



Geotechnical and
Geoenvironmental
Consultants

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GROUND INVESTIGATION SERVICES (Southern) Ltd

Our Ref: S.5120

Your Ref:

Didcot Town Council
C/o Building Mechanics Ltd
The Old Granary,
Martley Court Barns,
Martley,
Worcestershire
WR6 6QA

05 April 2018

FAO Tim Studer

Dear Sirs

SITE INVESTIGATION: EDMUNDS PARK OUTDOOR SERVICES DEPOT, DIDCOT

We write to inform you of the ground conditions encountered in respect of the above and make recommendations with regard to the proposed development. Accordingly, please find enclosed site plan, borehole logs and laboratory test results.

It is understood that the new development will comprise a council depot building in place of the existing depot which will be demolished.

Therefore, prior to development it was required to undertake a geotechnical site investigation to establish ground and groundwater conditions underlying the site to enable foundation design.

Reference to the geological map for the area indicates the site is immediately underlain by bedrock represented by Upper Greensand Formation.

GEOTECHNICAL SURVEY

The investigation comprised the drilling of two boreholes to 3.00m depths with in-situ Standard Penetration Tests (SPTs) performed at regular 1.00m depth intervals in order to provide an indication of the engineering behaviour of the soil. Undisturbed core samples of cohesive material were also retrieved and disturbed soil samples were taken at regular depth intervals.

Site work was conducted on the 12 March 2018. The weather was cold, dry and sunny.

Soil samples were submitted to the chemical laboratories of Evora Jones Laboratories on the 17 March 2018 for analysis of a range of chemical parameters including sulphur, sulphate and pH analysis. Other laboratory tests including sieve analysis, Atterburgs Limits and natural moisture content were undertaken in-house.

All information pertaining to the excavation works above is presented in the Borehole Logs, and with reference to the Notes and Abbreviations Sheet, presented to the rear of this report.

RESULTS OF SITE INVESTIGATION

The results of the ground investigation indicate the site is underlain by a thin mantle of made ground extending down to 0.40m/0.40m depths overlying the Upper Greensand Formation.

Upper Greensand Formation comprises a mantle layer of soft and soft to firm dark brown/grey mottled brown very silty friable clay which transitions to a soft to firm and firm grey mottled brown clayey silt at 1.20m (BH1) and 0.70m (BH2). Roots of various size were recorded in both boreholes, more prominent and larger in BH2 to depths of 1.20m (BH1) and 1.60m (BH2).

These soft to firm layers superpose firm to stiff and stiff buff and olive brown clayey silt which contains significant proportion of very weak angular mudstone gravel which transitions to a very stiff to hard clayey silt, also interpreted as an extremely weak mudstone rock. This sequence continues to the base of the boreholes.

Groundwater was not encountered.

The results of geotechnical laboratory testing indicate the Upper Greensand Formation is classified predominantly as inorganic silt of high compressibility and low/medium shrinkage potential. A single sample from BH1 at 1.00m depth was classified as an inorganic clay of high plasticity and medium shrinkage potential. All samples were normally hydrated.

Chemical testing indicate alkaline pH soil conditions in all samples and very low sulphate/sulphur concentrations.

GEOTECHNICAL ASSESSMENT AND FOUNDATION OPTIONS

New development will comprise single-storey dwelling taking the place of an existing single storey structure due for demolition. Anticipated bearing pressures for the new structures are estimated to be in the order of 30kN/metre run for perimeter walls.

Because the site was previously developed with substructures in place (foundations) and walls above, the soil beneath these load bearing structures will have been compressed to a greater magnitude than neighbouring unstressed soils. The footprint of the new development will overlie both of these soil units and settlement characteristics will not be uniform, i.e. settlement for new foundations will less over previously stressed soils when compared to unstressed soils leading to potential differential settlement.

Therefore the ground beneath the existing foundations will have been stressed to a depth $1\frac{1}{2}$ times the breadth of the foundation (assuming 0.60m wide and 0.90m deep) equivalent to 1.80m deep. Therefore, to avoid the possibility of large differential movements occurring beneath different sections of load bearing walls, trench-fill foundations should be constructed at a minimum depth of 1.80m (based on the above assumptions). At this level, a net allowable bearing pressure of 150kpa has been calculated which means foundations will have to extend to a minimum of 1.80m which would provide an adequate factor of safety against shear failure and limit settlements to within 25mm, based on a coefficient of volume compressibility m_v of 0.05m²/MN and a bearing pressure of 30kN/m run for a single storey structure.

