (1.7%), 0.30 to 0.45m (0.7%), 0.45 to 0.90m (1.7%)
DCP2 (TP6)	Made Ground	0.00 to 0.15m (0.7%), 0.15 to 0.30m (0.7%)
	River Terrace Deposits	0.30 to 0.45m (1.7%), 0.45 to 0.60m (5.5%), 0.60 to 0.75m (4.1%), 0.75 to 0.90m (2.9%)
DCP3 (TP5)	Made Ground	0.00 to 0.15m (7.0%), 0.15 to 0.30m (4.1%), 0.30 to 0.45m (4.1%)
	River Terrace Deposits	0.45 to 0.60m (7.0%), 0.60 to 0.75m (5.5m), 0.75 to 0.90m (8.5%)
DCP4 (DS2)	Made Ground	0.00 to 0.15m (4.1%), 0.15 to 0.30m (2.9%)
	River Terrace Deposits	0.30 to 0.45m (2.9%), 0.45 to 0.60m (4.1%), 0.60 to 0.75m (8.5%), 0.75 to 0.90m (5.5%)
DCP5 (TP3)	Made Ground	0.00 to 0.15m (26.4%), 0.15 to 0.30m (18.7%)
	River Terrace Deposits	0.30 to 0.45m (7.0%), 0.45 to 0.60m (10.1%), 0.60 to 0.75m (7.0%), 0.75 to 0.90m (4.1%)
DCP6 (DS3)	Made Ground	0.00 to 0.60m (0.7%), 0.60 to 0.75m (0.0%), 0.75 to 0.90m (1.7%)

6.2 Geotechnical Laboratory Testing

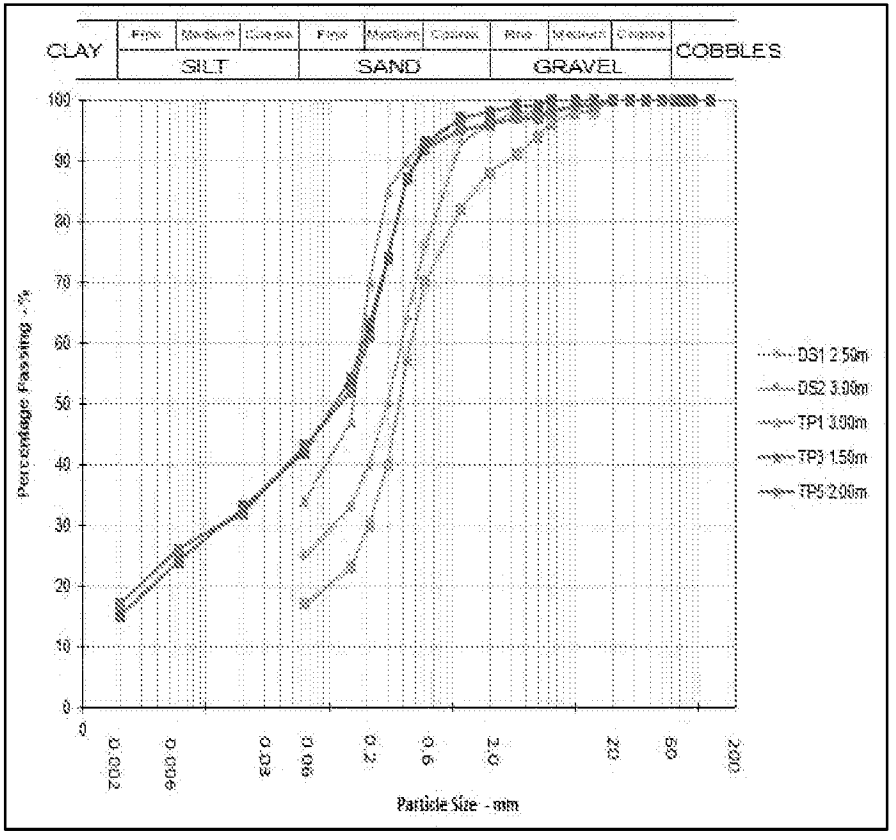
Samples of soil were sent for laboratory geotechnical testing; copies of the results are appended, and summaries are given in the following tables. The testing was undertaken in accordance with the relevant British Standards in BS1377 following documented quality procedures.

Particle Size Distribution analysis was performed on representative samples of more granular materials as summarised on the following table.

Strata	No. of tests	% Fines	% Sand	% Gravel	% Cobbles
River Terrace Deposits	5	17.4 to 42.5	53.3 to 71.3	2.0 to 12.1	0.0

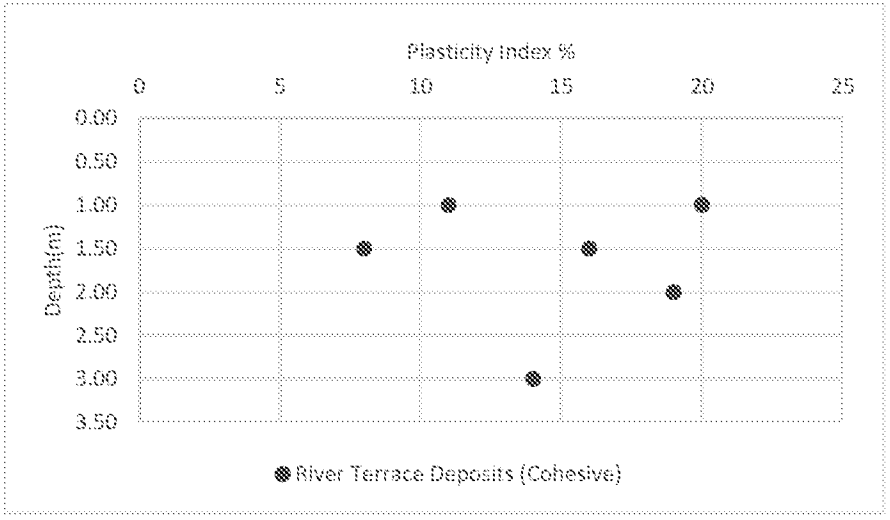
Two samples out of the five samples above were also screened for a more detailed analysis on the percentages of fines present (silt/clay)

Strata	No. of tests	% Fines	% Silt	% Clay
River Terrace Deposits	2	41.7 & 42.5	24.7 & 26.2	15.5 & 17.8



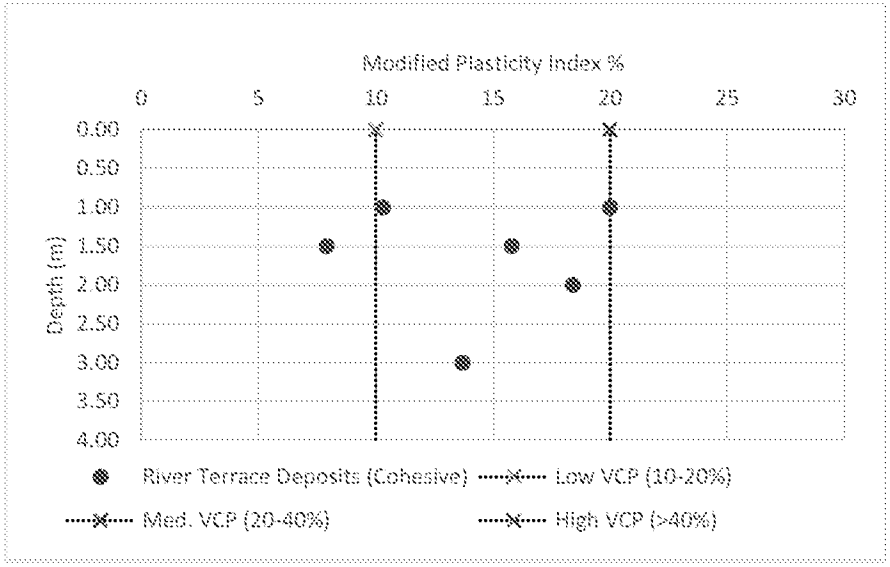
Atterberg Limit tests were undertaken on selected samples of cohesive soils, as summarised below.

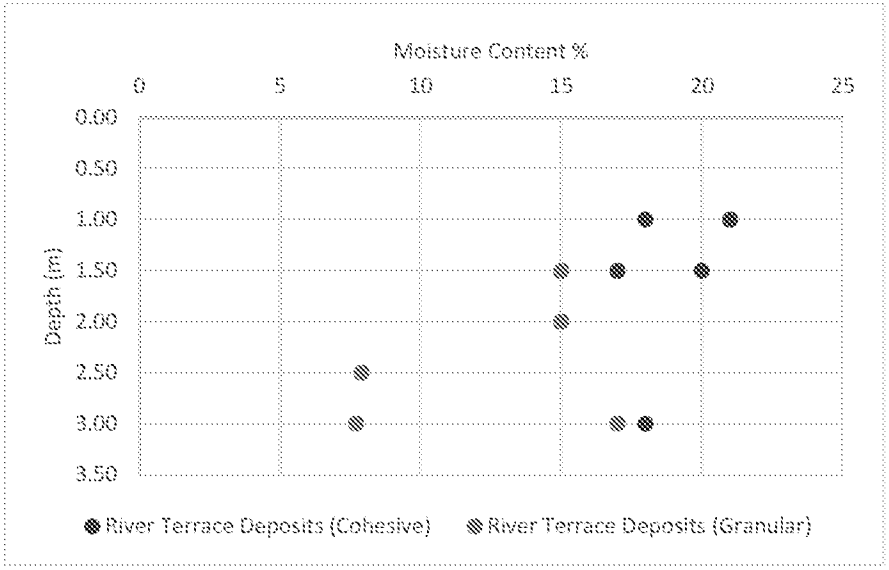
Strata	No. of tests	Plasticity Index %		
		Minimum	Maximum	Average
River Terrace Deposits (Cohesive)	6	8.0	20.0	14.7



A modified plasticity index (PI') was calculated following the NHBC methodology, to account for any non-shrinkable percentage not passing the 425µm sieve:

Strata	No. of tests	Modified Plasticity Index %		
		Minimum	Maximum	Average
River Terrace Deposits (Cohesive)	6	7.9	20.0	14.4





Water content determinations (formerly known as *moisture content*) were undertaken in combination with various classification tests, and the results are summarised below.

Strata	No. of tests	Water content %		
		Minimum	Maximum	Average
River Terrace Deposits (Cohesive)	6	15.0	21.0	18.2
River Terrace Deposits (Granular)	5	7.7	17.0	12.5

Geochemical testing for water soluble Sulphate and pH were undertaken, and the results are summarised on the following table.

Strata	No. of tests	Water soluble Sulphate (SO_4 g/l)	pH (value)
River Terrace Deposits	6	0.0084 to 0.064	7.1 to 8.3

Bulk density, dry density and saturated moisture content tests were carried out on samples from the New Pit Chalk Formation as described below.

Strata	No. of tests	Bulk density (Mg/m^3)	Dry density (Mg/m^3)	Saturated Moisture Content %
New Pit Chalk Formation	5	1.90 to 2.08	0.48 to 0.76	20 to 31

7 GEOTECHNICAL ASSESSMENT

The following recommendations have been made with respect to geotechnical design.

7.1 General Foundation Design

The proposed development was understood to comprise the demolition of the existing yard structures and the construction of ten residential dwellings with associated gardens and car parking.

Shrinkable soils were identified, which may be susceptible to seasonal heave and shrinkage movements caused by changes in moisture content caused by the action of tree roots and rootlets.

It should be noted that a steep bank runs along the northern and eastern borders of the site. Special consideration should be given to the design of temporary works and the final condition in these areas. Long deep excavations should be avoided or carefully planned. Point discharges of water such as soakaways should be positioned appropriately.

Based on the ground and groundwater conditions encountered, it is considered that traditional strip foundations would be appropriate for the proposed development. However, the probe results from DS3 were relatively low (compared to DS1 and DS2) suggesting the relative density of the River Terrace Deposits may be variable. A low bearing pressure should be initially assumed, although probing around the perimeter of proposed buildings may be considered.

7.2 Volume Change Potential

Soil shrinkability has been assessed following the NHBC Standards Chapter 4.2 (January 2018 edition). It is recommended that the advice of this publication (or similar guidance) is taken when designing and constructing foundations in the zone of influence of trees and hedgerows that currently exist, are to be planted, or have recently been felled.

The River Terrace Deposits yielded a maximum modified plasticity index of 20.0% and an average of 14.7%; and has been classified as susceptible to low volume change potential.

Strata	% passing 425µm sieve	Modified Plasticity Index	Shrinkability classification
River Terrace Deposits	-	10-20%	Low volume change potential

Specifications for heave precautions on medium volume change potential soils are summarised below. In addition to the depths marked *, localised deepening of foundations will be required in the influence of trees; it will be necessary to evaluate tree species and height in relation to the proposed building footprints. If not already carried out, an arboricultural survey will be required.

Volume Change Potential		Low
Minimum depth for traditional foundations outside zone of influence of trees (m) *		0.75m
No tree planting zone required for minimum depth foundations above (m)		0.2 x mature tree height
Minimum depth for traditional foundations but allowing for restricted new planting (m) *		1.00m
Minimum void dimension	Against side of traditional foundations and ground beams etc.	0mm
	Beneath ground beam and suspended in-situ concrete ground floors etc.	50mm
	Beneath suspended precast concrete or timber floors etc.	200mm
Minimum allowance for potential ground movement for new drains		50mm

All foundations should extend below any major root zones or desiccated soil encountered, and trenches should be carefully inspected accordingly. Void former will be required for foundations deeper than 1.50m and within the influence of trees.

7.3 Traditional Shallow Foundations

All foundations should be taken through any Made Ground, soft or loose zones, disturbed soils, major root zones, or desiccated materials and taken wholly into or onto the soft to firm clays or medium dense sands or the River Terrace Deposits.

Such foundations, symmetrically loaded and up to a width of 1.50m, may be designed based on a maximum allowable net bearing pressure of 60kN/m^2. This assessment includes an appropriate factor of safety against shear failure, and settlements should remain within appropriate limits.

If probing is considered, the bearing pressure could perhaps be increased to 200 to 250 kN/m^2 (based on DS1 and DS2) which may potentially represent a significant saving on substructure costs.

Given the variability in engineering characteristics of the River Terrace Deposits at the anticipated formation level, it is recommended that all foundations are lightly reinforced to account for potential differential settlements.

The formation will soften rapidly when exposed to free water. The final 50mm of any foundation trench should not be excavated until immediately before concreting, unless blinded or otherwise protected immediately after excavation.

7.4 Ground Floor Slabs

Given the presence of soils susceptible to volume change potential (i.e. shrinkable), Made Ground locally greater than 0.60mbgl, it is recommended that all ground floor slabs should be fully suspended, with a suitable minimum void space.

7.5 Excavations

The risks arising from excavation works should be properly assessed and appropriate safety precautions should be adopted. Reference may be made to various guidance including BS8000-1:1989, BS6031:2009 and CIRIA C97.

The likelihood of excavation instability through different strata has been assessed as summarised below. It should be noted that all open unsupported excavations have the potential to collapse.

Strata	Stability
Made Ground	Generally unstable. May be battered back to a safe angle. Deeper excavations may require trench support.
River Terrace Deposits	Marginally stable in the short term. Spalling and collapse should be expected, particularly in long or deep excavations which are left open for prolonged periods.

Excavations which are to remain open for prolonged periods will require trench support.

Elevated levels of carbon dioxide were detected within the borehole standpipes, and consequently there is a potential for ground gases to accumulate within excavations or other confined spaces at deleterious concentrations.

It is considered that normal-rated plant and machinery will be sufficient for undertaking excavations. Care should be taken so as not to undermine existing structures, services, or adjacent property.

Adjacent excavations should generally be tackled in order of depth with the deepest first. Vehicles and spoil heaps etc. should not surcharge excavations, and edge protection and fencing should be used as appropriate. Frozen materials should generally not be used as backfill.

7.6 Pavements

The formation level for pavements is expected to very between Made Ground and River Terrace Deposits.

With reference to Transport Road Research Laboratory Report LR1132 "The Structural Design of Bituminous Roads", a CBR index of 4.5% is considered appropriate for the sandy clays of the River Terrace Deposits, assuming average construction conditions and a deep groundwater table. The results of the in-situ CBR tests generally ranged between 1.7% and 7.0% on the clays of the River Terrace Deposits. As such a design CBR value of 2% is recommended on these materials.

Based on the Atterberg Limit test results in conjunction with the field observations, the formation will be frost susceptible. A minimum pavement thickness of up to 450mm should therefore be considered.

The Made Ground was of a mixed composition, and the engineering characteristics of such soils are highly variable and unpredictable. Due to the variability of the Made Ground it would be prudent to assume the material to be frost susceptible throughout, thus a minimum pavement thickness of 450mm would be appropriate. Alternatively, the Made Ground may be removed and wholly replaced with granular engineered fill.

The formation level should be carefully inspected, and any soft or loose zones should be removed and replaced with engineering fill, well-compacted in layers to a suitable

specification. Consideration might be given to installing geotextiles. Cohesive formations will degrade rapidly if exposed to standing water for even short periods. All engineering fill should be granular and non-frost susceptible (i.e. <10% fine material passing 425µm sieve).

It is assumed that all estate roads will be privately maintained. Where any roads are to become adopted by the relevant Highways Authority, they should be consulted in order to confirm local specifications and acceptable design parameters. Further testing may be required.

7.7 Building Materials

Based on BS8500-1:2015+A1:2016, the results of the Sulphate and pH analyses fell into Class DS-1 and an ACEC class AC-1 is deemed appropriate. The high pH levels found in DS2 were within the Made Ground and should be removed before any construction begins. The advice of this publication should be taken for the design and specification of all sub surface concrete.

Buried plastics used for potable water supplies should be upgraded to resist chemical contamination. Metal or aluminium barrier pipework will be acceptable. No pipework should be laid where there is evidence of hydrocarbons. Further information with respect to new water supply pipework can be found in section 8.9.

7.8 Surface Water Drainage

Preliminary falling head soakage tests were undertaken within DS1, DS2 and DS3. The percolation rates from the sands of the River Terrace Deposits and New Pit Chalk Formation were similar. The slowest infiltration rate was $1.5x10^{-6}$ m/s.

Based on the above, it is concluded that soakaways will perform satisfactorily on site.

All soakaways should be located a minimum distance of at least 5m away from sensitive structures in accordance with the building regulations.

8 SOIL CONTAMINATION ASSESSMENT

8.1 General

A Tier 1 Generic Quantitative Risk Assessment (GQRA) has been prepared for soil contamination. It should be noted that the presence of a possible contaminant does not necessarily imply that a site or area is contaminated or that there is any unacceptable risk to human health.

8.2 Outline Risk Assessment

The Conceptual Site Model from the Phase I assessment identified the following source-pathway-receptor linkages in respect of potential contaminants in soil:

Source	Pathway	Receptor
Contaminants existing within soils on account of: Made Ground, Former industrial uses	Ingestion, dermal contact, inhalation of dust, plant uptake, chemical attack	End users, soft landscaping, adjacent land users, building materials

No changes were made to the CSM except the removal of groundwater as a source and as a receptor as no groundwater was encountered during the site investigation.

8.3 End Users

8.4 Screening Values

Several different partly overlapping schemes are currently in use in the UK, based on the Environment Agencies CLEA Model but with differing toxicological parameters. For the purpose of this report these schemes have and have been applied in the following hierarchy:

- Suitable For Use levels (S4UL) recently published by LQM in association with the CIEH.
- Category 4 Screening Levels (C4SL) recently published by the DEFRA and CL:AIRE.

The soil chemical analysis results have been compared against respective screening values for Residential (with vegetation) land uses.

Whilst other standards exist, such as the LQM Generic Assessment Criterion and the Environment Agency's Soil Guideline Values, these are considered to have been superseded by the above publications.

For contaminants where the respective screening value is dependent on Soil Organic Matter (SOM), the corresponding value for 3.5% was used (the arithmetic mean SOM value for the soil was 2.5%).

Where no standard exists, the contaminant is either not considered a priority in terms of human health (at least in the scenario being considered), or no screening value has been published.

The results have been compared individually against the respective screening criteria and a summary of those exceeding the respective values is give below.

Determinant	Screening value	Results exceeding screening value
Benzo(b) fluoranthene	3.3mg/kg	TP1 0.20m (3.50mg/kg), TP4 0.20m (10.0mg/kg)
Benzo(a) pyrene	2.7mg/kg	TP1 0.20m (3.30mg/kg), TP4 0.20m (9.1mg/kg)
Di-benzo(a,h) anthracene	0.28mg/kg	TP1 0.20m (0.64mg/kg), TP4 0.20m (1.9mg/kg)

With respect to polycyclic aromatic hydrocarbons and for this assessment Land Science have adopted the surrogate marker approach described in Appendix E of the C4SL suite of documents i.e. using benzo(a)pyrene as a representative compound for all genotoxic PAHs that may be present in soils at the site. We note that the PAHs identified above individual GACs are all classified as genotoxic compounds. The table below summarises the benzo(a)pyrene results.

Contaminant	GAC	Mean average concentration	Sample location and depth
Benzo(a)pyrene (as a surrogate marker)	5.0 mg/kg	2.22mg/kg	TP4 0.20m (9.1mg/kg)

On this basis, it was concluded that elevated PAHs in the Made Ground at TP4 may pose a potential risk. Therefore, remedial measures were considered necessary in this respect.

8.5 Speciated TPH

The risks from TPH's are assessed differently from other contaminants. The ratio of an individual group of carbon bands to the respective GAC is calculated (a Hazard Quotient) and these are totalled to derive a sample specific Hazard Index. A Hazard Index exceeding 1.0 suggests a potential significant risk to human health in the exposure scenario considered. The calculated Hazard Indexes are summarised below.

Sample	Total TPH	Hazard Index	Notes
TP2 at 0.20m	51.5	0.08	No significant risk identified
TP6 at 0.10m	390	0.15	
TP3 at 0.20m	78	0.05	
TP5 at 1.50m	< Detection limits	0.00	
TP7 at 0.10m	56	0.04	
DS1 at 0.20m	< Detection limits	0.00	
DS2 at 0.10m	128	0.05	
DS3 at 0.70m	47	0.07	

8.6 Asbestos

A total of ten samples of Made Ground were screened for the presence of Asbestos, none of the samples were noted to have asbestos detected within them.

8.7 Soft Landscaping

A number of documents include guidance on screening levels of phytotoxic contaminants within soils, including:

- BS3882:2015 "Specification for topsoil and requirements for use" (although stipulated as not to be used in contaminated land risk assessment).
- ICRCL in publication 70/90 1990 'Notes on the Restoration and Aftercare of Metalliferous Mining Sites for Pasture and Grazing' (although indirectly withdrawn) (where marked *).

The results of the chemical analysis for determinands known to pose a potential phytotoxic risk to plant growth are summarised on the following table, together with the respective adopted screening values for plant growth. The results of the chemical analysis were evaluated singularly without the use of statistical tools.

Determinand	Phytotoxicity Value (mg/kg)			Results in excess of screening value
	pH <6.0	pH 6.0-7.0	pH >7.0	
Zinc	<200	<200	<300	None
Copper	<100	<135	<200	
Nickel	<60	<75	<110	
Cadmium *	50			
Arsenic *	1,000			

Based on the above assessment in conjunction with field evidence from the site walkover survey, it is concluded that no risk was likely to be posed in this respect.

This aside, materials generally considered physically suitable for soft landscaping purposes were not encountered within the investigative positions, and verifiably suitable topsoil or sub-soil is likely to be necessary in order to facilitate and sustain plant growth in soft landscaped areas. The materials should meet the chemical standards set out in section 8.3 and BS3882.

8.8 Building Materials

Recommendations with respect to Sulphate and buried concrete are made in section 7.7. It is noted that no onerous precautions in this respect are warranted.

The risk of chemical attack on water supply pipework has been assessed following the general Principals set out in the joint Water UK/HBF *Contaminated Land Assessment Guidance* dated January 2014. A summary of the main chemical criteria is reproduced below.

Test group (in mg/kg)	Polyethylene (PE)	Polyvinyl Chloride (PVC)	Metal or Aluminium Barrier
VOC's	0.5	0.125	Pass
VOC's + BTEX & MTBE	0.1	0.03	Pass
SVOC's (excl. PAH's etc.)	2.0	1.4	Pass
SVOC's + Phenols	2.0	0.4	Pass
SVOC's + Cresols & Chlorinated Phenols	2.0	0.04	Pass
Mineral oil EC11-20	10	Pass	Pass
Mineral oil EC21-40	500	Pass	Pass

The concentrations of TPHs were noted to be elevated above the respective threshold standards. New water supply pipework should be upgraded to PVC, metal or aluminium barrier. It is recommended that the local water utility company is consulted to confirm this assessment.

Ethers, nitrobenzene, ketones, aldehydes and amines were not suspected. Redox potential and Conductivity should be checked where metal pipework is to be installed. Aluminium barrier pipework is acceptable under all conditions. No pipework should be laid where there is evidence of free product.

8.9 Conclusions

Human Health
The results of the chemical analyses have identified a risk of PAHs from soils to end users. A slight genotoxic risk from elevated PAHs was noted within the Made Ground within the proposed soft landscaping around TP4, it is recommended that this material is removed and replaced with 'clean' imported topsoil that has been tested to confirm it meets the screening criteria adopted for the site.

Soft Landscaping
Materials generally considered physically suitable for soft landscaping purposes were not encountered within the investigative positions, and verifiably suitable topsoil or sub-soil is likely to be necessary in order to facilitate and sustain plant growth in soft landscaped areas. The materials should meet the chemical standards set out in section 8.3 and BS3882.

Building materials
Elevated levels of TPHs were noted to be over the threshold standards, it is recommended that the new water supply pipework should be upgraded.

A copy of this report should be submitted to the relevant authorities for approval in sufficient time prior to commencement on site.

A suitably qualified Environmental Consultant should prepare a full *Implementation, Verification Monitoring and Maintenance Plan*. An appropriate level of supervision and testing will be required, to form part of a formal *Verification Report*.

9 GROUND GAS RISK ASSESSMENT

9.1 General

The risks associated with ground gases in respect of end users have been evaluated in general accordance with BS8485:2015 *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings* and CIRIA C665 (2007) entitled *Assessing Risks Posed by Hazardous Ground Gases to Buildings*.

9.2 Outline Risk Assessment

The Conceptual Site Model identified the following source-pathway-receptor linkages in respect of potential ground gases and vapours:

Source	Pathway	Receptor
Contaminants existing as ground gases arising from: Made Ground, Former industrial uses	Inhalation, ignition	End users

It should be noted that the presence of a gas does not necessarily imply that a site or area is contaminated or that there is any unacceptable risk.

Concentrations of ground gases recorded may be affected by a variety of factors including atmospheric pressure, groundwater, rainfall and temperature, as well as the gas generation potential of the source. Tables 5.5a and 5.5b of CIRIA C665 prescribe typical periods and frequency of monitoring visits required, as summarised below (after CIRIA C665 Tables 5.5a and 5.5b):

Generation potential [1,2]		Very Low	Low	Moderate	High	Very High
Example		Inert Made Ground	Alluvium or dock silt	Pre-1960 landfill	Shallow mine workings	Post '60's domestic landfill
Sensitivity of development	Low	4/1	6/2	6/3	12/6	12/12
	Moderate	6/2	6/3	9/6	12/12	24/24
	High	6/3	9/6	12/6	24/12 [3]	24/24 [3]

Notes:
1 - First digit is number of visits and second digit is number of months, e.g. 9/6 means nine visits in total over a period of 6 months
2 - At least two sets of readings should ideally be undertaken during low and falling atmospheric pressure <1000mB
3 - High sensitivity development on high gas hazard land is not normally acceptable unless the source is removed or otherwise treated.

Based on the results, it is concluded that the monitoring visits undertaken to date are sufficient to broadly characterise the gas situation likely to be present at the site.

Exploratory hole	Target Stratum	Max CH_4 (%)	Max CO_2 (%)	Max Flow (L/Hr)^	GSV CH_4 (L/Hr)	CS CH_4	GSV CO_2 (L/Hr)	CS CO_2
DS1 R1	RTD	0.0	2.6	1.0	0.00	1	0.03	1
DS2 R1		0.0	3.8	1.0	0.00	1	0.04	1
DS3 R1	RTD / NPC	0.0	5.8	1.0	0.00	1	0.06	2 (+)
DS1 R2	RTD	0.0	0.9	0.0	0.00	1	0.00	1
DS2 R2		0.0	2.6	0.0	0.00	1	0.00	1
DS3 R2	RTD / NPC	0.0	8.6	0.0	0.00	1	0.00	2 (+)
DS1 R3	RTD	0.0	3.9	0.0	0.00	1	0.00	1
DS2 R3		0.0	4.2	0.0	0.00	1	0.00	1
DS3 R3	RTD / NPC	0.0	10.9	0.0	0.00	1	0.00	2 (+)
DS1 R4	RTD	0.0	3.2	0.0	1.0	1	0.03	1
DS2 R4		0.0	2.1	0.0	1.0	1	0.02	1
DS3 R4	RTD / NPC	0.0	8.5	1.0	0.00	1	0.09	2 (+)
DS1 R5	RTD	0.0	1.9	0.0	0.00	1	0.00	1
DS2 R5		0.0	3.0	0.0	0.00	1	0.00	1
DS3 R5	RTD / NPC	0.0	11.8	0.0	0.00	1	0.00	2 (+)
DS1 R6	RTD	0.0	3.8	0.0	0.00	1	0.00	1
DS2 R6		0.0	2.2	0.0	0.00	1	0.00	1

R1 / R2 etc = Monitoring round 1 or 2 etc; RTD = River Terrace Deposits; NPC = New Pit Chalk Formation; GSV = Gas Situation Value; CS = Characteristic Situation; (+) raised to a CS2, as carbon dioxide above the trigger concentration of 5%. None of the response zones were noted to be flooded at all.

9.3 End Users

BS8485:2015 cites a series of gas threshold concentrations and suggested protective measures for each respective Characteristic Situation, as summarised on the following tables.

CS	Hazard Potential	CH_4	CO_2	Flow	Gas Screening Value (GSV)
1	Very low	<1.0%	<5.0%	-	<0.07l/hr
2	Low	-	-	<70l/hr	<0.7l/hr
3	Moderate	-	-	-	<3.5l/hr
4	Moderate to high	-	-	-	<15l/hr
5	High	-	-	-	<70l/hr
6	Very high	-	-	-	>70l/hr

The results obtained to date corresponds to a gas Characteristic Situation 1. The results from DS3 would correspond to a gas Characteristic Situation 2 due to the high levels of Carbon Dioxide. However, the response zone of the standpipe installed within DS3 was over both New Pit Chalk Formation as well as the River Terrace Deposits and it may be that the higher levels of Carbon Dioxide are resulting from the carbon content of the chalk.

The shallow foundations recommended within section 7.3 at a depth of 1.0m will not be founded deep enough to reach the New Pit Chalk Formation and therefore no pathway will be created for the higher levels of Carbon Dioxide.

Trace levels of VOC's at detection limit were detected during the monitoring. No single guideline concentration has been published for total VOC's as the associated risks posed are difficult predict using such a measurement. Different species of VOC's might variously pose an odour nuisance and a possible carcinogenic risk, and in some instances, pose a risk of ignition and explosion.

However, there may also be other potential sources of ground gases, for example the decay of organic compounds.

Laboratory VOC and SVOC analysis was also undertaken as part of the soil contamination testing, and no VOC's/SVOC's were detected. Low levels of TPH were recorded, being long chain aromatic species. Low levels of PAHs were recorded, which may be low-volatility, and these have been evaluated as contaminants in soil (see section 8.4).

9.4 Conclusions

On the basis that no ground gas contamination risks were identified, it was concluded that no remediation was necessary.

10 PRELIMINARY WASTE ASSESSMENT

10.1 General

Waste may be defined as any substance or object in Annex 1 of the Waste Framework Directive[1] which the holder discards, intends to discard, or is required to discard. Subject to certain provisions, soils may either be handled as either:

- Non-Waste, and re-used (on or off-site), or
- Waste, and disposed of (to a waste management facility).

The waste producer has a legal duty of care to ensure that waste materials are handled properly and sent to the appropriate licenced facility. Further inspection, testing, segregation etc will be required on site, and the advice of a suitably qualified consultant sought wherever necessary. Substantial tax penalties and fines are being levied by the regulators. The advice contained in this section is preliminary only.

10.2 Non-Waste

Soils may potentially be handled as Non-Waste and re-used on site (or on other sites) in accordance with various protocols such as those published by the EA[2] or CL:AIRE[3]. Typical requirements include:

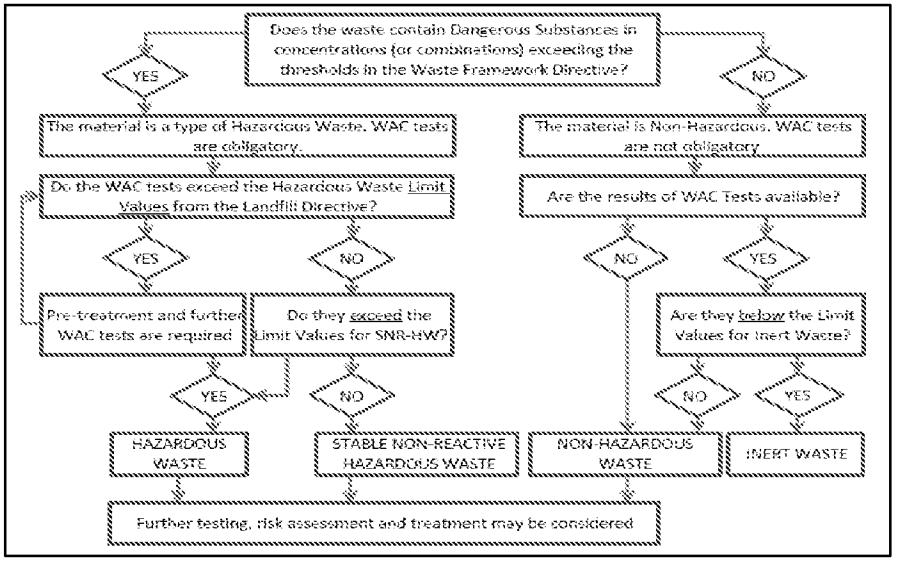
- That the re-use of material will not endanger human health, cause nuisance, or harm the wider environment (controlled waters, ecosystems, etc.)
- That there is there a clear Environmental benefit from the activity, and that the waste is being used as a substitute for non-waste material.
- The materials are suitable for use in terms of chemical and geotechnical parameters without further treatment.
- The holder is certain that the materials will be used in a safe manner, and only the necessary quantities of materials are being used.
- Where the activities do not require a waste management licence (e.g. landfilling).
- A Waste Recovery Plan (EA) or Materials Management Plan (CL:AIRE) are produced and followed, and audited in a Verification Plan.

The Made Ground is considered to be unsuitable for re-use on site on account of elevated petroleum.

Soil	Suitability for re-use on site			Notes
	Landscaping	Hard cover	Not suitable	
Made Ground			✓	Elevated petroleum overlying an aquifer
Natural Soils	✓	✓		No significant risks identified

10.3 Waste Disposal

Where materials are not re-used they must be handled as Waste, and must be sent to a licenced waste management facility. The classification of waste is prescribed under the Waste Framework Directive[4] and the Landfill Directive[5], as summarised below. Different waste management facilities may also have specific acceptance criteria, and their advice should be sought.



The results of the soil analysis have been classified as follows:

Soil	Hazardous		Non Hazardous		Details
	Hazardous	Stable Non-Reactive	Non-Hazardous	Inert	
Made Ground – TP3 (0.2m), DS1 (0.2m),				✓	The soil analysis was identified as Non-Hazardous waste. The WAC test met the criteria for Inert Waste.
Made Ground – DS3 (0.7m)			✓		The soil analysis was identified as Non-Hazardous waste. The WAC test did not meet the criteria for Inert Waste – giving the material a non-hazardous waste classification.
Made Ground – TP2 (0.2m), TP4 (0.2m), TP5 (0.2m), TP5 (1.5m), TP7 (0.1m)			✓		Non Hazardous waste. No WAC test undertaken
Made Ground – TP6 (0.1m),	✓				Potentially Hazardous waste on account of elevated TPH levels. No WAC test undertaken
Made Ground – DS2 (0.2m)	✓				Hazardous waste on account of elevated TPH and pH levels. No WAC test undertaken

With reference to the current List of Wastes (formerly European Waste Catalogue), waste soils and stone derived from construction and demolition sites may be disposed of under either of the following codes as appropriate:

Waste	Code	Description
Hazardous	17 05 03*	soil and stones containing dangerous substances
Non-Hazardous	17 05 04	soil and stones other than those mentioned in 17 05 03

(Note, the asterix is a Mirror Entry, as defined in the List of Wastes, conferring the relationship with the non-hazardous code 17-05-04).

REPORT CONDITIONS

Interpretation of ground conditions inherently depends on the conditions revealed by a limited data set. Land Science takes all reasonable professional care in preparation of this report, using current standards and industry best practice. However, we accept no liability whatsoever expressed or implied in respect of:

- The scope, extent or design of an investigation.
- Any conditions not directly revealed by the investigation.
- Published standards or methodologies used or adopted in this report.
- The opinion of any other party including any regulator, authority or stakeholder.
- Any dispute, claim or consequential loss arising from this report.
- Any matter other than ground conditions in the area under investigation.

Information contained in this report is intended for the use of the Client and his agents for the purposes set out, and we accept no liability for its use by other party or for any other purpose.

This report makes no representation on other matters such as ecology, agronomy, arboriculture, structural condition, building materials, boundaries and planning etc.

No aspect of this report should be taken as a guarantee whatsoever that a site is free of pollution, contamination or hazardous materials.

The levels of mobile liquid or gaseous contaminants may vary over time. Further or additional investigation may be necessary.

GLOSSARY OF TERMS

ACM	Asbestos Containing Material
BGS	British Geological Survey
BRE	Building Research Establishment
BS	British Standard
CBR	California Bearing Ratio
CDM	Construction Design and Management regulations
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment model
CSM	Conceptual Site Model
EA	Environment Agency
EQS	Environmental Quality Standards
FOC	Fraction of Organic Carbon
GAC	Generic Assessment Criterion
mbgl	Meters Below Ground Level
NHBC	National House Building Council
mod	Metres above Ordnance Datum
PAH's	Polycyclic Aromatic Hydrocarbons
PBET	Physiological Based Extraction Testing
PHE	Public Health England
PID	Photo-Ionisation Detector
PQRA	Preliminary Quantitative Risk Assessment
PSD	Particle Size Distribution Test
RMS	Remediation Method Statement
SGV	Soil Guideline Value
SOM	Soil Organic Matter
SPZ	Source Protection Zone
SPT	Standard Penetration Test
SSSI	Sites of Special Scientific Interest
ST-WEL	Short Term Workplace Exposure Limit
SVOC's	Semi-Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
TRRL	Transport Road Research Laboratory
TWA-WEL	Time Weighted Average Workplace Exposure Limit
UK HBF	United Kingdom House Building Federation
VOC's	Volatile Organic Compounds
WAC	Waste Acceptance Criteria

ACCOMPANYING NOTES

Screening Suites

The LS1 routine screening suite is based broadly upon determinands listed within the former ICRCL guidance note 59/83 2nd edition 1987, CLR publication CLR8, and Environment Agency R&D66 publication. Additional testing for stone and moisture content, fraction of organic carbon ('foc'), and pH value, were also undertaken. Given that Sulphate is not a priority in terms of human health, water soluble Sulphate is analysed instead in order to assess the risks posed to the built environment.

Site Workers

Site managers are responsible for the safety of persons in their employ under a variety of instruments including the CDM regulations and Health & Safety at Work Act. In terms of working on contaminated sites, guidance can be sought from the CIRIA publication entitled "A Guide for Safe Working on Contaminated Sites".

Any work in confined spaces confined spaces should only be carried out following appropriate risk assessment and following suitable safety protocols in accordance with the HSE guidance entitled "Work in Confined Spaces". A detailed risk assessment can be prepared in this respect, but is outside the scope of this appointment.

Discovery Strategy

Unexpected soil conditions may be encountered during the process of site demolition and construction. Examples may include oily pockets within the soil, pockets of cement boarding or fibrous materials within the soil, black ashy materials, soils exhibiting strong odours, brightly coloured materials, and former structures or brickwork.

Should previously undiscovered contamination be encountered during construction by the ground worker's, this should be reported to the Geo-Environmental Consultant immediately in order that any necessary inspection may be made. All site workers should be made aware of their responsibility to observe, report, and act on any potentially suspicious or contaminated materials they may encounter.

Primary and Secondary Sources

The secondary sources used in this report are: soil, groundwater and ground gases, as summarised below:

Secondary source	Summary
Soil	Contaminants bound into or entrained with the soil matrix, for instance ashes, clinkers, bituminous materials, asbestos containing materials, etc. Also, soils may become contaminated by other activities, such as leaking chemical storage, drainage and the like, becoming bound into the soil mineralogy or organic matter. Soils may also generate soil-borne dusts and volatile organic compounds may generate organic vapours.
Volatile vapours	Many organic compounds are either volatile or semi volatile (at different temperatures and pressures) which mean they will volatilise and generate vapours. In an enclosed system, the ratio of vapours to other compartments will come into equilibrium, but in open systems the process may continue until the source has been depleted.
Ground gases	Organic matter, including wastes, hydrocarbons and other compounds, will decay through microbial action. This will primarily release Carbon Dioxide but may also release Methane under anaerobic conditions. This may be an issue in natural soils (e.g. alluvium and dock silt) in man-made soils (e.g. landfill sites and filled ground) and other environments (e.g. mine workings).
Groundwater	Contaminants may dissolve into pore water which in turn can percolate downwards into the groundwater table. Rapid discharge of fluids may also enter groundwater directly. Organic compounds may form separate light or dense non-aqueous phase liquids upon or at the base of the water column. Organic contaminants may generate organic vapours.