Notwithstanding the above, the final depths of all foundations will have to be determined with respect to their proximity to existing trees and hedging on and bordering the site (either those to be removed or retained and future planting), their water demand classification and the shrinkage potential of the soil (medium). In addition, where the foundations are likely to be affected by either shrinkage or where soil heave is recorded or predicted due to vegetation removal they should be designed to withstand these possible effects. Reference to NHBC Standards '*Building near trees*' Chapter 4.2 is recommended for design, specifically the relevant depth tables (Tables 12-21).

It is recommended suspended ground floor slabs are adopted for the development as a result of the potential for future clay soil shrinkage and swelling. Reference to NHBC Standards, Chapter 5.2 – *Suspended Floors* is advised.

Excavations, primarily for service and foundation trenches should remain stable in the medium to long term but will require temporary shoring if left open for a prolonged period of time. It is recommended all excavations in excess of 1.20m should be supported at all times in compliance with health and safety at work requirements.

Excavations should be regularly inspected by a competent person to ensure continued safety. Further advice on the safety of excavations is given in HSE - *The Construction (Health, Safety and Welfare) Regulations 1996* and *Health and Safety in Excavations HSG 185*.

BURIED CONCRETE SPECIFICATION

The results of the laboratory testing indicate sulphate concentrations of less than 0.5 g/l (2:1 water : soil extract), with pH values in excess of 5.5pH. Such results, for a site which is neither brown-field nor pyritic with potentially mobile groundwater conditions, conform to Design Sulphate Class DS-1 and ACEC Class AC-1 conditions of BRE Special Digest 1. Therefore the designer should use the above classification in order to produce the concrete specification for sub-surface concrete.

Should you have any queries with regard to the report, please do not hesitate to contact the undersigned.

For and on behalf of
Ground Investigation Services (Southern) Ltd
Yours sincerely