REFERENCES

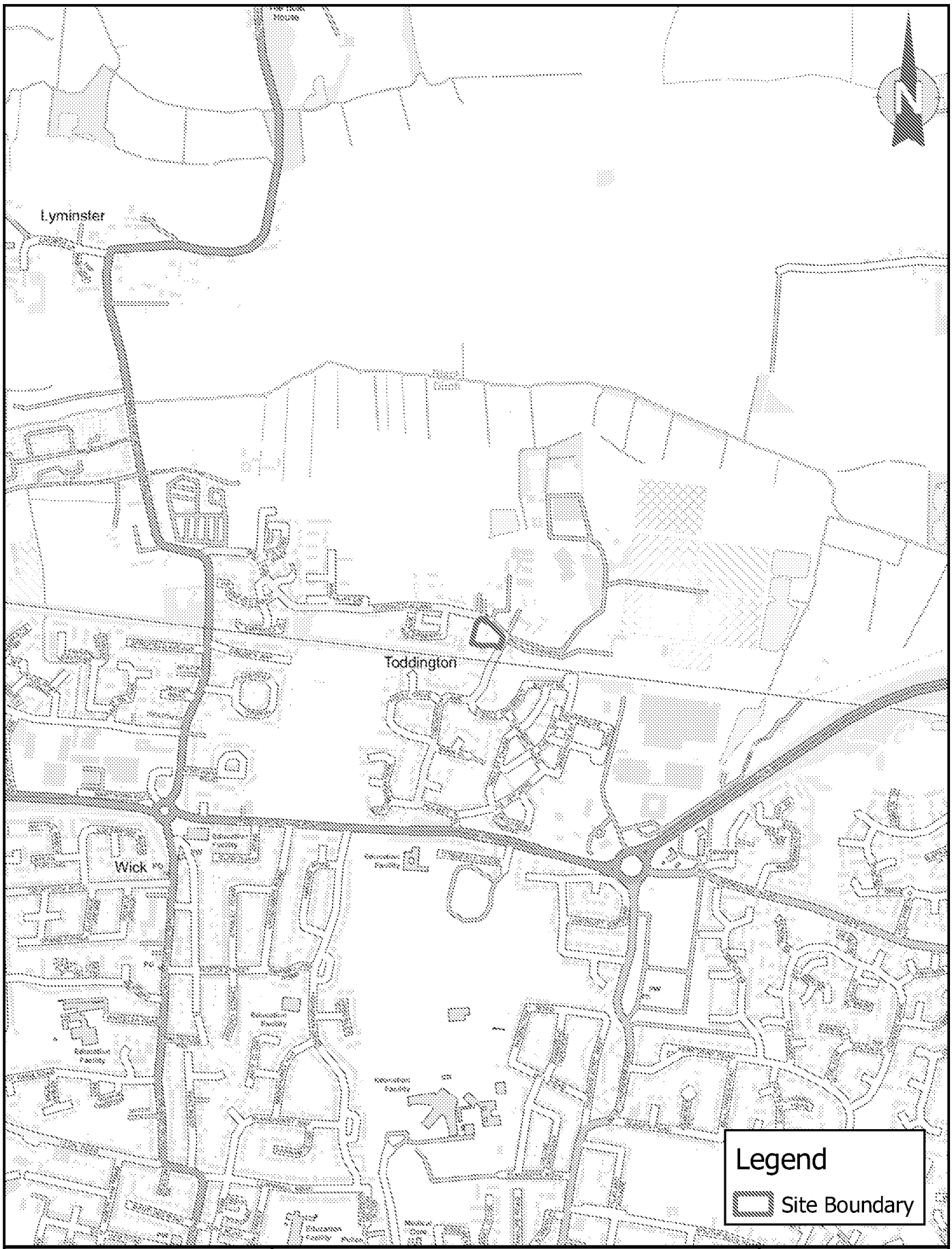
1 Revised EU Waste Framework Directive 2008 2008/98/EC [transposed into English law under The Waste (England and Wales) Regulations 2011]

2 Defining Waste Recovery - Permanent Deposit of Waste on Land, EPR13 v1.0, EA 2010

3 The definition of waste: Development Industry Code of Practice, v2, CL:AIRE 2011

4 Revised EU Waste Framework Directive 2008 2008/98/EC [transposed into English law under The Waste (England and Wales) Regulations 2011]

5 European Community (EC) Directive 1999/31/EC [transposed into English law under the Landfill (England and Wales) Regulations 2002]



Land Science

Title: Site Location			Reference: LS4160
Project: Land at Toddington Lane, Littlehampton, BN17 7PP			Figure: 1
Client: BB Property Investments Ltd.			Date: 08/03/2019
Prepared by: SW	Checked by: ET	Version: 1	Sheet: 1 of 1

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2nd Floor, 25-28 Field Street, London, WC1X 9DA

Land Science	Title: Exploratory Hole Location Plan	Reference: LS4160	Prepared by: SW
	Project: Land at Toddington Lane, Littlehampton, BN17 7PP	Figure: 2	Checked by: ET
	Client: BB Property Investments Ltd.	Date: 13/03/2019	Version: 1

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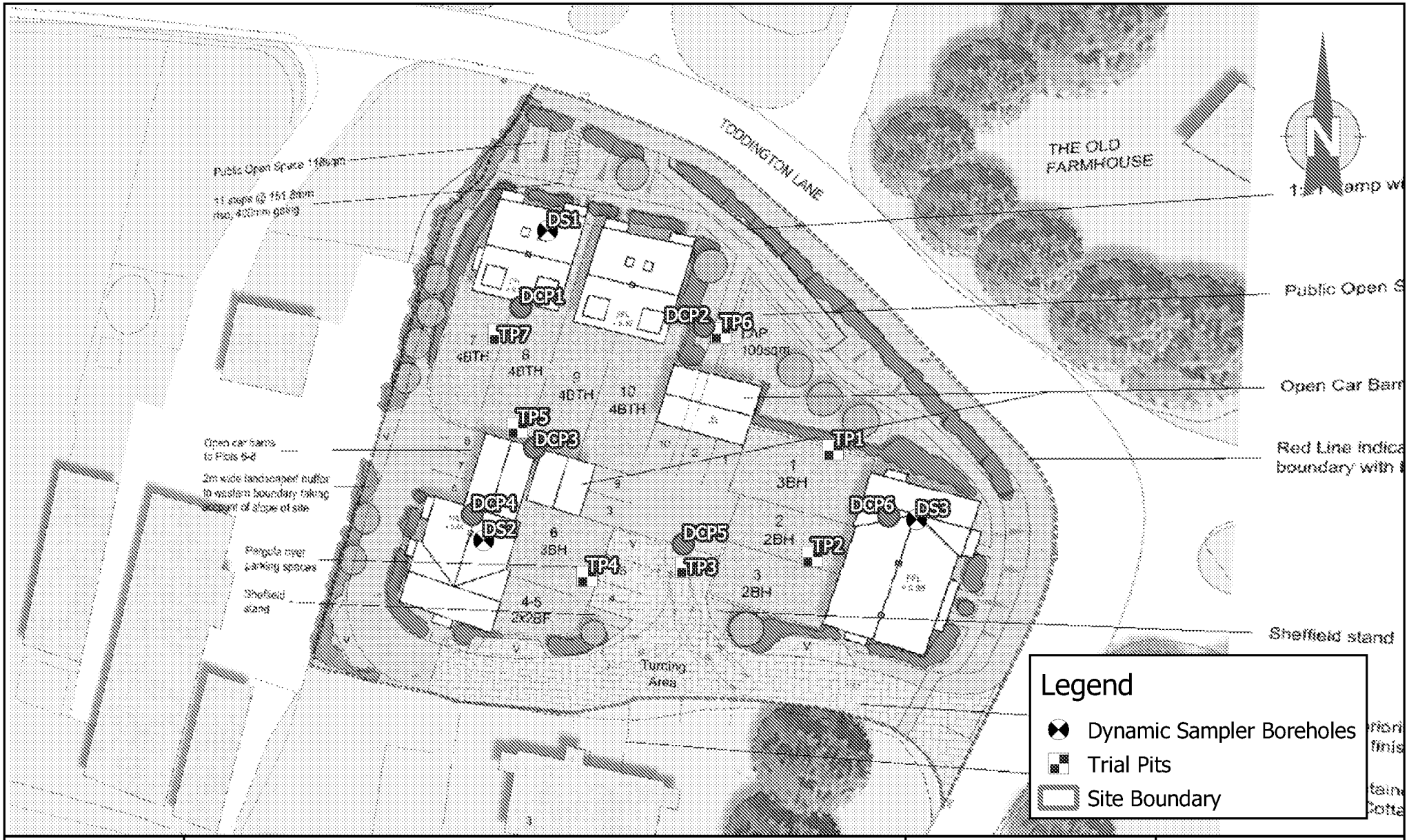
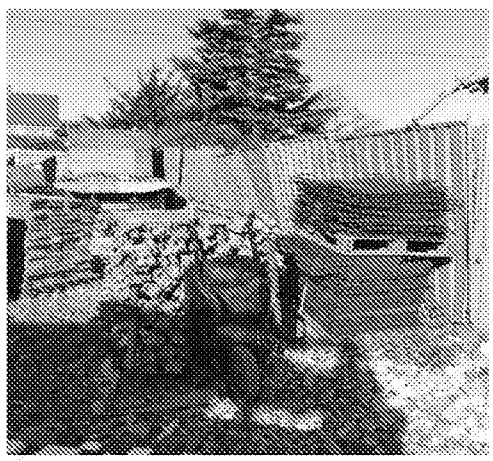
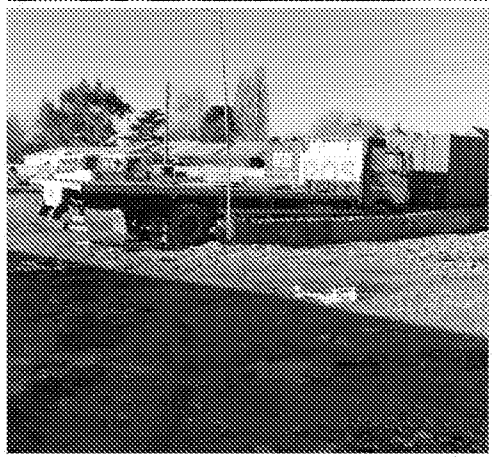
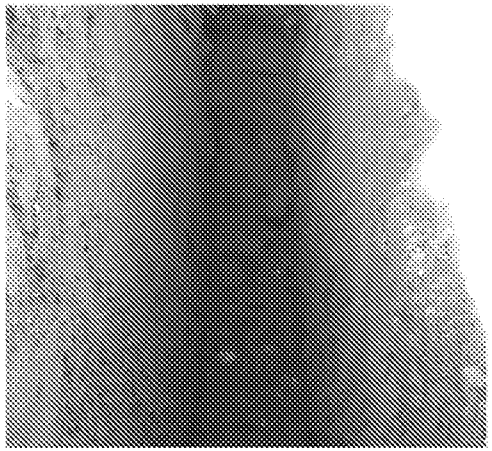


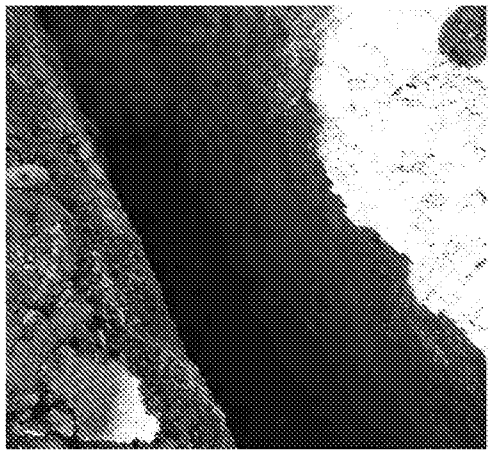
Land Science	Title: Proposed Development Layout	Reference: LS4160	Prepared by: SW
	Project: Land at Toddington Lane, Littlehampton, BN17 7PP	Figure: 3	Checked by: ET
	Client: BB Property Investments Ltd.	Date: 13/03/2019	Version: 1

APPENDIX A





Land Science	**TITLE:**	Site Photos	**REF:**	LS4160	**PREPARED:** SW
	PROJECT:	Land at Toddington Lane, Littlehampton	**SHEET:**	1 of 5	**CHECKED:** ET
	CLIENT:	BB Property Investments Ltd.	**DATE:**	28/03/2019	**VERSION** V1

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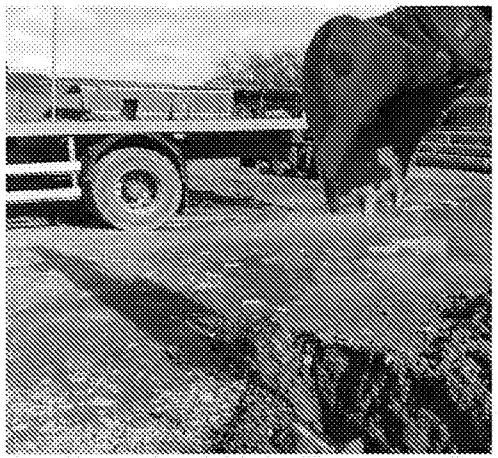
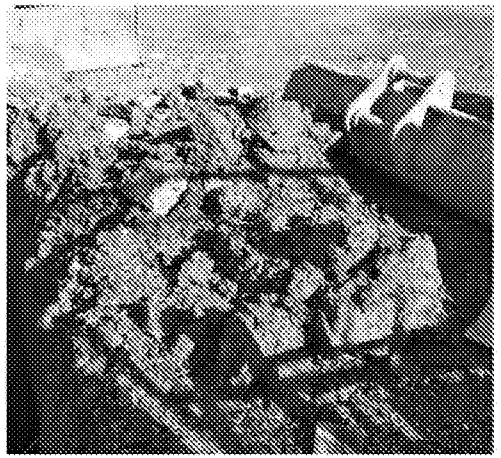


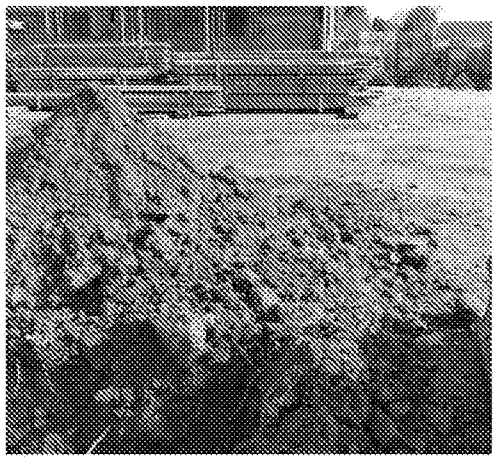

Land Science	**TITLE:**	Site Photos	**REF:**	LS4160	**PREPARED:** SW
	PROJECT:	Land at Toddington Lane, Littlehampton	**SHEET:**	2 of 5	**CHECKED:** ET
	CLIENT:	BB Property Investments Ltd.	**DATE:**	28/03/2019	**VERSION** V1

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Land Science	**TITLE:**	Site Photos	**REF:**	LS4160	**PREPARED:** SW
	PROJECT:	Land at Toddington Lane, Littlehampton	**SHEET:**	3 of 5	**CHECKED:** ET
	CLIENT:	BB Property Investments Ltd.	**DATE:**	28/03/2019	**VERSION** V1

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Land Science	**TITLE:**	Site Photos	**REF:**	LS4160	**PREPARED:** SW
	PROJECT:	Land at Toddington Lane, Littlehampton	**SHEET:**	4 of 5	**CHECKED:** ET
	CLIENT:	BB Property Investments Ltd.	**DATE:**	28/03/2019	**VERSION** V1

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Land Science	**TITLE:**	Site Photos	**REF:**	LS4150	**PREPARED:** SW
	PROJECT:	Land at Toddington Lane, Littlehampton	**SHEET:**	5 of 5	**CHECKED:** ET
	CLIENT:	BB Property Investments Ltd.	**DATE:**	28/03/2019	**VERSION** V1

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APPENDIX B

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Site	Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	DS1

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		12/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.20)	Dark brown, slightly sandy, slightly gravelly, CLAY with occasional rootlets. Sand is fine to coarse. Gravels are medium to coarse, subangular to subrounded flints. (MADE GROUND).			
0.20	D		PID= 5.1ppm		0.20				
0.20	E								
					(0.60)	Orangish brown, slightly sandy, slightly gravelly, CLAY with occasional roots. Sand is fine to medium. Gravels are fine, subangular to subrounded, flints. (RIVER TERRACE DEPOSITS) ...some dark black clay mottling between 0.50m-0.70m. ...streaks of red clay present at 0.50m.			
0.50	D		PID= 2.1ppm		0.80				
0.50	E								
					(0.40)				
1.00	D		PID= 3.2ppm		1.20				
1.00	E								
					(0.60)	Orangish brown, sandy, slightly gravelly, CLAY. Sand is fine to coarse. Gravels are fine, subangular to subrounded flints. (RIVER TERRACE DEPOSITS)			
1.50	D		PID= 0.6ppm		1.80				
					(0.20)	Orangish brown, very sandy, CLAY. Sand is fine to coarse. (RIVER TERRACE DEPOSITS) ...becoming more sandy with depth.			
2.00	D		PID= 0.0ppm		2.00				
					(0.80)	Orange, very sandy, slightly gravelly, CLAY. Sand is fine to coarse. Gravels are fine to medium, subangular to subrounded flints. (RIVER TERRACE DEPOSITS)			
2.50	D		PID= 0.0ppm		2.80	Orange, slightly clayey, gravelly, SAND. Sand is fine to coarse. Gravels are fine to coarse, subangular to subrounded flints. (RIVER TERRACE DEPOSITS) ...becoming less gravelly from 2.50m.			
3.00	D		PID= 0.0 ppm						
					(1.30)	Orange SAND. Sand is fine to medium. (RIVER TERRACE DEPOSITS) ...slightly clayey pockets between 3.40m-3.60m.			
3.50	D		PID= 0.0 ppm						
4.00	D		PID= 0.0 ppm		4.10	Yellowish orange SAND. Sand is medium to coarse. (RIVER TERRACE DEPOSITS)			
4.50	D		PID= 0.0 ppm		(0.90)				
5.00	D		PID= 0.0 ppm		5.00	Complete at 5.00m			

Remarks
GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 5.00m.
INSTALLATION: 50mm diameter HDPE standpipe to 5.00m; plain casing to 1.00m, slotted response zone 1.00 to 5.00m.
BACKFILL: Backfilled with bentonite sealing pellets from ground level to 1.00m, 10mm pea shingle from 1.00 to 5.00m

Scale (approx)	Logged By
1:40	WH

Figure No. LS4160.DS1

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Site: Toddington Lane, Littlehampton, Wick, BN17 7PP

Number: DS2

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			BB Property Investments Ltd.	LS4160
	Location	**Dates** 12/03/2019	**Engineer** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description
0.10	D				(0.10) 0.10	Brick and concrete overlying black CLAY. Strong odour with abundant rootlets. (MADE GROUND)
0.10	E		PID= 1.4ppm		(0.20) 0.30	Dark grey CLAY with occasional fine glass fragments. (MADE GROUND)
0.50	D		PID= 0.0ppm		(0.50)	Orangish brown CLAY with occasional decayed rootlets. (RIVER TERRACE DEPOSITS)
0.50	E				0.80	...becoming slightly gravelly at 0.50m. Gravels are fine, subrounded to rounded, flints.
1.00	D		PID= 0.1ppm		(0.30) 1.10	Orangish brown, slightly gravelly, sandy, CLAY. Sand is fine to medium. Gravels are coarse, subangular flints. (RIVER TERRACE DEPOSITS)
1.00	E				(0.40) 1.50	Orangish brown, very clayey, SAND. Sand is fine to medium. (RIVER TERRACE DEPOSITS)
1.50	D		PID= 0.0ppm			Yellowish orange, SAND. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)
2.00	D		PID= 0.1ppm			...becoming more yellow and coarse with depth.
2.50	D		PID= 0.0ppm		(1.90)	...sand is very coarse by 2.60m
3.00	D		PID= 0.3 ppm			...occasional coarse, rounded to subrounded flints present between 3.20m-3.30m. ...pockets of clayey sand present at 3.30m.
3.50	D		PID= 0.1 ppm		3.40	Yellow SAND. Sand is fine to medium. (RIVER TERRACE DEPOSITS)
4.00	D		PID= 0.0 ppm		(1.10)	
4.50	D		PID= 0.0 ppm		4.50 (0.50)	Brown SAND. Sand is coarse. (RIVER TERRACE DEPOSITS)
5.00	D		PID= 0.0 ppm		5.00	Complete at 5.00m

Remarks
GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 5.00m.
INSTALLATION: 50mm diameter HDPE standpipe to 5.00m; plain casing to 1.00m, slotted response zone 1.00 to 5.00m.
BACKFILL: Backfilled with bentonite sealing pellets from ground level to 1.00m, 10mm pea shingle from 1.00 to 5.00m

Scale (approx)	Logged By
1:40	WH

Figure No. LS4160.DS2

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Site	Number
[redacted]ddington Lane, Littlehampton, Wick, BN17 7PP	DS3

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler			BB Property Investments Ltd.	LS4160
	Location	**Dates** 12/03/2019	**Engineer** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20	E		PID= 0.0ppm		(0.80)	Grass overlying dark brown, slightly sandy, gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, brick, flint, chalk and wood fragments, with abundant roots and rootlets. (MADE GROUND) ...poor recovery from 0.30m to 1.50m			
0.70	E		PID= 0.0ppm		0.80	Orangish brown, mottled dark brown, silty, sandy, CLAY. Sand is fine. (RIVER TERRACE DEPOSITS)			
1.20	E		PID= 0.0ppm						
1.50	D		PID= 0.0ppm			...whole brick present between 1.50m-1.60m.			
2.00	D		PID= 0.0ppm		(2.90)				
2.50	D		PID= 0.0ppm						
3.00	D		PID= 0.0 ppm						
3.50	D		PID= 0.0 ppm		3.70	Yellowish off-white, weak, structured, CHALK. (Grade Dc). (NEW PIT CHALK FORMATION)			
4.00	D		PID= 0.0 ppm		(1.30)	...yellowish/off-white chalk fragments present between 4.30m-4.40m.			
4.50	D		PID= 0.0 ppm						
5.00	D		PID= 0.0 ppm		5.00	Complete at 5.00m			

Remarks
GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 5.00m.
INSTALLATION: 50mm diameter HDPE standpipe to 5.00m; plain casing to 1.00m, slotted response zone 1.00 to 5.00m.
BACKFILL: Backfilled with bentonite sealing pellets from ground level to 1.00m, 10mm pea shingle from 1.00 to 5.00m

Scale (approx)	Logged By
1:40	SW

Figure No. LS4160.DS3

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Site	Trial Pit Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	TP1

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.60m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		12/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Grass and weeds overlying dark brown, slightly sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, flint, brick, clinker, chalk and wood fragments, with abundant roots and rootlets. (MADE GROUND).		
0.20	D		PID= 0.0ppm		0.20			
0.20	E							
					(0.50)	Light brown mottled dark brown, slightly gravelly, CLAY. Gravels are fine to medium, subangular to subrounded, flint fragments. (RIVER TERRACE DEPOSITS).		
0.50	D		PID= 0.0ppm					
0.50	E				0.70			
						Orangish brown, very sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to medium, subangular to subrounded, flint fragments. (RIVER TERRACE DEPOSITS).		
1.00	D		PID= 0.0ppm					
1.00	E					...no gravels from 1.20m.		
1.50	D		PID= 0.0ppm		(1.70)			
2.00	D		PID= 0.0ppm					
					2.40	Orange, very clayey, SAND. Sand is fine to medium. (RIVER TERRACE DEPOSITS)		
2.50	D		PID= 0.0ppm		(0.60)			
						...chalk lenses from 2.90m. Chalk is yellowish white, weak, low density, structured. (Grade Dc).		
3.00	D		PID= 0.0 ppm		3.00			
						Complete at 3.00m		

Plan

Remarks

GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 3.00m.
BACKFILL: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP1

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[redacted]

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Site	Trial Pit Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	TP2

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.60m x 0.60m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		12/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D		PID= 0.3ppm		(0.40)	Grass overlying dark brown, slightly sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, brick, plastic, chalk, wood, tile and flint fragments, with abundant roots and rootlets. (MADE GROUND).		
0.20	E							
					0.40			
0.50	D		PID= 0.3ppm		(0.30)	Yellowish white, weak, low density, structureless CHALK. (Grade Dm). (REWORKEK CHALK)		
0.50	E							
					0.70			
1.00	E		PID= 0.2ppm			Orangish brown mottled dark brown, sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to medium, subangular to subrounded, chalk fragments. (RIVER TERRACE DEPOSITS)		
1.50	D		PID= 0.1ppm		(1.70)			
1.50	D							
2.00	D		PID= 0.0ppm					
					2.40			
2.50	D		PID= 0.0ppm		(0.40)	Yellowish white, weak, low density, structureless CHALK. (Grade Dm). (NEW PIT CHALK FORMATION)		
					2.80			
					(0.20)	Off-white, weak, structured, low density, CHALK. (Grade Dc). (NEW PIT CHALK FORMTION)		
					3.00			
3.00	D		PID= 0.1ppm			Complete at 3.00m		

Plan

Remarks

GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 3.00m.
BACKFILLED: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP2

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Site	Trial Pit Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	TP3

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.00m x 0.50m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		11/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D		PID= 0.4ppm		(0.30)	Brick, concrete and litter over dark greyish brown, slightly clayey, very gravelly, SAND. Sand if fine to coarse. Gravels are fine to coarse, subangular to subrounded, brick, concrete, glass, plastic and tile fragments with abundant rootlets and occasional roots. (MADE GROUND).		
0.20	E				0.30	...white membrane present at 0.05m.		
0.50	D		PID= 0.4ppm			Brown, very sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to medium, angular to subrounded flint fragments. (RIVER TERRACE DEPOSITS).		
0.50	E				(0.90)			
1.00	D		PID= 0.3ppm					
1.00	E				1.20			
1.50	D		PID= 0.4ppm			Orangish brown, clayey, very silty, slightly gravelly, SAND. Sand is fine to medium. Gravels are fine to coarse, subangular to rounded, flint fragments. (RIVER TERRACE DEPOSITS).		
2.00	D		PID= 0.4ppm		(1.80)			
2.50	D		PID= 0.2ppm					
3.00	D		PID= 0.2 ppm		3.00	Complete at 3.00m		

Plan

Remarks

GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 3.00m.
BACKFILL: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP3

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Site	Trial Pit Number
[redacted]ddington Lane, Littlehampton, Wick, BN17 7PP	TP4

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.00m x 0.40m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		11/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D		PID= 0.4ppm		(0.40)	Brick and concrete over dark greyish brown mottled black, very sandy, gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, brick, concrete, plastic, chalk and flints. (MADE GROUND).		
0.20	E							
					0.40	Light brown, slightly sandy, CLAY with occasional flint fragments. (RIVER TERRACE DEPOSITS).		
0.50	D		PID= 0.1ppm					
0.50	E							
					(0.80)			
1.00	D		PID= 0.3ppm					
1.00	E							
					1.20	Light orangish brown, very sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to rounded, flint fragments. (RIVER TERRACE DEPOSITS)		
1.50	D		PID= 0.3ppm					
2.00	D		PID= 0.1ppm					
					(2.10)			
2.50	D		PID= 0.2ppm					
3.00	D		PID= 0.2 ppm					
					3.30	Yellowish white, weak, low density, structureless CHALK. (Grade Dm).		
3.40	D		PID= 0.2 ppm		(0.20)			
					3.50	Complete at 3.50m		

Plan

Remarks

GROUNDWATER: No groundwater.
INSTABILITY: No instability.
NOTES: Complete at 3.50m.
BACKFILL: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP4

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Site	Trial Pit Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	TP5

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.20m x 0.60m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		11/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D		PID= 0.1ppm		(0.40)	Dark greyish brown, very gravelly, slightly clayey, SAND. Sand is fine to coarse. Gravels are fine to coarse, subangular to subrounded, brick, concrete, flint and tile fragments with occasional roots and rootlets. (MADE GROUND).		
0.20	E							
					0.40			
0.50	D		PID= 0.0ppm			Light brown, slightly sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to medium, angular to subrounded, flint fragments. (RIVER TERRACE DEPOSITS)		
0.50	E				(0.80)			
1.00	D		PID= 0.1ppm					
1.00	E							
					1.20			
1.50	D		PID= 6.2ppm			Orangish brown, slightly gravelly, very silty, clayey, SAND. Sand is fine to medium. Gravels are fine to medium, subangular to rounded, flint fragments. (RIVER TERRACE DEPOSITS).		
2.00	D		PID= 1.2ppm		(1.80)			
2.50	D		PID= 0.3ppm					
					3.00			
3.00	D		PID= 0.2ppm			Complete at 3.00m		

Plan

Remarks

GROUNDWATER: No groundwater present.
INSTABILITY: No Instability.
NOTES: Complete at 3.00m.
BACKFILL: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP5

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Site	Trial Pit Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	TP6

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.50m x 0.60m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		11/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D		PID= 0.6ppm		(0.30)	Dark greyish brown, very gravelly, clayey, SAND. Sand is fine to medium. Gravels are fine to coarse, subangular to rounded, brick, concrete, plastic, chalk and flint fragments. (MADE GROUND).		
0.10	E				0.30			
0.50	D		PID= 0.2ppm			Orangish brown, slightly sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, chalk and flint fragments. (RIVER TERRACE DEPOSITS).		
0.50	E							
1.00	D		PID= 0.4ppm					
1.00	E							
1.50	D		PID= 1.0ppm		(2.70)			
2.00	D		PID= 0.2ppm					
2.50	D		PID= 0.1ppm					
3.00	D		PID= 0.2 ppm		3.00	Complete at 3.00m		

Plan

Remarks

GROUNDWATER: No groundwater present.
INSTABILITY: No Instability.
NOTES: Complete at 2.90m.
BACKFILL: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP6

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Site	Trial Pit Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	TP7

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.50m x 0.60m		BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		11/03/2019	Land Science	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D				(0.20)	Brick, concrete and litter over greyish brown, very gravelly, very sandy, CLAY. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, brick, concrete, glass, wire and plastic fragments. (MADE GROUND).		
0.10	E		PID= 0.3ppm		0.20	...white membrane present at 0.05m		
0.50	D		PID= 0.3ppm			Orangish brown, very sandy, slightly gravelly, CLAY. Sand is fine to medium. Gravels are fine to coarse, angular to subrounded, flint fragments with occasional roots and rootlets. (RIVER TERRACE DEPOSITS)		
0.50	E				(1.00)	...no roots or rootlets from 0.5m.		
1.00	D		PID= 0.3ppm					
1.00	E				1.20	Orangish brown, slightly gravelly, clayey, SAND. Sand is fine to medium. Gravels are fine to coarse, subangular to subrounded, flint and yellowish chalk fragments. (RIVER TERRACE DEPOSITS)		
1.50	D		PID= 0.2ppm					
2.00	D		PID= 0.9ppm		(1.60)			
2.50	D		PID= 0.1ppm					
					2.80	Yellowish white, weak, structureless, low density CHALK. (Grade Dc). (NEW PIT CHALK FORMATION)		
					(0.20)			
3.00	D		PID= 0.1 ppm		3.00	Complete at 3.00m		

Plan

Remarks

GROUNDWATER: No groundwater present.
INSTABILITY: No Instability.
NOTES: Complete at 3.00m.
BACKFILL: Backfilled with arisings

Scale (approx)	Logged By	Figure No.
1:25	SW	LS4160.TP7

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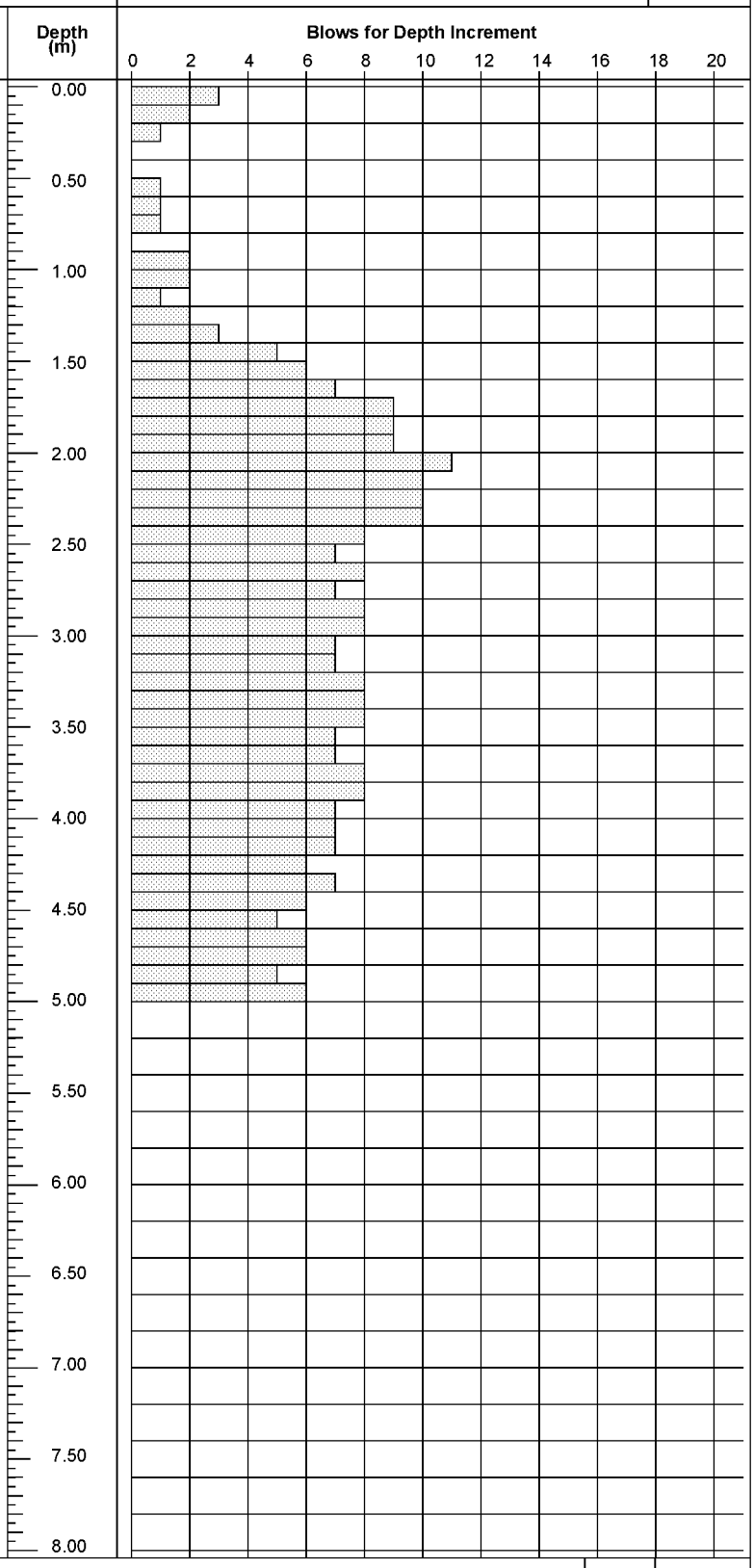
Site	Probe Number
[redacted]oddington Lane, Littlehampton, Wick, BN17 7PP	DP1

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probing			BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		12/03/2019	Land Science	1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	3		
0.10-0.20	2		
0.20-0.30	1		
0.30-0.40	0		
0.40-0.50	0		
0.50-0.60	1		
0.60-0.70	1		
0.70-0.80	1		
0.80-0.90	0		
0.90-1.00	2		
1.00-1.10	2		
1.10-1.20	1		
1.20-1.30	2		
1.30-1.40	3		
1.40-1.50	5		
1.50-1.60	6		
1.60-1.70	7		
1.70-1.80	9		
1.80-1.90	9		
1.90-2.00	9		
2.00-2.10	11		
2.10-2.20	10		
2.20-2.30	10		
2.30-2.40	10		
2.40-2.50	8		
2.50-2.60	7		
2.60-2.70	8		
2.70-2.80	7		
2.80-2.90	8		
2.90-3.00	8		
3.00-3.10	7		
3.10-3.20	7		
3.20-3.30	8		
3.30-3.40	8		
3.40-3.50	8		
3.50-3.60	7		
3.60-3.70	7		
3.70-3.80	8		
3.80-3.90	8		
3.90-4.00	7		
4.00-4.10	7		
4.10-4.20	7		
4.20-4.30	6		
4.30-4.40	7		
4.40-4.50	6		
4.50-4.60	5		
4.60-4.70	6		
4.70-4.80	6		
4.80-4.90	5		
4.90-5.00	6		



Remarks

Scale (approx)	Logged By
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Figure No. LS4160.DP1

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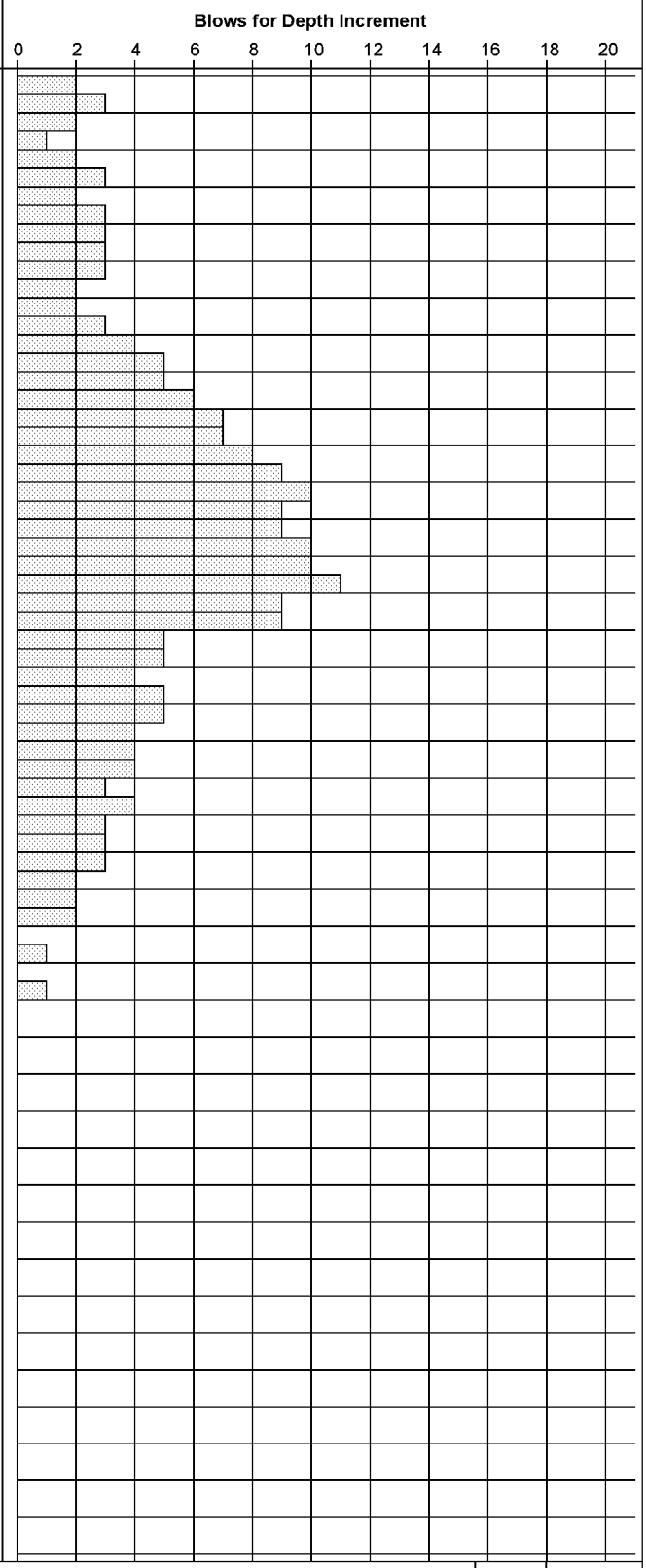
Site	Probe Number
[redacted]dington Lane, Littlehampton, Wick, BN17 7PP	DP2

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probing			BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		12/03/2019	Land Science	1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)	Depth (m)
0.00-0.10	2			0.00
0.10-0.20	3			
0.20-0.30	2			
0.30-0.40	1			
0.40-0.50	2			
0.50-0.60	3			0.50
0.60-0.70	2			
0.70-0.80	3			
0.80-0.90	3			
0.90-1.00	3			
1.00-1.10	3			1.00
1.10-1.20	2			
1.20-1.30	2			
1.30-1.40	3			
1.40-1.50	4			
1.50-1.60	5			1.50
1.60-1.70	5			
1.70-1.80	6			
1.80-1.90	7			
1.90-2.00	7			
2.00-2.10	8			2.00
2.10-2.20	9			
2.20-2.30	10			
2.30-2.40	9			
2.40-2.50	9			
2.50-2.60	10			2.50
2.60-2.70	10			
2.70-2.80	11			
2.80-2.90	9			
2.90-3.00	9			
3.00-3.10	5			3.00
3.10-3.20	5			
3.20-3.30	4			
3.30-3.40	5			
3.40-3.50	5			
3.50-3.60	4			3.50
3.60-3.70	4			
3.70-3.80	4			
3.80-3.90	3			
3.90-4.00	4			
4.00-4.10	3			4.00
4.10-4.20	3			
4.20-4.30	3			
4.30-4.40	2			
4.40-4.50	2			
4.50-4.60	2			4.50
4.60-4.70	0			
4.70-4.80	1			
4.80-4.90	0			
4.90-5.00	1			
				5.00
				5.50
				6.00
				6.50
				7.00
				7.50
				8.00



Remarks

Scale (approx)	Logged By
1:40	CJ

Figure No. LS4160.DP2

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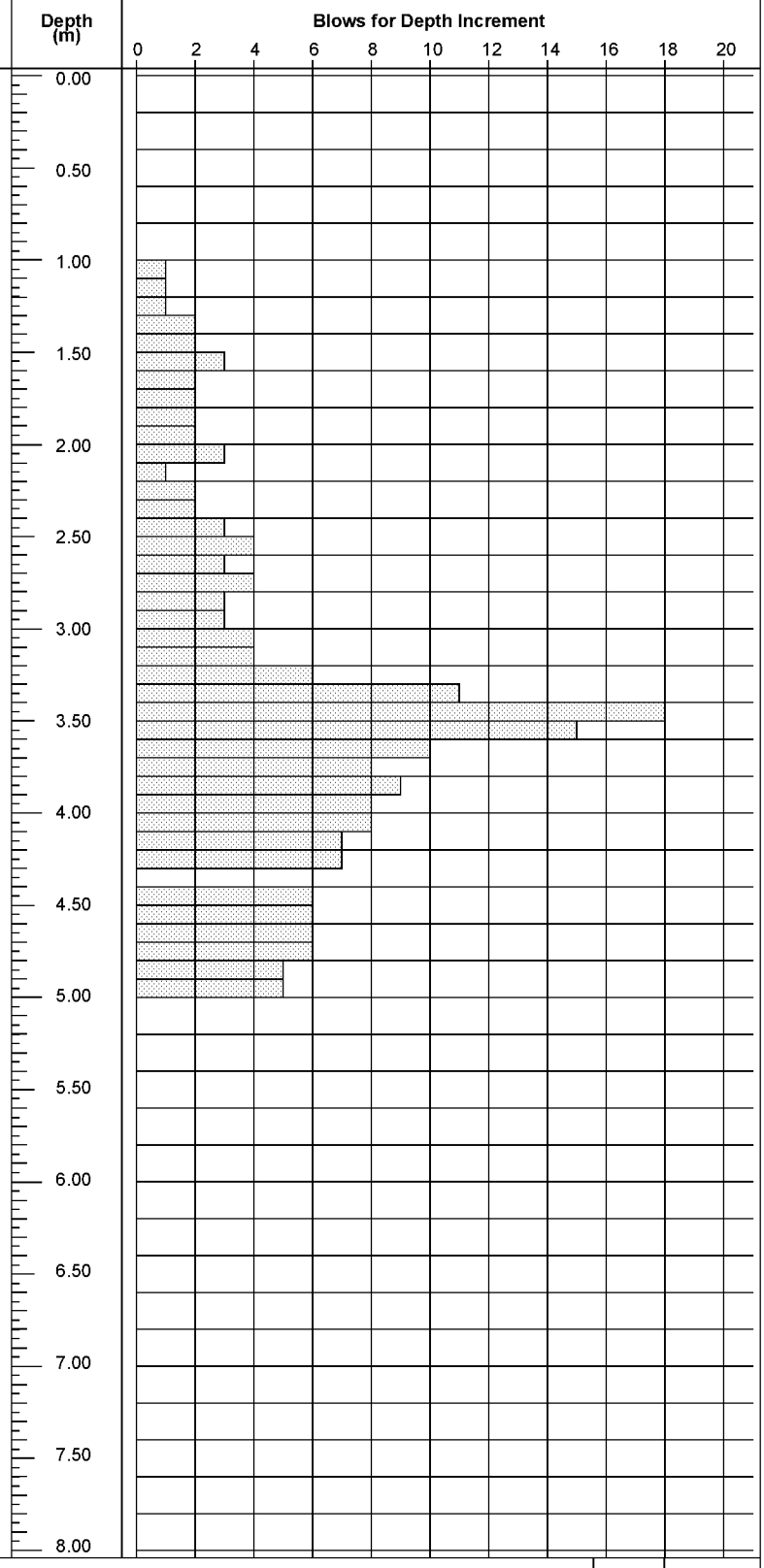
Site	Probe Number
Toddington Lane, Littlehampton, Wick, BN17 7PP	DP3

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probing			BB Property Investments Ltd.	LS4160
	Location	**Dates**	**Engineer**	**Sheet**
		12/03/2019	Land Science	1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	0		
0.20-0.30	0		
0.30-0.40	0		
0.40-0.50	0		
0.50-0.60	0		
0.60-0.70	0		
0.70-0.80	0		
0.80-0.90	0		
0.90-1.00	0		
1.00-1.10	1		
1.10-1.20	1		
1.20-1.30	1		
1.30-1.40	2		
1.40-1.50	2		
1.50-1.60	3		
1.60-1.70	2		
1.70-1.80	2		
1.80-1.90	2		
1.90-2.00	2		
2.00-2.10	3		
2.10-2.20	1		
2.20-2.30	2		
2.30-2.40	2		
2.40-2.50	3		
2.50-2.60	4		
2.60-2.70	3		
2.70-2.80	4		
2.80-2.90	3		
2.90-3.00	3		
3.00-3.10	4		
3.10-3.20	4		
3.20-3.30	6		
3.30-3.40	11		
3.40-3.50	18		
3.50-3.60	15		
3.60-3.70	10		
3.70-3.80	8		
3.80-3.90	9		
3.90-4.00	8		
4.00-4.10	8		
4.10-4.20	7		
4.20-4.30	7		
4.30-4.40	0		
4.40-4.50	6		
4.50-4.60	6		
4.60-4.70	6		
4.70-4.80	6		
4.80-4.90	5		
4.90-5.00	5		