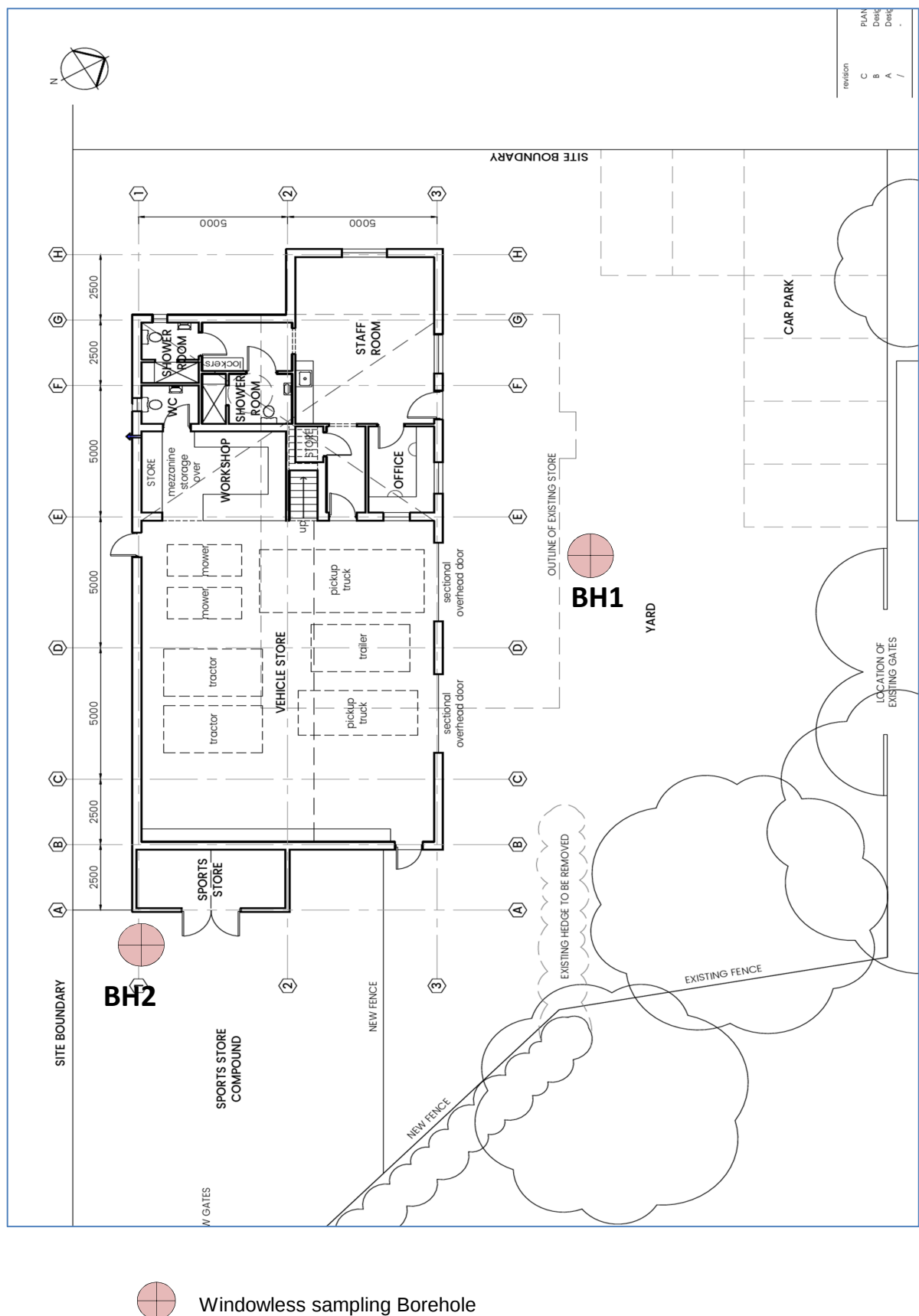


Martyn P Boughton (Director)

Email: martyn@gis-geotec.com

enc

Borehole Location Plan
Borehole Logs and Notes and Abbreviations Sheet
Laboratory Test Data



CLIENT: Didcot Town Council

SITE: Edmunds Park Outdoor Services Depot, Didcot
Park Road, Didcot OX11 8QX

Date: April 2018

**Ground Investigation Services
(Southern) Ltd**

40 Home Close, Wootton,
Abingdon, Oxon OX13 6DD

Tel: 01865 326011

NOTES ON EXPLORATORY HOLE RECORDS

GENERAL NOTES

1 OPERATING PROCEDURES

The procedure used for cable percussion boring, rotary drilling, trial pitting, sampling, in situ and laboratory testing and sample descriptions are generally in accordance with BS5930: 2015 Code of practice for ground investigations, BS EN ISO 14688-1:2002 'Geotechnical investigation and testing – Identification and classification of soil – Part 1 Identification and description', BS EN ISO 14689-1:2003 'Geotechnical investigation and testing – Identification and classification of rock – Part 1 Identification and description' as appropriate, and BS1 377:1990 'Methods of test for soils for civil engineering purposes', unless stated otherwise.

2 GROUNDWATER

Exploratory hole water levels are recorded together with the depths at which seepages or inflows of water are detected. These observations are noted on the Records, but may be misleading for the following reasons:

- a) The exploratory hole is rarely left open at the relevant depth for a sufficient time for the water level to reach equilibrium.
- b) A permeable stratum may have been sealed off by the borehole casing.
- c) Water may have been added to the borehole to facilitate progress.
- d) The permeability may have been altered by the excavation/boring/drilling process.

Standpipes or piezometers should be installed when an accurate record of groundwater level is required, however, it should be noted that groundwater levels may vary significantly due to seasonal, climatic or man made effects. Water levels recorded during the investigation and any advice or comment made accordingly may, therefore, not be appropriate to particular foundation, geotechnical design, or temporary works solutions. Long term monitoring of standpipes or piezometers is always recommended when water levels are likely to have a significant effect on design.

3 CHISELLING

The remarks in the Borehole Records contain information on the time spent advancing the borehole by 'Chiselling Techniques', and the depth of borehole over which it was required. Such information may be affected by a wide range of variable factors, unrelated to the geotechnical properties of the strata. Such factors include, but are not restricted to: plant, equipment and operator. The data should, therefore, only be used subjectively and with extreme caution.