Remarks

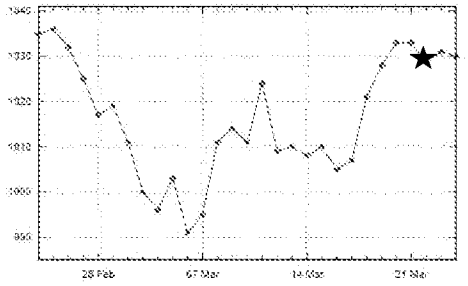
Scale (approx)	Logged By
1:40	CJ

Figure No. LS4160.DP3

APPENDIX C

GROUND GAS AND GROUNDWATER MONITORING

Project:	Land at Toddington Lane	**Ref:**	LS4160
Date:	22.03.19	**Visit:**	1 of 6
Engineer:	WH	**Check:**	ET
Weather:	Overcast	**Page:**	1 of 1
Atmospheric Pressure		**before:**	1029mB
		after:	1028mB
Published pressure trend:		Fluctuating High Pressure (Shoreham Airport)	
Remarks:	Equipment used: GFX 430, Phocheck PID, Dipmeter		



Position	Flow (l/hr)		Common Gases (%)				VOC's (ppm)	Groundwater (m)				Remarks
	High	Low	Time	CO2	CH4	O2		LNAPL	Water	DNAPL	Base	
Calibration Check	0.0	0.0	15s	0.0	0.0	20.5	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.5						
			60s	0.0	0.0	20.4						
DS1	0.0	0.0	15s	2.5	0.0	16.0	1.0	-	Dry	-	4.57	
			30s	2.5	0.0	16.8						
			60s	2.5	0.0	17.0						
			120s	2.5	0.0	17.1						
			180s	2.6	0.0	17.0						
			240s	2.6	0.0	17.0						
			300s	2.2	0.0	17.2						
DS2	0.0	0.0	15s	3.8	0.0	12.8	0.0	-	Dry	-	4.73	
			30s	3.7	0.0	11.8						
			60s	3.7	0.0	11.6						
			120s	3.7	0.0	11.5						
			180s	3.7	0.0	11.4						
			240s	3.7	0.0	11.4						
			300s	3.8	0.0	11.3						
DS3	0.0	0.0	15s	5.1	0.0	15.8	0.1	-	Dry	-	4.66	
			30s	5.5	0.0	13.8						
			60s	5.7	0.0	13.3						
			120s	5.8	0.0	13.2						
			180s	5.8	0.0	13.2						
			240s	5.7	0.0	13.4						
			300s	5.5	0.0	13.7						
								-		-		
								-		-		
Calibration Check	0.0	0.0	15s	0.0	0.0	20.5	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.5						
			60s	0.0	0.0	20.5						

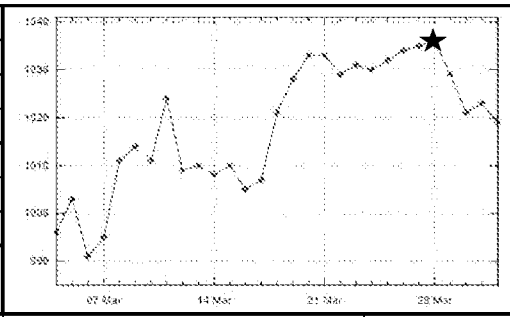
Land Science

The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

[redacted]

GROUND GAS AND GROUNDWATER MONITORING

Project:	Land at Toddington Lane	**Ref:**	LS4160
Date:	28.03.19	**Visit:**	2 of 6
Engineer:	WH	**Check:**	ET
Weather:	Overcast	**Page:**	1 of 1
Atmospheric Pressure		**before:**	1037mB
		after:	1035mB
Published pressure trend:		Rising High Pressure (Shoreham Airport)	
Remarks:	Equipment used: GFX 430, Phocheck PID, Dipmeter		



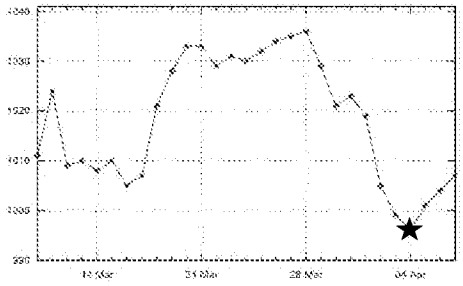
Position	Flow (l/hr)		Common Gases (%)				VOC's (ppm)	Groundwater (m)				Remarks
	High	Low	Time	CO2	CH4	O2		LNAPL	Water	DNAPL	Base	
Calibration Check	0.0	0.0	15s	0.0	0.0	20.4	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.4						
			60s	0.0	0.0	20.4						
DS1	0.0	0.0	15s	0.6	0.0	19.7	0.2	-	DRY	-	4.67	
			30s	0.6	0.0	19.8						
			60s	0.7	0.0	19.9						
			120s	0.7	0.0	19.9						
			180s	0.9	0.0	19.7						
			240s	0.9	0.0	19.7						
			300s	0.8	0.0	19.8						
DS2	0.1	0.0	15s	2.3	0.0	15.7	0.2	-	DRY	-	4.84	
			30s	2.3	0.0	15.9						
			60s	2.3	0.0	15.9						
			120s	2.3	0.0	15.9						
			180s	2.3	0.0	15.7						
			240s	2.4	0.0	15.4						
			300s	2.6	0.0	15.1						
DS3	0.0	0.0	15s	6.2	0.0	14.5	0.3	-	DRY	-	4.75	
			30s	8.4	0.0	12.2						
			60s	8.6	0.0	12.0						
			120s	8.6	0.0	11.9						
			180s	8.5	0.0	11.9						
			240s	8.4	0.0	12.0						
			300s	8.2	0.0	12.2						
								-		-		
								-		-		
Calibration Check	0.0	0.0	15s	0.0	0.0	20.6	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.6						
			60s	0.0	0.0	20.6						

Land Science

The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

GROUND GAS AND GROUNDWATER MONITORING

Project:	Land at Toddington Lane	**Ref:**	LS4160
Date:	04.04.19	**Visit:**	3 of 6
Engineer:	WH	**Check:**	ET
Weather:	Cloudy, Raining	**Page:**	1 of 1
Atmospheric Pressure		**before:**	993mB
		after:	991mB
Published pressure trend:		Falling Low Pressure (Shoreham Airport)	
Remarks:	Equipment used: GFX 430, Phocheck PID, Dipmeter		



Position	Flow (l/hr)		Common Gases (%)				VOC's (ppm)	Groundwater (m)				Remarks
	High	Low	Time	CO2	CH4	O2		LNAPL	Water	DNAPL	Base	
Calibration Check	0.0	0.0	15s	0.0	0.0	20.5	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.5						
			60s	0.0	0.0	20.5						
DS1	0.0	-0.1	15s	3.9	0.0	14.8	0.0	-	DRY	-	4.69	
			30s	3.9	0.0	15.7						
			60s	3.9	0.0	15.8						
			120s	3.9	0.0	15.8						
			180s	3.9	0.0	15.8						
			240s	3.9	0.0	15.8						
			300s	3.9	0.0	15.8						
DS2	0.7	0.3	15s	4.2	0.0	12.0	0.1	-	DRY	-	4.81	
			30s	4.0	0.0	12.0						
			60s	3.9	0.0	11.9						
			120s	3.9	0.0	11.9						
			180s	3.9	0.0	11.8						
			240s	4.0	0.0	11.7						
			300s	4.0	0.0	11.6						
DS3	0.0	-0.1	15s	9.6	0.0	12.1	0.1	-	DRY	-	4.72	
			30s	10.6	0.0	9.8						
			60s	10.8	0.0	9.5						
			120s	10.9	0.0	9.4						
			180s	10.9	0.0	9.3						
			240s	10.9	0.0	9.4						
			300s	10.6	0.0	9.7						
								-		-		
								-		-		
Calibration Check	0.0	0.0	15s	0.0	0.0	19.8	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.1						
			60s	0.0	0.0	20.2						

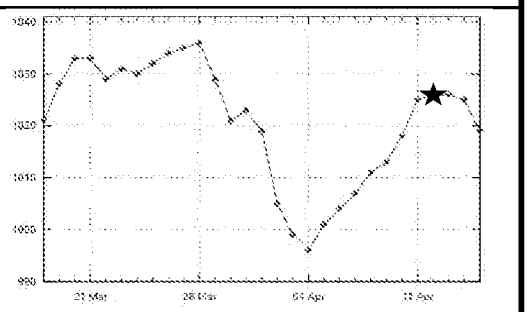
Land Science

The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

[redacted]

GROUND GAS AND GROUNDWATER MONITORING

Project:	Land at Toddington Lane	**Ref:**	LS4160
Date:	12.04.19	**Visit:**	4 of 6
Engineer:	JS	**Check:**	ET
Weather:	Sunny	**Page:**	1 of 1
Atmospheric Pressure		**before:**	1025 mB
		after:	1025mB
Published pressure trend:		Rising High Pressure (Shoreham Airport)	
Remarks:	Equipment used: GFX 430, Phocheck PID, Dipmeter		



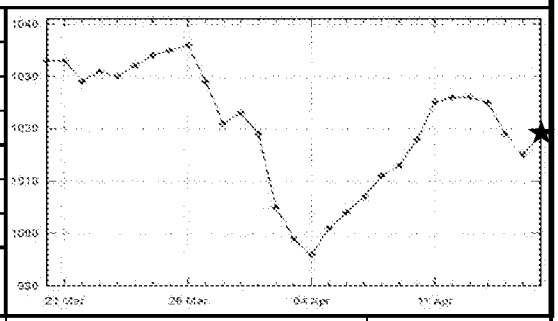
Position	Flow (l/hr)		Common Gases (%)				VOC's (ppm)	Groundwater (m)				Remarks
	High	Low	Time	CO2	CH4	O2		LNAPL	Water	DNAPL	Base	
Calibration Check	0.0	0.0	15s	0.0	0.0	19.6	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.0						
			60s	0.0	0.0	20.2						
DS1	1.0	0.7	15s	2.8	0.0	16.8	0.0	-	Dry	-	4.68	
			30s	3.0	0.0	16.1						
			60s	3.0	0.0	16.0						
			120s	3.0	0.0	16.0						
			180s	3.0	0.0	15.9						
			240s	3.1	0.0	15.9						
			300s	3.2	0.0	15.9						
DS2	0.9	0.0	15s	0.9	0.0	19.9	0.1	-	Dry	-	4.83	
			30s	0.8	0.0	18.5						
			60s	0.9	0.0	18.3						
			120s	1.1	0.0	18.0						
			180s	1.4	0.0	17.5						
			240s	1.8	0.0	16.7						
			300s	2.1	0.0	15.8						
DS3	0.7	0.0	15s	7.8	0.0	14.5	0.0	-	Dry	-	4.73	
			30s	8.4	0.0	13.2						
			60s	8.5	0.0	12.9						
			120s	8.5	0.0	12.8						
			180s	8.5	0.0	12.9						
			240s	8.3	0.0	13.0						
			300s	8.2	0.0	13.1						
								-		-		
								-		-		
Calibration Check	0.0	0.0	15s	0.0	0.0	19.9	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.0						
			60s	0.0	0.0	20.2						

Land Science

The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

GROUND GAS AND GROUNDWATER MONITORING

Project:	Land at Toddington Lane	**Ref:**	LS4160
Date:	17.04.19	**Visit:**	5 of 6
Engineer:	WF	**Check:**	
Weather:	Sunny, Clear	**Page:**	1 of 1
Atmospheric Pressure		**before:**	1019 mB
		after:	1019 m B
Published pressure trend:		Fluctuating High Pressure (Shoreham Airport)	
Remarks:	Equipment used: GFX 430, Phocheck PID, Dipmeter		



Position	Flow (l/hr)		Common Gases (%)				VOC's (ppm)	Groundwater (m)				Remarks
	High	Low	Time	CO2	CH4	O2		LNAPL	Water	DNAPL	Base	
Calibration Check	0.0	0.0	15s	0.0	0.0	20.5	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.6						
			60s	0.0	0.0	20.7						
DS1	0.0	-0.1	15s	1.8	0.0	19.2	0.0		Dry		4.65	
			30s	1.7	0.0	19.8						
			60s	1.7	0.0	19.8						
			120s	1.7	0.0	19.8						
			180s	1.8	0.0	19.7						
			240s	1.9	0.0	19.4						
			300s	1.9	0.0	19.4						
DS2	0.1	-0.2	15s	3.0	0.0	15.9	0.1		Dry		4.82	
			30s	2.6	0.0	16.4						
			60s	2.5	0.0	16.4						
			120s	2.4	0.0	16.4						
			180s	2.4	0.0	16.4						
			240s	2.5	0.0	16.2						
			300s	2.7	0.0	15.9						
DS3	0.1	0.0	15s	7.1	0.0	14.5	0.1		Dry		4.70	
			30s	8.0	0.0	13.0						
			60s	8.2	0.0	12.7						
			120s	8.3	0.0	12.5						
			180s	8.5	0.0	12.3						
			240s	8.7	0.0	12.0						
			300s	11.8	0.0	8.8						
Calibration Check	0.0	0.0	15s	0.0	0.0	20.4	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	20.8						
			60s	0.0	0.0	20.8						

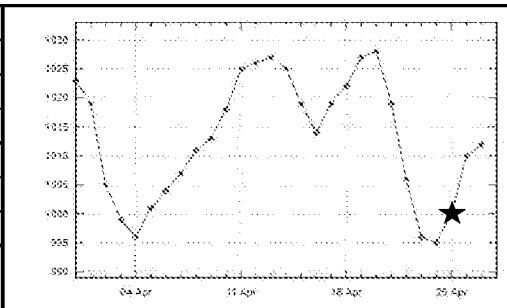
Land Science

The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

[redacted]

GROUND GAS AND GROUNDWATER MONITORING

Project:	Land at Toddington Lane	**Ref:**	LS4160
Date:	25.04.19	**Visit:**	6 of 6
Engineer:	WH	**Check:**	ET
Weather:	Sunny	**Page:**	1 of 1
Atmospheric Pressure		**before:**	998mB
		after:	999mB
Published pressure trend:		Fluctuating Low Pressure (Shoreham Airport)	
Remarks:	Equipment used: GFX 430, Phocheck PID, Dipmeter		



Position	Flow (l/hr)		Common Gases (%)				VOC's (ppm)	Groundwater (m)				Remarks
	High	Low	Time	CO2	CH4	O2		LNAPL	Water	DNAPL	Base	
Calibration Check	0.0	0.0	15s	0.0	0.0	21.0	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	21.0						
			60s	0.0	0.0	21.0						
DS1	0.0	0.0	15s	3.7	0.0	16.7	0.0	-	Dry	-	4.56	
			30s	3.7	0.0	16.2						
			60s	3.8	0.0	16.1						
			120s	3.8	0.0	16.1						
			180s	3.8	0.0	16.1						
			240s	3.8	0.0	16.1						
			300s	3.7	0.0	16.1						
DS2	1.0	0.1	15s	2.1	0.0	18.3	0.0	-	Dry	-	4.73	
			30s	2.2	0.0	17.9						
			60s	2.2	0.0	17.8						
			120s	2.1	0.0	18.0						
			180s	2.1	0.0	18.1						
			240s	2.0	0.0	18.3						
			300s	2.1	0.0	18.3						
DS3			15s									Tracked machinery had run over area and buried the borehole - unable to monitor
			30s									
			60s									
			120s									
			180s									
			240s									
			300s									
Calibration Check	0.0	0.0	15s	0.0	0.0	21.0	0.0	-	-	-	-	Calibration check passed
			30s	0.0	0.0	21.0						
			60s	0.0	0.0	21.0						

Land Science

The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

[redacted]

APPENDIX D

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

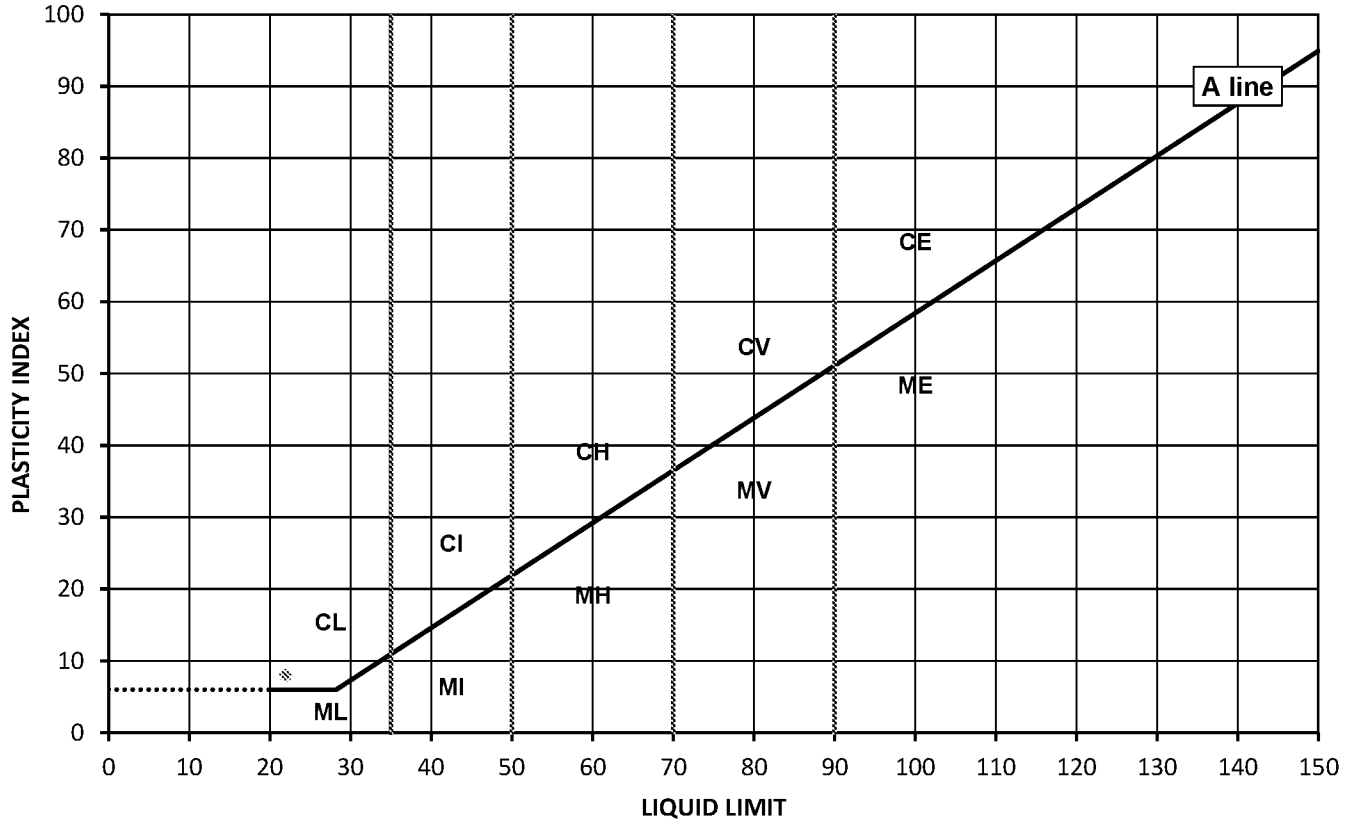
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180183	Depth Top [m]:	1.50
Hole No.:	DS3	Depth Base [m]:	Not Given
Sample Reference:	D1	Sample Type:	D
Soil Description:	Brown slightly gravelly clayey SAND		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	22	14	8	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: [redacted]
Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted]
Darren Berrill
Geotechnical General Manager

GF 232.4

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

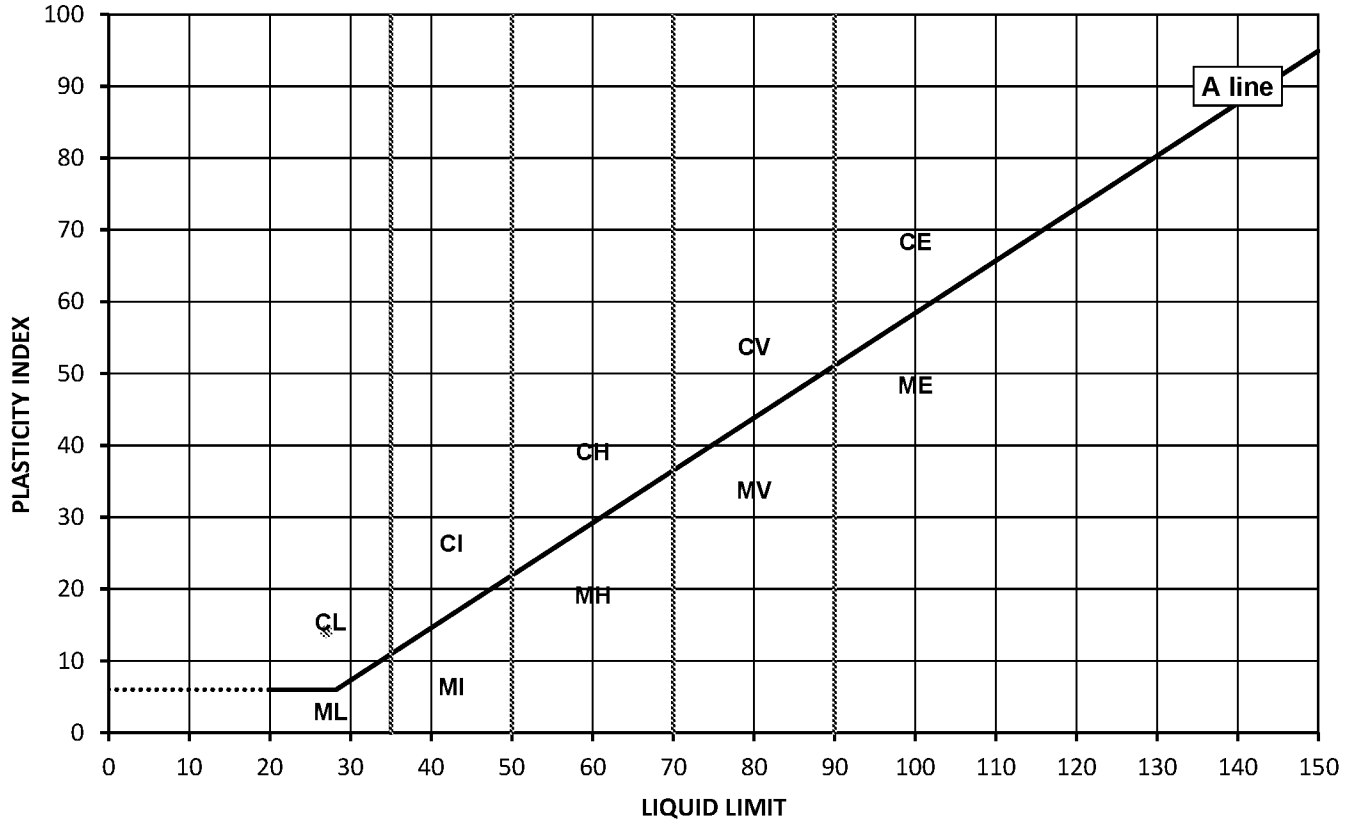
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180184	Depth Top [m]:	3.00
Hole No.:	DS3	Depth Base [m]:	Not Given
Sample Reference:	D4	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	27	13	14	98



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: [redacted]
Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted]
Darren Berrill
Geotechnical General Manager

GF 232.4

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

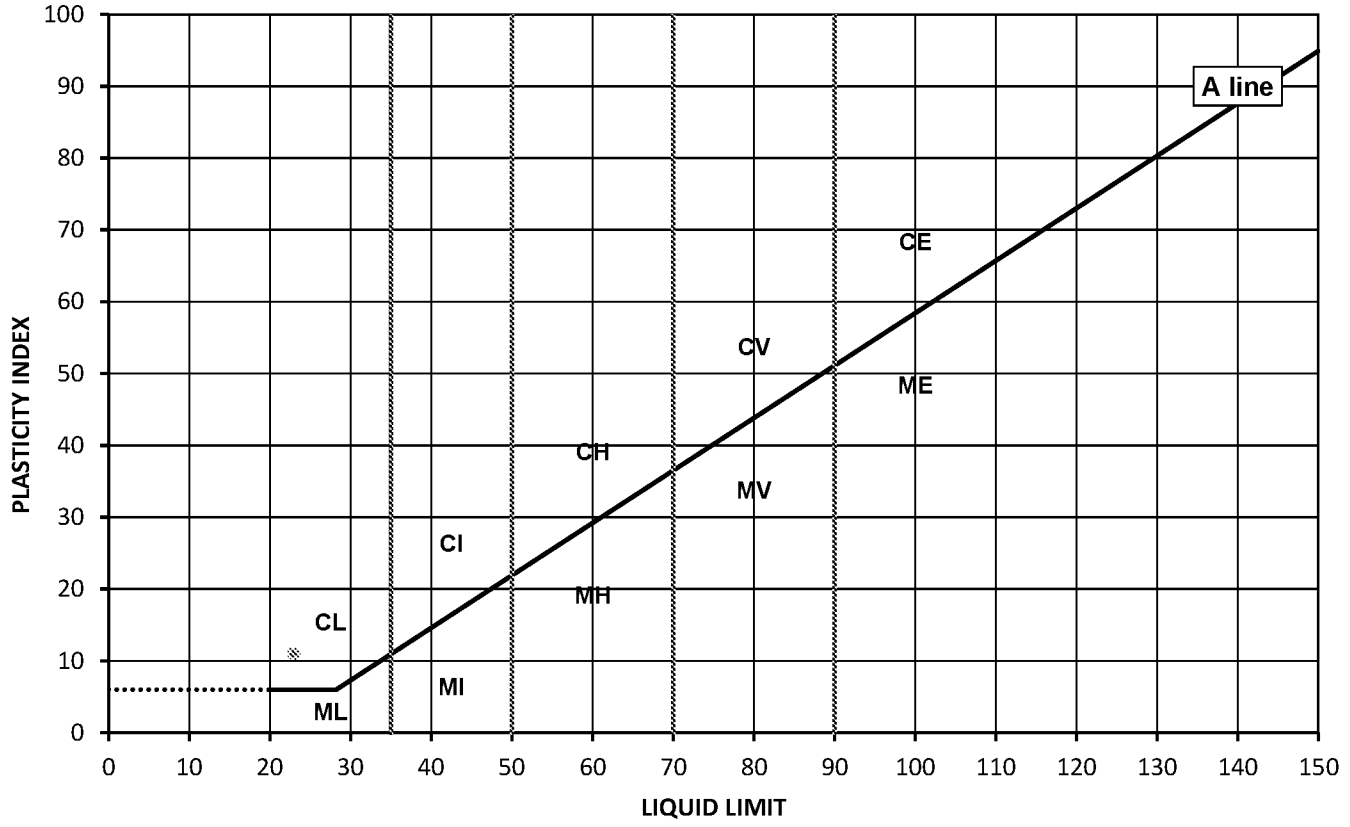
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180190	Depth Top [m]:	1.00
Hole No.:	TP3	Depth Base [m]:	Not Given
Sample Reference:	D3	Sample Type:	D
Soil Description:	Brown slightly gravelly clayey SAND		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	23	12	11	94



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: [redacted]
Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted]
Darren Berrill
Geotechnical General Manager

GF 232.4

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

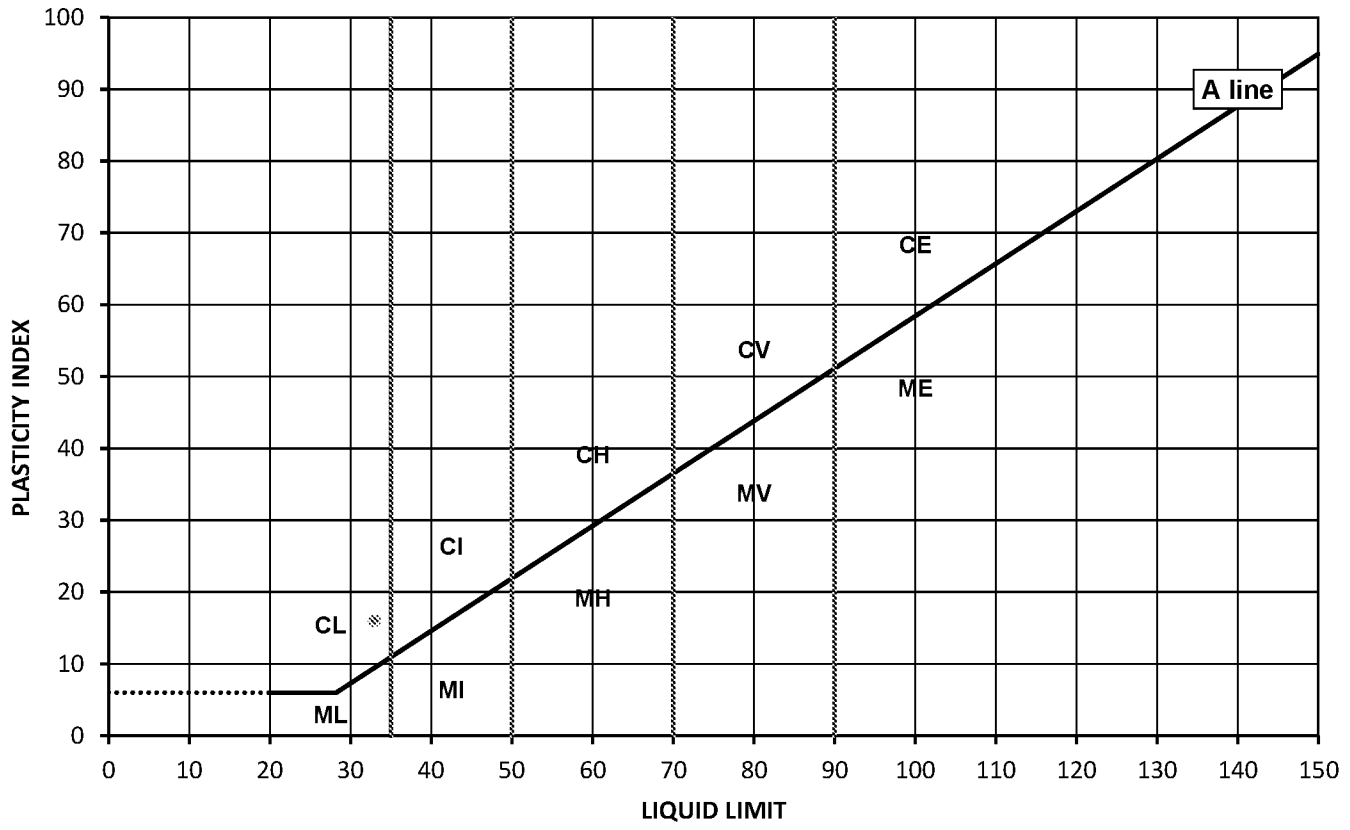
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180192	Depth Top [m]:	1.50
Hole No.:	TP4	Depth Base [m]:	Not Given
Sample Reference:	D4	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	33	17	16	99



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: [redacted] Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted] Darren Berrill
Geotechnical General Manager

GF 232.4

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

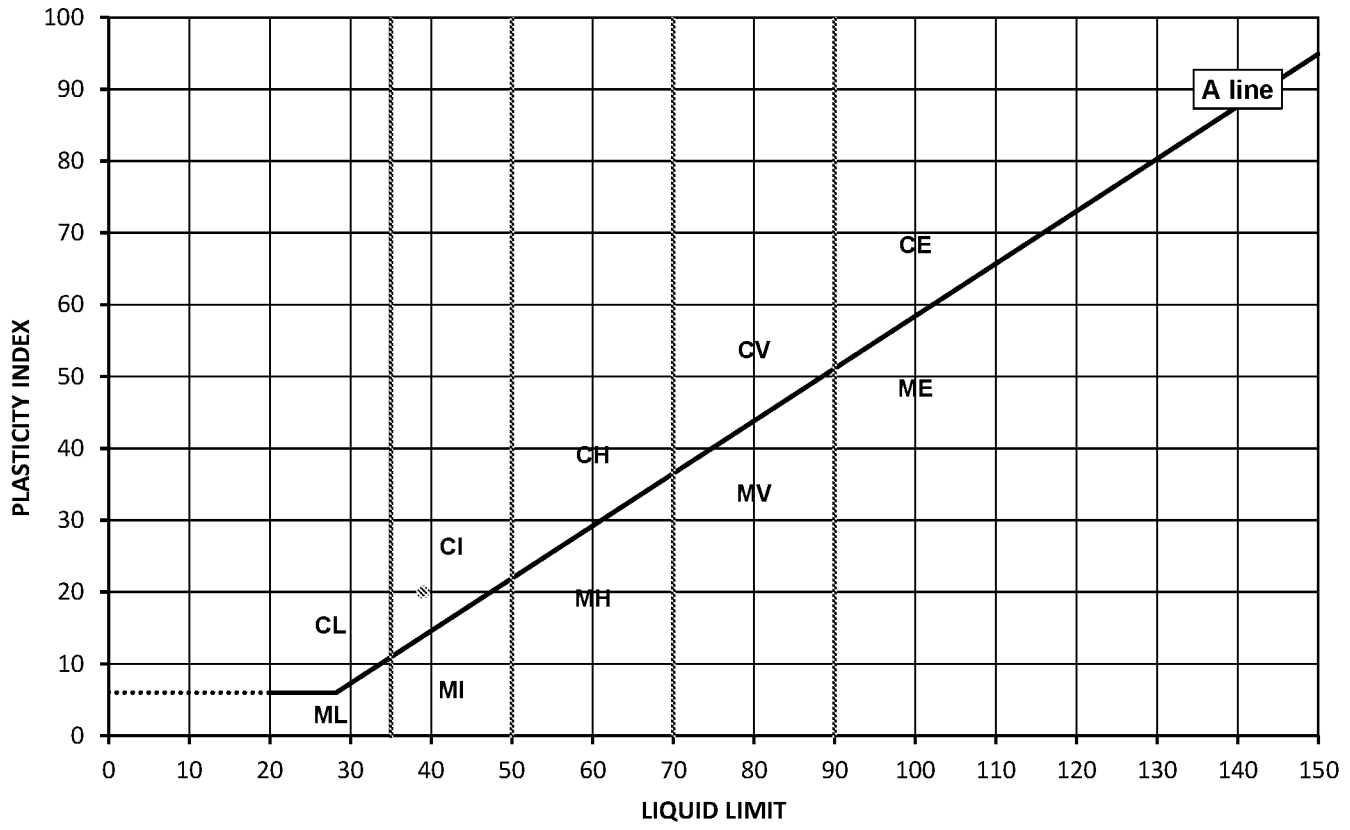
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180194	Depth Top [m]:	1.00
Hole No.:	TP6	Depth Base [m]:	Not Given
Sample Reference:	D3	Sample Type:	D
Soil Description:	Dark brown sandy CLAY		

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	39	19	20	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

[redacted]
Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted]
Darren Berrill
Geotechnical General Manager

GF 232.4

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

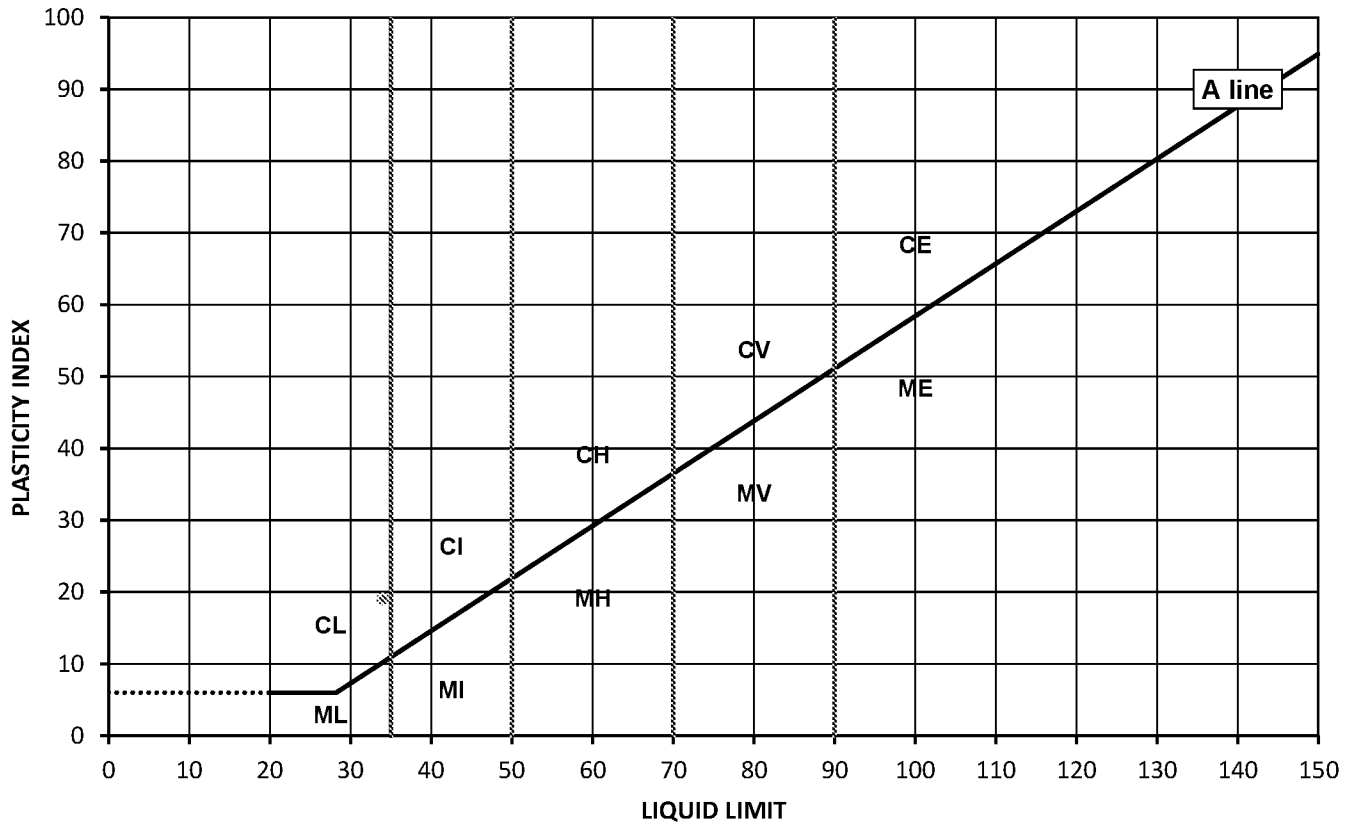
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180195	Depth Top [m]:	2.00
Hole No.:	TP6	Depth Base [m]:	Not Given
Sample Reference:	D5	Sample Type:	D
Soil Description:	Brown slightly gravelly very sandy CLAY		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	34	15	19	97



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: [redacted]
Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted]
Darren Berrill
Geotechnical General Manager

GF 232.4

for and on behalf of i2 Analytical Ltd

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Land Science

Client Address: The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

Contact: Elliot Toms

Site Name: Toddington Lane, Littlehampton

Site Address: Not Given

Client Reference: LS4160

Job Number: 19-33517

Date Sampled: Not Given

Date Received: 18/03/2019

Date Tested: 25/03/2019

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type			%	%	% Passing 425um %	LL %	PL %	PI %	bulk Mg/m3	dry Mg/m3	PD Mg/m3	%		
1180181	DS1	D6	2.50	Not Given	D	Brown slightly gravelly clayey SAND		7.9											
1180182	DS2	D7	3.00	Not Given	D	Brown gravelly clayey SAND		7.7											
1180183	DS3	D1	1.50	Not Given	D	Brown slightly gravelly clayey SAND	Atterberg 1 Point	17		99	22	14	8						
1180184	DS3	D4	3.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	18		98	27	13	14						
1180187	TP1	D7	3.00	Not Given	D	Brown slightly gravelly clayey SAND		17											
1180190	TP3	D3	1.00	Not Given	D	Brown slightly gravelly clayey SAND	Atterberg 1 Point	18		94	23	12	11						
1180191	TP3	D4	1.50	Not Given	D	Brown slightly gravelly clayey very silty SAND		15											
1180192	TP4	D4	1.50	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	20		99	33	17	16						
1180193	TP5	D5	2.00	Not Given	D	Brown slightly gravelly clayey very silty SAND		15											
1180194	TP6	D3	1.00	Not Given	D	Dark brown sandy CLAY	Atterberg 1 Point	21		100	39	19	20						

Note: # Non accredited; NP - Non plastic

Comments:

Approved:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed:

Darren Berrill
Geotechnical General Manager

GF 234.6

for and on behalf of i2 Analytical Ltd

ARUN DISTRICT COUNCIL LU/248/24/PL

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Land Science

Client Address: The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

Contact: Elliot Toms

Site Name: Toddington Lane, Littlehampton

Site Address: Not Given

Client Reference: LS4160

Job Number: 19-33517

Date Sampled: Not Given

Date Received: 18/03/2019

Date Tested: 25/03/2019

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1180195	TP6	D5	2.00	Not Given	D	Brown slightly gravelly very sandy CLAY	Atterberg 1 Point	15		97	34	15	19						

Note: # Non accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: Darren Berrill
Geotechnical General Manager

GF 234.6

for and on behalf of i2 Analytical Ltd

UKAS TESTING 4041

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

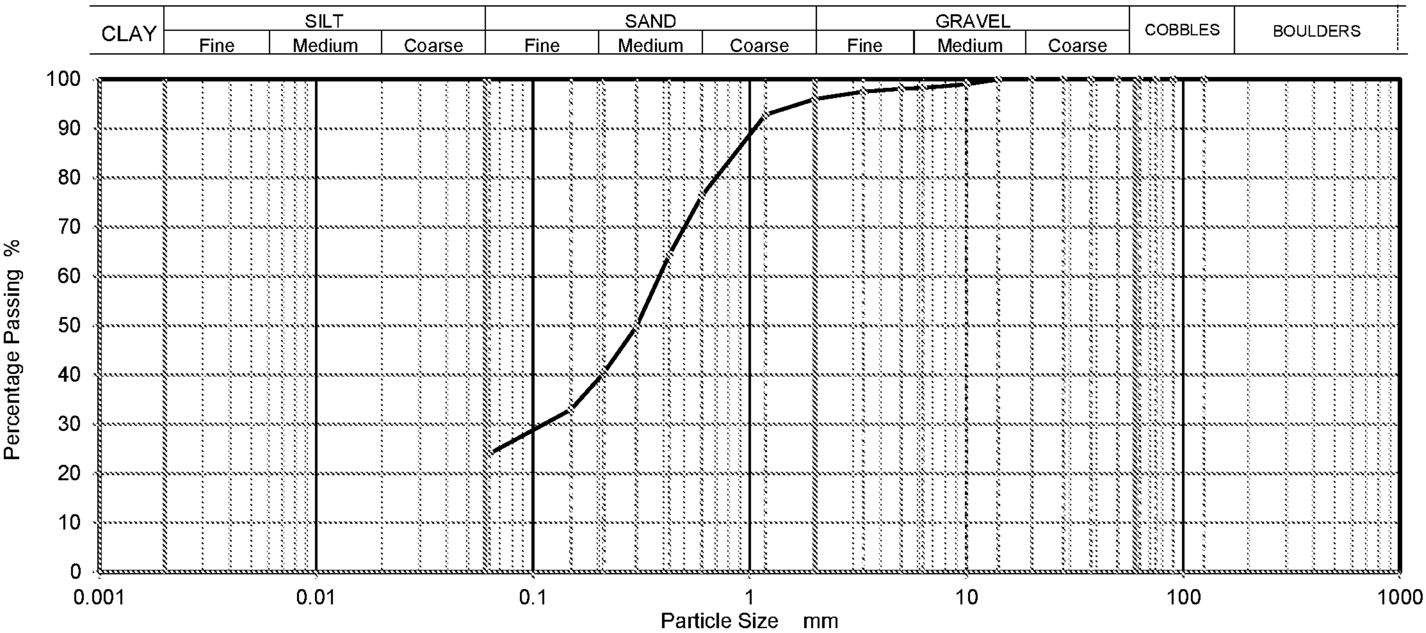
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

i2 Environmental Sciences

Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180181	Depth Top [m]:	2.50
Hole No.:	DS1	Depth Base [m]:	Not Given
Sample Reference:	D6	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey SAND		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	98		
3.35	98		
2	96		
1.18	93		
0.6	76		
0.425	64		
0.3	50		
0.212	40		
0.15	33		
0.063	25		