4 IDENTIFICATION AND DESCRIPTION OF SOILS - SEE SEPARATE SHEET

The identification system follows the Company's Engineering: Geotechnical Procedures Manual which is based on BS EN ISO 14688-1:2002 and appropriate clarifications in the National Foreword, BS 5930:2015 and BS EN ISO 14689- 1:2003

Relative density terms are given where supported by SPT N values, with the exception of Made Ground. The field assessment of compactness or relative density for coarse grained soils is only given on trial pit records where appropriate assessment of the soils has been undertaken.

Where the terms 'soft to firm', 'firm to stiff' etc. are used they indicate a strength which is close to the borderline between the two terms and cannot be precisely defined by inspection only, and/or which is indicated as borderline or ranging between the two terms after consideration also of in situ and laboratory test results. Consistencies may have been amended in the light of test results

Where 'to' links two terms, as in 'slightly sandy to sandy' this again represents a borderline case or a range, where the precise proportions cannot be determined as outlined previously.

The name of the geological formation is only given where this has been requested and can be determined with confidence (see Clause 41.5 of BS 5930:2015).

5 INTERPRETATION OF THE RESULTS OF THE INVESTIGATION

The description of ground conditions encountered and any engineering interpretation included in the report are based on the results of the boreholes and trial pits and the field and laboratory testing carried out. There may be ground conditions at the site which have not been revealed by the investigation and consequently have not been taken into account.

Any interpolation or extrapolation of strata between exploratory holes shown on any cross sections or site plans is an estimate only of the likely stratification based on general experience of the ground conditions and is subject to the interpretation of the reader.

The term "TOPSOIL" is used in this report to describe the surface, usually organic rich, layer including turf, subsoil and weathered material with roots. The use of this term may not imply that the soil satisfies the requirements of Clause 3 of BS 3882:2015, 'Specification for topsoil', or is suitable for general horticultural and agricultural purposes.

Laboratory test results in this report give the soil properties of individual specimens tested under specified conditions. Individual results or groups of results may not be appropriate for use as design parameters for some geotechnical analyses. The samples may be non-representative, disturbed internally, or prepared and tested under conditions suited for different geotechnical applications. Unless the selection of design parameters is discussed in this report, it is recommended that the advice of a Geotechnical Specialist is sought.

NOTES ON EXPLORATORY HOLE RECORDS

IN SITU TESTING AND SAMPLING

STANDARD PENETRATION TESTS

- S() Standard Penetration Test (SPT). A 50mm diameter split barrel sampler is driven 450mm into the soil using a 63.6kg hammer with a 760mm drop. The penetration resistance (also known as the 'N' value) is expressed as the number of blows required to obtain 300mm penetration below an initial seating drive of 150mm which is taken through any ground which may be disturbed at the base of the borehole. The test is usually completed when the number of blows recorded during the test drive only reaches 50 in soils or 100 in weak rock. If a sample is not recovered in the sampler, a disturbed sample is taken on completion of the test and given the same depth as the top of the Standard Penetration Test drive.
- C() Standard Penetration Test carried out with a 60 degree cone. The test is usually conducted in coarse granular soils or weak rock using the same procedure as for the SPT, but with a 50mm diameter, 60 degree apex, solid cone fitted to the split barrel. A bulk disturbed sample is taken and given the same depth as the top of the test drive.
- The depth on the borehole record at the left hand side of the 'depth' column is that at the start of the normal 450mm penetration. Where the full penetration of 300mm for the test drive is obtained, the penetration resistance ('N' value) is reported in the 'SPT Blows/N' column. If the full penetration of 300mm in the test drive is not obtained, then the length of drive (test length in mm) and the penetration resistance (number of blows) are both reported. Blows through the initial seating drive (normally 150mm) are not reported.
- * in the 'Test Length' column denotes that the blows and penetration were all in the initial Seating Drive section.

OTHER IN SITU TESTS

The following in situ tests are reported on the **Exploratory Hole Records**, in the 'Test' or 'Type' and 'Results' columns where appropriate.

- k In situ Permeability Test - refer to detailed test results for permeability values
- PMT Pressuremeter Test - refer to detailed test results for modulus values, etc.
- VN/R() Borehole Shear Vane Test (undrained shear strength - c_u - in kPa) - refer also to detailed test results, N - 'Natural' or peak shear strength, R - Remoulded shear strength
- VN/R() Hand Shear Vane Test (Direct reading of undrained shear strength in kPa). 'N' and 'R' as above. The values are indicative and should not be taken as being equivalent to laboratory test results. The Pilcon vane results have a factor varying from about a sixth for the 33mm vane to a third for the 19mm vane which reduces the BS1 377 shear vane value. The values presented are therefore approximate and should be treated with great caution if used for design purposes
- PP() Pocket Penetrometer. Unconfined Strength (UCS) reported in kg/cm^2 to the nearest 0.25 kg/cm^2 or kPa with the same accuracy. Equivalent c_u in kPa is very approximately $\text{UCS} \times 50$. Pocket Penetrometers are an aid to logging of cohesive soils, the results are indicative and should not be relied upon. The equipment used is not calibrated
- CBR() California Bearing Ratio Test (CBR%) - refer also to detailed test results
- PID() Photo-Ionisation Detector Readings in headspace of small disturbed chemical samples. Result given in ppm by volume

SAMPLES

- U General purpose open tube sample. Sample normally taken with open tube sampler approximately 0.1m diameter and 0.45m long and driven with 80kg sinker bar and 56kg sliding hammer, unless noted otherwise. "XX" in U100 blows column denotes the number of hammer blows. The height of hammer drop can be variable depending on operator technique. Depths are given to the top of the sample if full penetration and recovery are achieved, otherwise actual lengths of penetration and recovery are given in the appropriate columns.
- U(X) General purpose open tube sample (X) mm diameter
- TW(X) Thin wall (push) sample (X) mm diameter
- P(X) Piston sample (X) mm diameter
- CBR Sample taken in CBR Mould
- D Small disturbed sample (plastic tub or jar with air tight lid)
- B Bulk disturbed sample (polythene bag, tied at neck - size dependent on purpose)
- W Water sample
- # Sample not recovered
- C Core sample (CS – short core, generally about 100mm; CL – long core, generally 200mm to 300mm)
- CD Sample for chemical analysis in a plastic tub
- K Sample for chemical analysis in an amber glass jar
- V Sample for chemical analysis in a glass vial
- CDKV Set of samples for chemical analysis as above
- WAC Sample for Waste Acceptance Criteria
- ES Environmental Sample
- EW Environmental Water Sample

Recommended symbols for soils and rocks – BS 5930:2015



Made ground



Topsoil



Boulders and Cobbles



Gravel



Sand



Silt



Clay



Peat

Composite soil types may signified
By combined symbols, e.g.



Sandy CLAY with a trace of fine medium gravel



Silty slightly clayey SAND



Chalk



Limestone



Conglomerate



Brecia



Coal



Shale



Siltstone



Sandstone



Mudstone/Claystone

IDENTIFICATION AND DESCRIPTION OF SOILS

NOTES Identification and descriptive method and descriptions, generally in accordance with BS5930:2015 Section 6 clauses 41 and 43 and BS EN ISO 14688-1:2002 Additional notes relating to BS EN ISO 14688-2:2004 – modified terms for content of secondary fraction given in Annex B Table B1 are not comparable to 5930 and are not to be used.

Organic Content :- Low - 2 to 6%; Medium - 6 to 20%; High - >20%. Terms not used on borehole records

Carbonate content :- Only noted if field test with dilute HCl undertaken – Carbonate free if no effervescence; Calcareous if slight effervescence; Highly calcareous if strong reaction

Undrained shear strength :- terms from laboratory or in situ tests not given on borehole records.

Very Coarse Soils – described by initially removing very coarse materials and describing residue before adding back the very coarse soils. If residue is cohesive then described as ' (COBBLES / BOULDERS) with low (cobble / boulder) content with (some / much etc) matrix of ' . If residue is granular then described as ' with matrix of ' or as a coarse soil. **Cobbles** :- <10% - low cobble content; 10 to 20% - medium content; >20% - high content; **Boulders** <5% - low boulder content; 5 to 20% - medium content; >20% - high content



GROUND INVESTIGATION SERVICES (SOUTHERN) LTD

Date
April 2018

Borehole No.
One

CLIENT
Didcot Town Council

Ground Level (m OD)

Co-ordinates

Sheet 1 of 1

SITE LOCATION

Edmonds Park Outdoor Services Depot, Park Road, Didcot OX11 8QX

Boring Method:

Diameter of (casings) and
bore (mm) :

Report No.

Windowless Sampling

101 & 116

S.5120

SAMPLES AND TESTS										Windowless Sample Recovery	Water depth m	Reduced Level m (AOD)	Depth (thickness) metres	Legend	Strata Description	Backfill/ Installation	Depth
Depth metres	Type & No.	SPT records ratio = 80%				energy		PID	HSV								
		150mm	75mm	75mm	75mm	N Value		ppm	kN/m2								
GL - 1.00	1/U116									GL-1.00 90%			0.10		Gravel dressing over dark brown gravelly CLAY	ARISINGS	
													(0.30)		DOT Type 1 stone over brick hardcore		
													0.40		MADE GROUND		
													(0.50)		Soft to firm grey mottled brown very silty friable CLAY with some roots <4mm ø		
1.00-1.45	2/DS	1	1	3	4	4	12			1.00-2.00 100%			0.90		Firm light grey mottled olive brown friable silty CLAY with some fine medium angular very weak mudstone gravel and some fine 2mm ø roots		1
1.00-2.00	3/U101												(0.30)		Stiff buff and olive brown clayey SILT with much fine medium coarse angular weak mudstone gravel		
													1.20		Hard clayey SILT (extremely weak MUDSTONE)		
													1.70		UPPER GREENSAND FORMATION		
2.00-2.45	4/DS	13	8	12	15	16	51			2.00-3.00 100%			(1.30)				2
2.00-3.00	5/U101																
3.00-3.45	6/DS	14	11	14	17	19	61						3.00				3
																	4
																	5

Casing Record			Chiselling record			Water level Observations (depths in metres below GL)							
Date	Diam' (mm)	Depth	Time	From (m)	To (m)	Date	Time	strike	Water level (after 20min)	Flow	Casing level	Standing	Remarks
						12.03.18		dry			nil		
						12.03.18	14.00				nil	dry	
Key U Undisturbed Sample B Bulk sample D Disturbed Sample W Water Sample E Environmental Glass Jar/Plastic tub PID Photo-ionisation Detector SPT/S Split Spoon SPT/C Solid Cone HSV Hand Shear Vane Hand pen' Hand penetrometer Groundwater strike Groundwater standing						REMARKS					Logged by: MPB Date: 12.03.18 Checked by: JMH Date: 04.05.18 Approved by: JM Date: 05.04.18		
For explanation of symbols and abbreviations see preface to Borehole records. All depths in metres. Logged in accordance with BS5930:2015										Scale : 1:30			
Ground Investigation Services (Southern) Ltd 40 Home Close, Wootton OX13 6DD Tel 01865 326011			BOREHOLE LOG								Report No. S.5120		Figure 2



GROUND INVESTIGATION SERVICES (SOUTHERN) LTD

Date
April 2018

Borehole No.
Two

CLIENT
Didcot Town Council

Ground Level (m OD)

Co-ordinates

Sheet 1 of 1

SITE LOCATION

Edmonds Park Outdoor Services Depot, Park Road, Didcot OX11 8QX

Boring Method:

Diameter of (casings) and
bore (mm) :

Report No.

Windowless Sampling

101 & 116

S.5120

SAMPLES AND TESTS										Windowless Sample Recovery	Water depth m	Reduced Level m (AOD)	Depth (thickness) metres	Legend	Strata Description	Backfill/ Installation	Depth
Depth metres	Type & No.	SPT records ratio = 80%				energy		PID	HSV								
		150mm	75mm	75mm	75mm	N Value		ppm	kN/m2								
GL - 1.00	1/U116									GL-1.00 90%					Gravel dressing over dark brown gravelly CLAY	ARISINGS	
													0.20		Soft dark greyish brown sandy CLAY with much medium		
													(0.20)		coarse gravel sized stone and tarmac		
													0.40		MADE GROUND		
													(0.30)		Soft light grey gravelly CLAY		
													0.70		Soft to firm dark brown friable clayey SILT with some		
													(0.40)		roots <25mm ø		
1.00-1.45	2/DS	1	1	1	2	2	6			1.00-2.00			1.10		Soft to firm grey mottled brown clayey SILT with some		1
1.00-2.00	3/U101									100%			(0.50)		roots <10mm ø		
													1.60		Firm to stiff light grey mottled olive brown friable clayey		
													(0.80)		SILT and medium coarse angular very weak mudstone		
2.00-2.45	4/DS	4	3	6	9	15	33			2.00-3.00			2.40		GRAVEL		2
2.00-3.00	5/U101									100%			(0.60)		2.00m - very stiff to hard		
													3.00		UPPER GREENSAND FORMATION		3
3.00-3.45	6/DS	9	9	9	11	14	43										4
																	5

Casing Record			Chiselling record			Water level Observations (depths in metres below GL)													
Date	Diam' (mm)	Depth	Time	From (m)	To (m)	Date	Time	strike	Water level (after 20min)	Flow	Casing level	Standing	Remarks						
						12.03.18		dry			nil								
						12.03.18	14.00				nil	dry							
Key U Undisturbed Sample SPT/S Split Spoon B Bulk sample SPT/C Solid Cone D Disturbed Sample HSV Hand Shear Vane W Water Sample Hand pen' Hand penetrometer E Environmental Glass Jar/Plastic tub ∇ Groundwater strike PID Photo-ionisation Detector ▼ Groundwater standing						REMARKS					Logged by:		MPB						
											Date:		12.03.18						
											Checked by		JMH						
											Date:		04.04.18						
						For explanation of symbols and abbreviations see preface to Borehole records. All depths in metres. Logged in accordance with BS5930:2015					Weather: Cold and dry					Approved by		JM	
																Date		05.04.18	
Ground Investigation Services (Southern) Ltd 40 Home Close, Wootton OX13 6DD Tel 01865 326011			BOREHOLE LOG								Report No. S.5120		Figure 3						

Ref No.	Sample		Moisture content	Liquid Limit	Plastic Limit	Plasticity Index	Mass Passing 425µm	Shrinkage potential NHBC Guidelines	Classification BS 1377-Part 2: 1990	Sample Description	
	No.	Depth m									
BH1	1	1.00	39	61	34	25	100	M	CH	Silty CLAY	
BH1	3	2.00	38	58	39	19	100	L	MH	Clayey SILT	
BH2	1	1.00	39	52	32	20	95	L/M	MH	Clayey SILT	
BH2	5	3.00	27	56	31	25	100	M	MH	Clayey SILT	
REMARKS:					CL	Inorganic CLAY low plasticity			ML	Inorganic SILT low compressibility	
					CI	Inorganic CLAY medium plasticity			MI	Inorganic SILT medium compressibility	
					CH	Inorganic CLAY high plasticity			MH	Inorganic SILT high compressibility	
					CV	Inorganic CLAY very high plasticity			MV	Inorganic SILT very high compressibility	
					CE	Inorganic CLAY extremely high plasticity			ME	Inorganic SILT extremely high compressibility	
					N	Non shrinkability			(O)	Organic matter	
					L	Low shrinkability					
					M	Medium shrinkability					
					H	High shrinkability					
CLIENT: Didcot Town Council								Test Methods - BS 1377 : Part 2 : 1990			
SITE: Edmonds Park Outdoor Services Depot, Park Road, Didcot OX11 8QX								3.2 Natural moisture content			
DATE: 29 March 2018								4.3 Liquid limit - cone penetrometer method (definitive method)			
								5.3 Plastic limit and plasticity index			
Ground Investigation Services (Southern) Ltd 40 Home Close, Wootton OX13 6DD Tel 01865 326011				INDEX PROPERTIES						Report No.	Table
										S.5120	1



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Ground Investigation Services
40 Home Close
Wooton
Oxon
OX13 6DD

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



4225

Attention :	Martyn Boughton
Date :	29th March, 2018
Your reference :	
Our reference :	Test Report 18/4208 Batch 1
Location :	Edmunds Park Didcot
Date samples received :	21st March, 2018
Status :	Final report
Issue :	1

Three samples were received for analysis on 21st March, 2018 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Lucas Halliwell
Project Co-ordinator

Contact: Martyn Boughton

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/4208

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/4208

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	Dried and ground solid sample is boiled with dilute hydrochloric acid, the resulting liquor is then analysed.			AD	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No