Dry Mass of sample [g]: 747

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	4.00
Sand	71.30
Fines <0.063mm	24.70

Grading Analysis		
D100	mm	14
D60	mm	0.383
D30	mm	0.109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
[redacted]
Date Reported: 01/04/2019

Signed: Darren Berrill
Geotechnical General Manager
[redacted]

GF 100.10

for and on behalf of i2 Analytical Ltd

4041

TEST CERTIFICATE

Particle Size Distribution

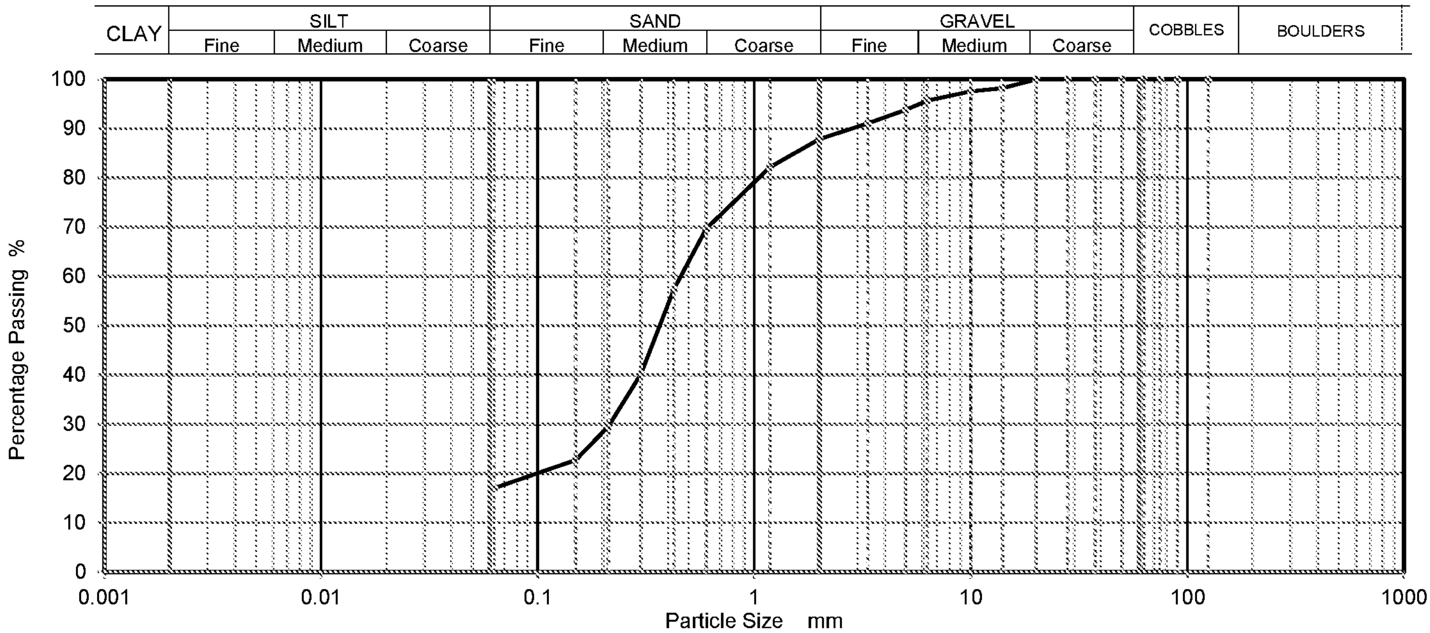
Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180182	Depth Top [m]:	3.00
Hole No.:	DS2	Depth Base [m]:	Not Given
Sample Reference:	D7	Sample Type:	D
Sample Description:	Brown gravelly clayey SAND		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	98		
6.3	96		
5	94		
3.35	91		
2	88		
1.18	82		
0.6	70		
0.425	57		
0.3	40		
0.212	30		
0.15	23		
0.063	17		

Dry Mass of sample [g]: 342

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	12.10
Sand	70.40
Fines <0.063mm	17.40

Grading Analysis		
D100	mm	20
D60	mm	0.457
D30	mm	0.216
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: Dariusz Piotrowski
[redacted]
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: Darren Berrill
[redacted]
Geotechnical General Manager

GF 100.10

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

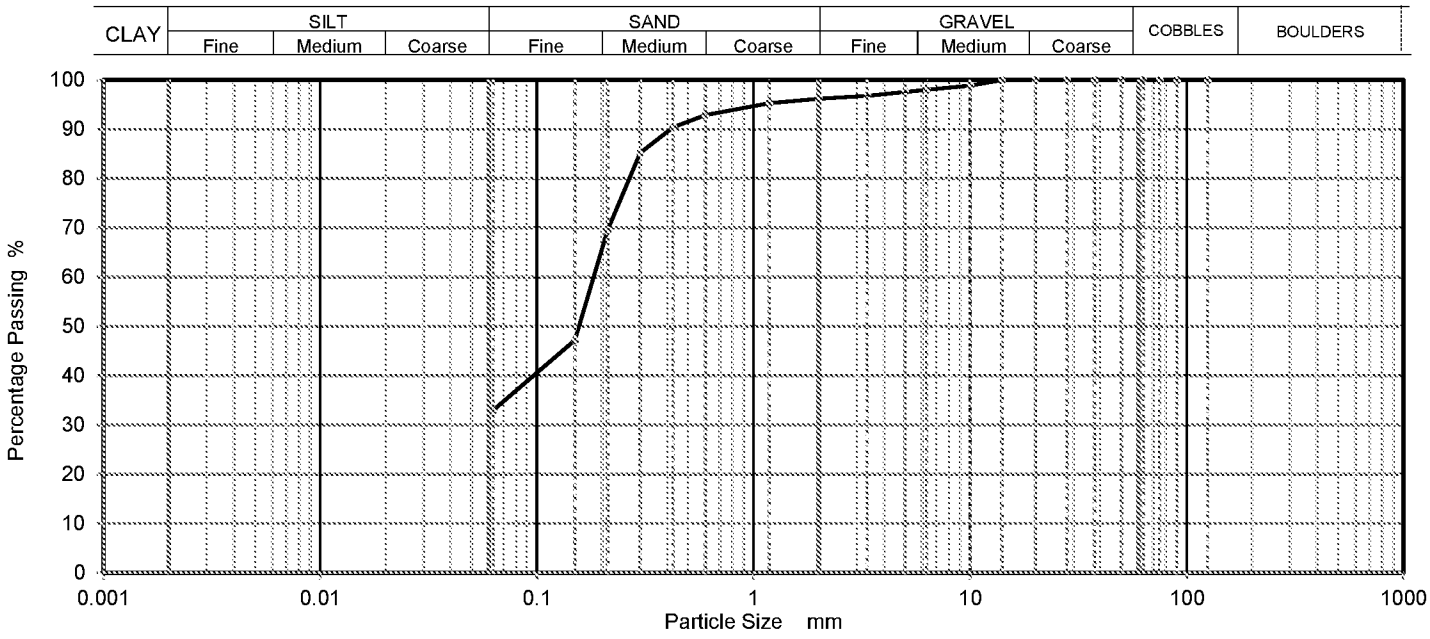
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180187	Depth Top [m]:	3.00
Hole No.:	TP1	Depth Base [m]:	Not Given
Sample Reference:	D7	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey SAND		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	98		
3.35	97		
2	96		
1.18	95		
0.6	93		
0.425	90		
0.3	85		
0.212	70		
0.15	47		
0.063	34		

Dry Mass of sample [g]: 370

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	3.80
Sand	62.40
Fines <0.063mm	33.80

Grading Analysis		
D100	mm	14
D60	mm	0.183
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: [redacted] Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted] Darren Berrill
Geotechnical General Manager

GF 100.10

for and on behalf of i2 Analytical Ltd

ARUN DISTRICT COUNCIL LU/246/24/PL

UKAS TESTING 4041

TEST CERTIFICATE

Particle Size Distribution

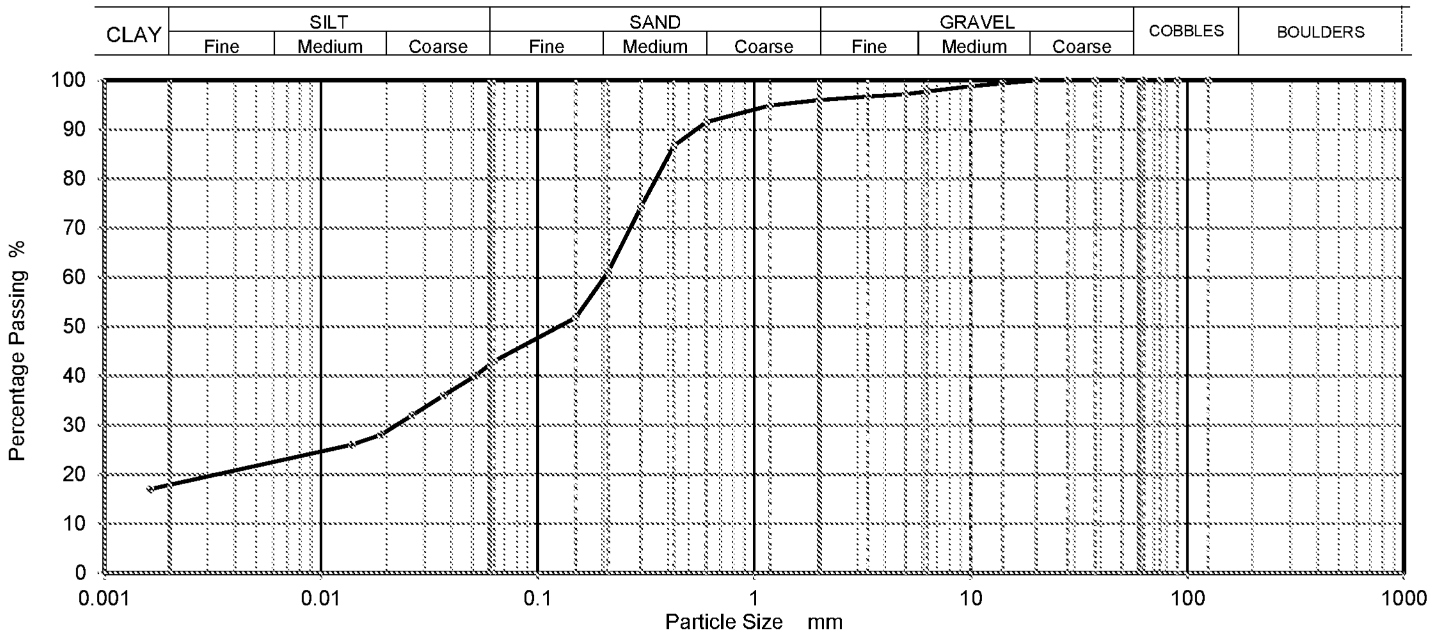
Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180191	Depth Top [m]:	1.50
Hole No.:	TP3	Depth Base [m]:	Not Given
Sample Reference:	D4	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey very silty SAND		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	43
90	100	0.0514	40
75	100	0.0368	36
63	100	0.0263	32
50	100	0.0188	28
37.5	100	0.0138	26
28	100	0.0016	17
20	100		
14	99		
10	99		
6.3	98		
5	97		
3.35	97		
2	96		
1.18	95		
0.6	92	Particle density	(assumed)
0.425	87	2.65	Mg/m3
0.3	74		
0.212	61		
0.15	52		
0.063	43		

Dry Mass of sample [g]: 276

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	4.00
Sand	53.50
Silt	24.70
Clay	17.80

Grading Analysis		
D100	mm	20
D60	mm	0.203
D30	mm	0.0227
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Approved: Dariusz Piotrowski
[redacted]
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: Darren Berrill
[redacted]
Geotechnical General Manager

GF 100.10

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

UKAS TESTING 4041

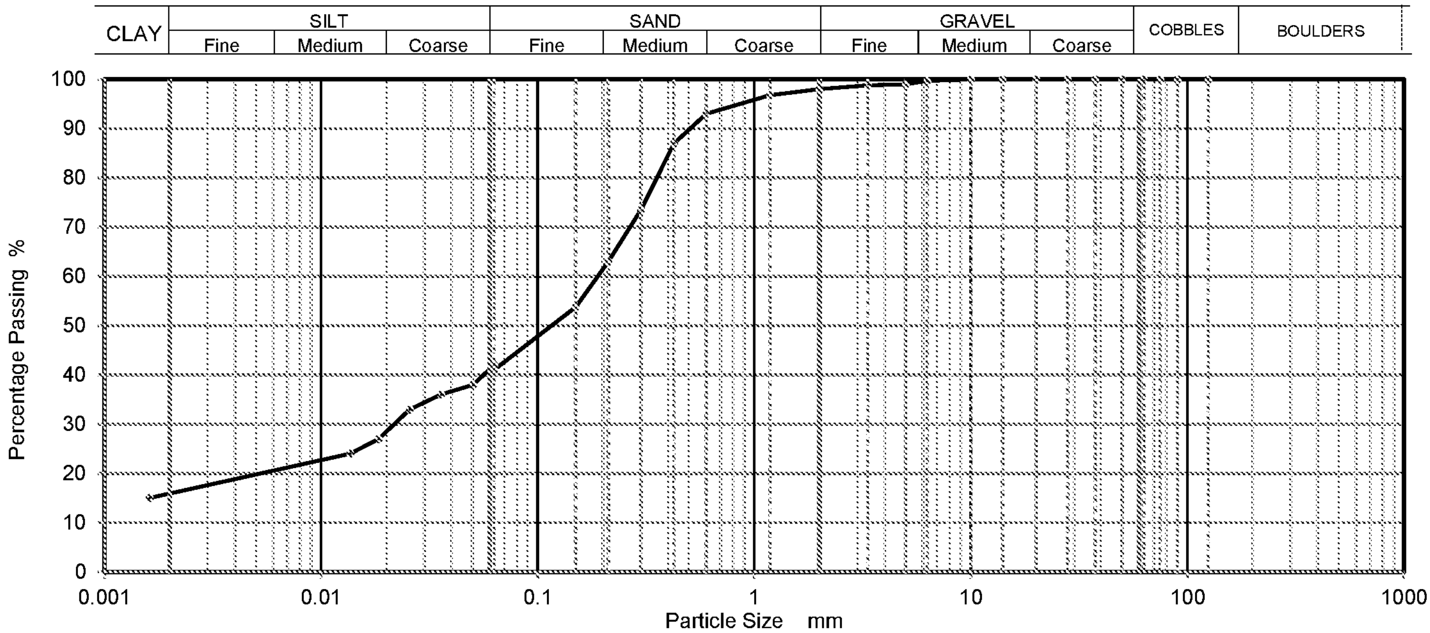
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

i2 Environmental Science

Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-33517
		Date Sampled:	Not Given
		Date Received:	18/03/2019
Contact:	Elliot Toms	Date Tested:	25/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1180193	Depth Top [m]:	2.00
Hole No.:	TP5	Depth Base [m]:	Not Given
Sample Reference:	D5	Sample Type:	D
Sample Description:	Brown slightly gravelly clayey very silty SAND		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	42
90	100	0.0503	38
75	100	0.0358	36
63	100	0.0256	33
50	100	0.0184	27
37.5	100	0.0136	24
28	100	0.0016	15
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	99		
2	98		
1.18	97		
0.6	93	Particle density	(assumed)
0.425	87	2.65	Mg/m3
0.3	74		
0.212	63		
0.15	54		
0.063	42		

Dry Mass of sample [g]: 266

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	2.00
Sand	56.30
Silt	26.20
Clay	15.50

Grading Analysis		
D100	mm	10
D60	mm	0.189
D30	mm	0.0218
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Approved: [redacted] Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

Signed: [redacted] Darren Berrill
Geotechnical General Manager

GF 100.10

for and on behalf of i2 Analytical Ltd

SUMMARY REPORT

Summary of Saturation Moisture Content Test Results

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Client: Land Science

Client Address: The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

Contact: Elliot Toms

Site Name: Toddington Lane, Littlehampton

Site Address: Not Given

Client Reference: LS4160

Job Number: 19-33517

Date Sampled: Not Given

Date Received: 18/03/2019

Date Tested: 25/03/2019

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	SMC	Bulk density	Dry density	MC								
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%								
1180185	DS3	D6	4.00	Not Given	D	Light brown clayey CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	20	2.08	1.75	19								
1180186	DS3	D8	5.00	Not Given	D	Cream colour CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	23	2.05	1.67	22								
1180188	TP1	D6	2.50	Not Given	D	Brown slightly gravelly clayey CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	20	2.06	1.76	17								
1180189	TP1	D7	3.00	Not Given	D	Light brown clayey CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	31	1.90	1.48	28								
1180196	TP7	D7	3.00	Not Given	D	Brown clayey CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	24	1.97	1.64	20								

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 01/04/2019

[redacted]

Signed: Darren Berrill
Geotechnical General Manager

[redacted]

GF 132.8

for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

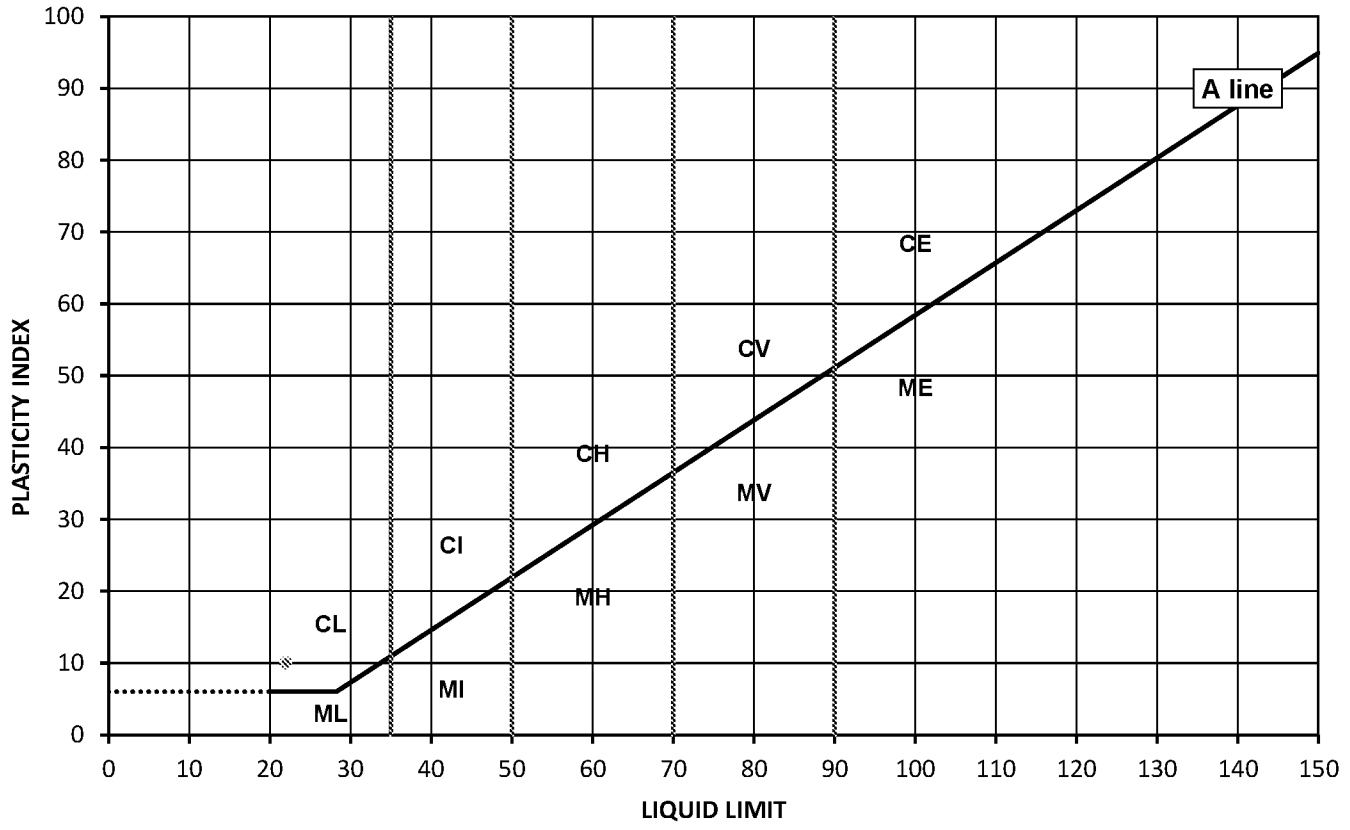
Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-34221
		Date Sampled:	Not Given
		Date Received:	21/03/2019
Contact:	Elliot Toms	Date Tested:	29/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1184222	Depth Top [m]:	1.00
Hole No.:	DS1	Depth Base [m]:	Not Given
Sample Reference:	D3	Sample Type:	D
Soil Description:	Brown slightly gravelly clayey SAND		

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	22	12	10	95



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 04/04/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 232.5

SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

Client: Land Science

Client Address: The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE

Contact: Elliot Toms

Site Name: Toddington Lane, Littlehampton

Site Address: Not Given

Client Reference: LS4160

Job Number: 19-34221

Date Sampled: Not Given

Date Received: 21/03/2019

Date Tested: 29/03/2019

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
1184222	DS1	D3	1.00	Not Given	D	Brown slightly gravelly clayey SAND	Atterberg 1 Point	13		95	22	12	10						
1184223	DS2	D4	1.50	Not Given	D	Brown very clayey SAND		16											

Note: # Non accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 04/04/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 234.7

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This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Plonierow 39, 41-711 Ruda Slaska, Poland."

"Any assessment of compliance with specifications based the analytical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."

TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

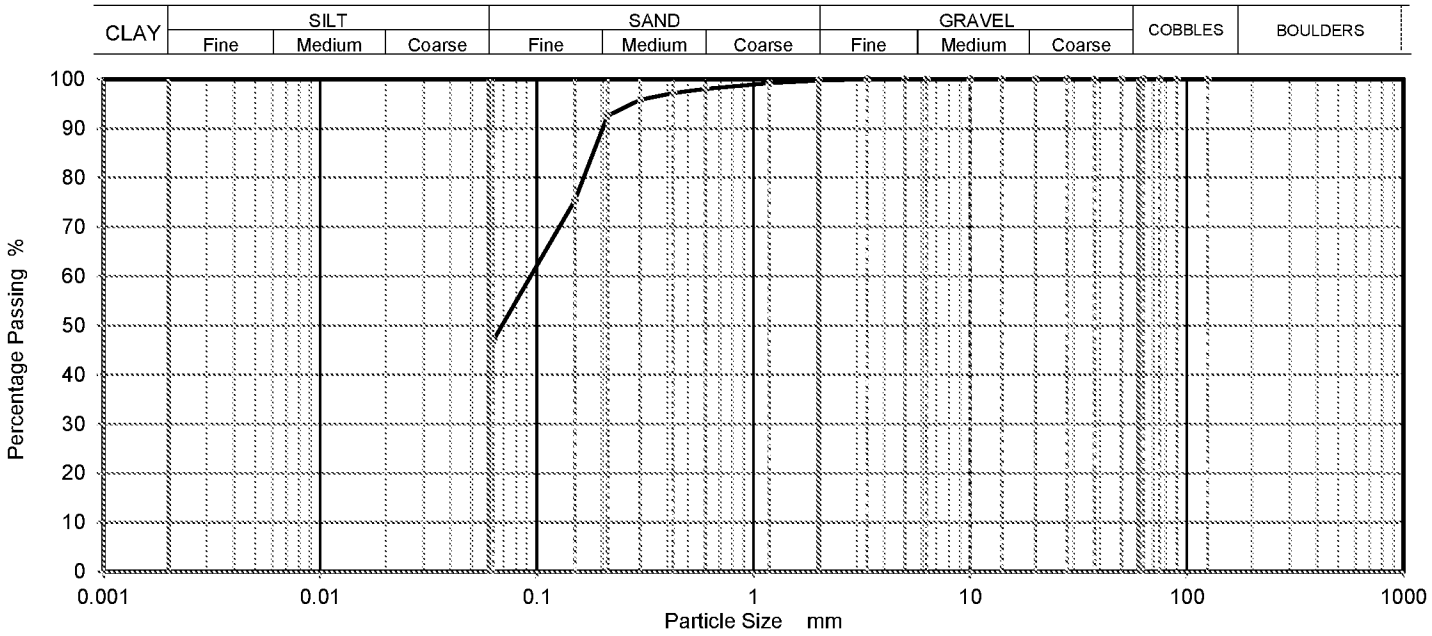
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

4041

Client:	Land Science	Client Reference:	LS4160
Client Address:	The Old Police Station, Jobs Lane, Sayers Common, West Sussex, BN6 9HE	Job Number:	19-34221
		Date Sampled:	Not Given
		Date Received:	21/03/2019
Contact:	Elliot Toms	Date Tested:	29/03/2019
Site Name:	Toddington Lane, Littlehampton	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1184223	Depth Top [m]:	1.50
Hole No.:	DS2	Depth Base [m]:	Not Given
Sample Reference:	D4	Sample Type:	D
Sample Description:	Brown very clayey SAND		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	96		
0.212	93		
0.15	75		
0.063	48		

Dry Mass of sample [g]: 262

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.30
Sand	51.80
Fines <0.063mm	47.90

Grading Analysis		
D100	mm	5
D60	mm	0.0924
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Approved: [redacted]
Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 04/04/2019

Signed: [redacted]
Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.11

APPENDIX E

Sam Whewell
Land Science
The Old Police Station
Jobs Lane
Sayers Common
West Sussex
BN6 9HE

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

[redacted]

[redacted]

Analytical Report Number : 19-33210

Project / Site name:	Toddington Lane, Littlehampton	Samples received on:	15/03/2019
Your job number:	LS4160	Samples instructed on:	15/03/2019
Your order number:		Analysis completed by:	26/03/2019
Report Issue Number:	1	Report issued on:	26/03/2019
Samples Analysed:	3 leachate samples - 17 soil samples		

Signed: [redacted]

Rexona Rahman
Head of Customer Services
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178709	1178710	1178711	1178712	1178713
Sample Reference				TP3	TP4	TP5	TP5	TP6
Sample Number				E1	E1	E1	D4	E2
Depth (m)				0.20	0.20	0.20	1.50	0.50
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	12	12	12	17
Total mass of sample received	kg	0.001	NONE	0.47	0.54	0.46	2.0	0.50
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	-
General Inorganics								
pH - Manual	pH Units	N/A	MCERTS	7.4	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	8.5	11.2	11.3	-	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.38	0.14	0.20	-	0.064
Sulphide	mg/kg	1	MCERTS	10	31	5.1	-	-
Ammonia as NH_3	mg/kg	0.5	MCERTS	-	-	-	-	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.023	0.016	0.014	-	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	2.3	-	-	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	4.8	-	-	-	-
Acid Neutralisation Capacity	+/- mol/kg	-999	NONE	1.2	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.34	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	-	-
Phenanthrene	mg/kg	0.05	MCERTS	0.39	5.3	1.3	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.6	0.35	-	-
Fluoranthene	mg/kg	0.05	MCERTS	1.2	13	2.3	-	-
Pyrene	mg/kg	0.05	MCERTS	1.1	11	1.8	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.60	7.6	1.2	-	-
Chrysene	mg/kg	0.05	MCERTS	0.68	7.0	1.0	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.77	10	1.3	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.43	3.8	0.53	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.72	9.1	1.1	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49	6.9	0.71	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.9	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.64	7.6	0.70	-	-
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	-	-
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	7.0	86	12	-	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.6	6.9	6.0	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	68	69	90	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.52	0.68	0.48	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1	1.2	1.3	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.2	< 0.2	-	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	19	20	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	17	28	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	50	50	36	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	14	13	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	32	31	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	80	110	-	-

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

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Sample Number				E1	E1	E1	D4	E2
Depth (m)				0.20	0.20	0.20	1.50	0.50
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	ug/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Total BTEX	µg/kg	10	MCERTS	< 10	-	-	-	-
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	65	-	-	-	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	43	-	-	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	47	-	-	< 10	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	27	-	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	29	-	-	< 10	-

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Sample Reference				TP3	TP4	TP5	TP5	TP6
Sample Number				E1	E1	E1	D4	E2
Depth (m)				0.20	0.20	0.20	1.50	0.50
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178709	1178710	1178711	1178712	1178713
Sample Reference				TP3	TP4	TP5	TP5	TP6
Sample Number				E1	E1	E1	D4	E2
Depth (m)				0.20	0.20	0.20	1.50	0.50
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	0.39	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	1.2	-	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	1.1	-	-	< 0.05	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.60	-	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	0.68	-	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.77	-	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.43	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.72	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.64	-	-	< 0.05	-

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

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Sample Number				E1	E1	E1	D4	E2
Depth (m)				0.20	0.20	0.20	1.50	0.50
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	-	-	-	-
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	-	-

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178858	1178859	1178860	1178861	1178862
Sample Reference				DS1	DS1	DS1	DS2	DS2
Sample Number				E1	E2	D7	E1	E3
Depth (m)				0.20	0.50	3.00	0.10	1.00
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	17	5.8	21	11
Total mass of sample received	kg	0.001	NONE	0.45	1.4	0.63	0.67	1.4
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	-
General Inorganics								
pH - Manual	pH Units	N/A	MCERTS	7.5	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	7.2	7.1	7.4	11.5	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1	-	-	< 1	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.014	0.015	0.62	0.0084
Sulphide	mg/kg	1	MCERTS	< 1.0	-	-	58	-
Ammonia as NH_3	mg/kg	0.5	MCERTS	0.8	-	-	-	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.0071	-	-	0.026	-
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.7	-	-	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	2.3	-	-	-	-
Acid Neutralisation Capacity	+/- mol/kg	-999	NONE	1.2	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.39	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.97	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.97	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.44	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.59	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.51	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.27	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.54	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.31	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.35	-
Coronene	mg/kg	0.05	NONE	< 0.05	-	-	< 0.05	-
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.9	-	-	5.3	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	-	-	10	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	62	-	-	89	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.61	-	-	0.40	-
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	-	-	2.3	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	-	0.3	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	-	-	< 1.2	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35	-	-	20	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	-	-	23	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	-	-	60	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	-	-	16	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	-	-	32	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57	-	-	130	-

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178858	1178859	1178860	1178861	1178862
Sample Reference				DS1	DS1	DS1	DS2	DS2
Sample Number				E1	E2	D7	E1	E3
Depth (m)				0.20	0.50	3.00	0.10	1.00
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	ug/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Total BTEX	µg/kg	10	MCERTS	< 10	-	-	-	-
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	48	-	-	-	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	43	-	-	91	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	43	-	-	93	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	-	-	29	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	36	-

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178858	1178859	1178860	1178861	1178862
Sample Reference				DS1	DS1	DS1	DS2	DS2
Sample Number				E1	E2	D7	E1	E3
Depth (m)				0.20	0.50	3.00	0.10	1.00
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	< 1.0	-

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178858	1178859	1178860	1178861	1178862
Sample Reference				DS1	DS1	DS1	DS2	DS2
Sample Number				E1	E2	D7	E1	E3
Depth (m)				0.20	0.50	3.00	0.10	1.00
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.39	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.97	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.97	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.44	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.59	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.51	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.27	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.54	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.31	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.35	-

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178858	1178859	1178860	1178861	1178862
Sample Reference				DS1	DS1	DS1	DS2	DS2
Sample Number				E1	E2	D7	E1	E3
Depth (m)				0.20	0.50	3.00	0.10	1.00
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	-	-	-	-
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	Absent	-	-	-	-

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178863	1178864	1178865	1178866	1178867
Sample Reference				DS3	DS3	DS3	TP1	TP2
Sample Number				E2	E3	D2	E1	E1
Depth (m)				0.70	1.20	2.00	0.20	0.20
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	30	13	13	19	23
Total mass of sample received	kg	0.001	NONE	0.49	0.54	0.82	0.43	0.47
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	-	Not-detected	Not-detected
General Inorganics								
pH - Manual	pH Units	N/A	MCERTS	7.4	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	7.3	7.6	7.4	7.2	7.6
Total Cyanide	mg/kg	1	MCERTS	2	-	-	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.20	0.043	0.038	0.025	0.043
Sulphide	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	3.5
Ammonia as NH_3	mg/kg	0.5	MCERTS	3.4	-	-	-	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.037	-	-	0.015	0.039
Total Organic Carbon (TOC)	%	0.1	MCERTS	3.7	-	-	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	7.5	-	-	-	-
Acid Neutralisation Capacity	+/- mol/kg	-999	NONE	1.3	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.62	-	-	0.66	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.34	0.63
Fluoranthene	mg/kg	0.05	MCERTS	1.9	-	-	3.8	2.7
Pyrene	mg/kg	0.05	MCERTS	1.7	-	-	4.0	2.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.99	-	-	3.3	1.5
Chrysene	mg/kg	0.05	MCERTS	1.1	-	-	2.5	1.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.2	-	-	3.5	1.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.41	-	-	1.2	0.56
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1	-	-	3.3	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.61	-	-	1.9	0.65
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	0.64	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.66	-	-	2.0	0.77
Coronene	mg/kg	0.05	NONE	< 0.05	-	-	< 0.05	< 0.05
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	10	-	-	27	15
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	-	-	17	9.0
Barium (aqua regia extractable)	mg/kg	1	MCERTS	100	-	-	130	74
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.69	-	-	1.0	0.45
Boron (water soluble)	mg/kg	0.2	MCERTS	2.9	-	-	1.5	2.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	-	-	< 0.2	0.5
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	-	-	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	-	-	29	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	39	-	-	34	43
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	-	-	100	70
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	-	-	26	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	-	-	44	24
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	270	-	-	190	220

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178863	1178864	1178865	1178866	1178867
Sample Reference				DS3	DS3	DS3	TP1	TP2
Sample Number				E2	E3	D2	E1	E1
Depth (m)				0.70	1.20	2.00	0.20	0.20
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	ug/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Total BTEX	µg/kg	10	MCERTS	< 10	-	-	-	-
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	< 10	-	-	-	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	5.9
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	-	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	-	-	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	-	-	-	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	-	-	-	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	-	9.6
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	16	-	-	-	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	31	-	-	-	36
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	48	-	-	-	55

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178863	1178864	1178865	1178866	1178867
Sample Reference				DS3	DS3	DS3	TP1	TP2
Sample Number				E2	E3	D2	E1	E1
Depth (m)				0.70	1.20	2.00	0.20	0.20
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178863	1178864	1178865	1178866	1178867
Sample Reference				DS3	DS3	DS3	TP1	TP2
Sample Number				E2	E3	D2	E1	E1
Depth (m)				0.70	1.20	2.00	0.20	0.20
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.62	-	-	-	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.63
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	1.9	-	-	-	2.7
Pyrene	mg/kg	0.05	MCERTS	1.7	-	-	-	2.5
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.99	-	-	-	1.5
Chrysene	mg/kg	0.05	MCERTS	1.1	-	-	-	1.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.2	-	-	-	1.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.41	-	-	-	0.56
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1	-	-	-	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.61	-	-	-	0.65
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.66	-	-	-	0.77

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178863	1178864	1178865	1178866	1178867
Sample Reference				DS3	DS3	DS3	TP1	TP2
Sample Number				E2	E3	D2	E1	E1
Depth (m)				0.70	1.20	2.00	0.20	0.20
Date Sampled				12/03/2019	12/03/2019	12/03/2019	12/03/2019	12/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	-	-	-	-
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	Absent	-	-	-	-

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178902	1178903			
Sample Reference				TP6	TP7			
Sample Number				E1	E1			
Depth (m)				0.10	0.10			
Date Sampled				12/03/2019	12/03/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	9.9	17			
Total mass of sample received	kg	0.001	NONE	0.45	0.45			
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected			
General Inorganics								
pH - Manual	pH Units	N/A	MCERTS	-	-			
pH - Automated	pH Units	N/A	MCERTS	9.4	7.7			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.32	1.5			
Sulphide	mg/kg	1	MCERTS	1.0	8.7			
Ammonia as NH_3	mg/kg	0.5	MCERTS	-	-			
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.019	0.0098			
Total Organic Carbon (TOC)	%	0.1	MCERTS	-	-			
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-			
Acid Neutralisation Capacity	+/- mol/kg	-999	NONE	-	-			
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	0.33	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	0.80	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	0.95	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.60	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	0.65	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.74	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.26	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.65	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.47	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.55	< 0.05			
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05			
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	6.0	< 0.9			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.5	14			
Barium (aqua regia extractable)	mg/kg	1	MCERTS	90	89			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.32	0.49			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	1.9			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.2			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	40	22			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	23			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	84	26			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	14			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	30			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	220	81			

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178902	1178903			
Sample Reference				TP6	TP7			
Sample Number				E1	E1			
Depth (m)				0.10	0.10			
Date Sampled				12/03/2019	12/03/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	-	-			
Ethylbenzene	µg/kg	1	MCERTS	-	-			
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	µg/kg	1	MCERTS	-	-			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
Total BTEX	µg/kg	10	MCERTS	-	-			
Petroleum Hydrocarbons								
Mineral Oil (C10 - C40)	mg/kg	10	NONE	-	-			
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	17	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	200	48			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	220	54			
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	13	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	160	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	170	< 10			

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178902	1178903			
Sample Reference				TP6	TP7			
Sample Number				E1	E1			
Depth (m)				0.10	0.10			
Date Sampled				12/03/2019	12/03/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0			
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0			
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0			
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0			
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0			

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178902	1178903			
Sample Reference				TP6	TP7			
Sample Number				E1	E1			
Depth (m)				0.10	0.10			
Date Sampled				12/03/2019	12/03/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1			
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2			
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2			
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1			
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1			
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1			
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3			
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Phenanthrene	mg/kg	0.05	MCERTS	0.33	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Fluoranthene	mg/kg	0.05	MCERTS	0.80	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	0.95	< 0.05			
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.60	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	0.65	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.74	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.26	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.65	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.47	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.55	< 0.05			

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Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178902	1178903			
Sample Reference				TP6	TP7			
Sample Number				E1	E1			
Depth (m)				0.10	0.10			
Date Sampled				12/03/2019	12/03/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-			
PCB Congener 52	mg/kg	0.001	MCERTS	-	-			
PCB Congener 101	mg/kg	0.001	MCERTS	-	-			
PCB Congener 118	mg/kg	0.001	MCERTS	-	-			
PCB Congener 138	mg/kg	0.001	MCERTS	-	-			
PCB Congener 153	mg/kg	0.001	MCERTS	-	-			
PCB Congener 180	mg/kg	0.001	MCERTS	-	-			
Total PCBs by GC-MS								
Total PCBs	mg/kg	0.007	MCERTS	-	-			
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-			

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Environmental Science

Analytical Report Number: 19-33210

Project / Site name: Toddington Lane, Littlehampton

Lab Sample Number				1178714	1178868	1178869		
Sample Reference				TP3	DS1	DS3		
Sample Number				E1	E1	E3		
Depth (m)				0.20	0.20	0.70		
Date Sampled				12/03/2019	12/03/2019	12/03/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					
10:1 WAC Leachate								
Arsenic	mg/l	0.0011	ISO 17025	0.0030	0.0063	0.0016		
Barium	mg/l	0.00005	ISO 17025	0.0117	< 0.0001	0.0169		
Cadmium	mg/l	0.0001	ISO 17025	< 0.0001	< 0.0001	< 0.0001		
Chromium	mg/l	0.0004	ISO 17025	0.0026	< 0.0004	0.0023		
Copper	mg/l	0.0007	ISO 17025	0.019	0.010	0.024		
Mercury	mg/l	0.0005	ISO 17025	< 0.0005	< 0.0005	< 0.0005		
Molybdenum	mg/l	0.0004	ISO 17025	0.0004	< 0.0004	0.0041		
Nickel	mg/l	0.0003	ISO 17025	0.0024	0.0015	0.0026		
Lead	mg/l	0.001	ISO 17025	0.0049	< 0.0010	0.0071		
Antimony	mg/l	0.0017	ISO 17025	< 0.0017	< 0.0017	< 0.0017		
Selenium	mg/l	0.004	ISO 17025	< 0.0040	< 0.0040	< 0.0040		
Zinc	mg/l	0.0004	ISO 17025	0.017	0.0026	0.031		
Chloride	mg/l	0.15	ISO 17025	1.1	1.2	5.2		
Fluoride	mg/l	0.05	ISO 17025	0.35	0.19	0.14		
Sulphate	mg/l	0.1	ISO 17025	11	1.2	44		
Total dissolved solids	mg/l	4	NONE	46	130	19		
Total monohydric phenols	mg/l	0.01	ISO 17025	< 0.010	< 0.010	< 0.010		
Dissolved organic carbon	mg/l	0.1	NONE	6.72	6.89	9.02		
10:1 WAC Leachate								
Arsenic	mg/kg	0.011	NONE	0.0260	0.0524	0.0123		
Barium	mg/kg	0.0005	NONE	0.100	< 0.0005	0.128		
Cadmium	mg/kg	0.0008	NONE	< 0.0008	< 0.0008	< 0.0008		
Chromium	mg/kg	0.004	NONE	0.023	< 0.0040	0.018		
Copper	mg/kg	0.007	NONE	0.16	0.085	0.18		
Mercury	mg/kg	0.005	NONE	< 0.0050	< 0.0050	< 0.0050		
Molybdenum	mg/kg	0.004	NONE	< 0.0040	< 0.0040	0.0309		
Nickel	mg/kg	0.003	NONE	0.021	0.013	0.019		
Lead	mg/kg	0.01	NONE	0.042	< 0.010	0.054		
Antimony	mg/kg	0.017	NONE	< 0.017	< 0.017	< 0.017		
Selenium	mg/kg	0.04	NONE	< 0.040	< 0.040	< 0.040		
Zinc	mg/kg	0.004	NONE	0.15	0.021	0.23		
Chloride	mg/kg	1.5	NONE	9.7	10	39		
Fluoride	mg/kg	0.5	NONE	3.0	1.5	1.1		
Sulphate	mg/kg	1	NONE	97	9.7	330		
Total dissolved solids	mg/kg	40	NONE	390	1000	150		
Total monohydric phenols	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10		
Dissolved organic carbon	mg/kg	1	NONE	57.5	57.0	68.3		

Analytical Report Number : 19-33210

Project / Site name: Toddington Lane, Littlehampton

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1178709	TP3	E1	0.20	Brown sandy loam with gravel and vegetation.
1178710	TP4	E1	0.20	Brown loam and clay with gravel and vegetation.
1178711	TP5	E1	0.20	Brown loam and clay with gravel and vegetation.
1178712	TP5	D4	1.50	Light brown clay and sand.
1178713	TP6	E2	0.50	Brown sandy clay.
1178858	DS1	E1	0.20	Brown clay and loam.
1178859	DS1	E2	0.50	Brown clay and loam with brick and vegetation.
1178860	DS1	D7	3.00	Light brown sand with gravel.
1178861	DS2	E1	0.10	Black silt with gravel and vegetation. **
1178862	DS2	E3	1.00	Light brown clay and sand with chalk and vegetation.
1178863	DS3	E2	0.70	Brown loam and clay with vegetation.
1178864	DS3	E3	1.20	Brown clay and sand.
1178865	DS3	D2	2.00	Brown clay and sand.
1178866	TP1	E1	0.20	Brown loam and clay with gravel and vegetation.
1178867	TP2	E1	0.20	Brown loam and clay with gravel and vegetation.
1178902	TP6	E1	0.10	Grey loam and clay with gravel and vegetation.
1178903	TP7	E1	0.10	Brown loam and clay with gravel and vegetation.

** Non MCerts Matrix

Analytical Report Number : 19-33210

Project / Site name: Toddington Lane, Littlehampton

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Ammonia as NH3 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L009-PL	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE

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Project / Site name: Toddington Lane, Littlehampton

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Analytical Report Number : 19-33210

Project / Site name: Toddington Lane, Littlehampton

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
TP5	D4	S	19-33210	1178712	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
TP5	D4	S	19-33210	1178712	b	Semi-volatile organic compounds in soil	L064-PL	b
TP5	D4	S	19-33210	1178712	b	TPHCWG (Soil)	L088/76-PL	b
TP5	D4	S	19-33210	1178712	b	Volatile organic compounds in soil	L073B-PL	b

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature