

SOUTHDEAN ROAD, HUYTON – FALLING HEAD TEST LETTER REPORT

Introduction

This Falling Head Test Report has been prepared at the request of Breck Homes Ltd. Instructions to proceed were received in September 2025.

This report pertains to a c. 2.75 Ha site located to the northeast of Southdean Road, c. 7.7km northeast of Liverpool City Centre, at the approximate post code L14 8UL. The National Ordnance Survey Grid Reference for the centre of the site is 342657E, 392725N.



Figure 1: Aerial image of the site dated August 2022. The approximate site boundary is highlighted in magenta.

The initial ground investigation was carried out between Tuesday 19th August 2025 and Friday 22nd August 2025 and comprised 23 No. machine excavated trial pits and 23 No. dynamic sample boreholes. Combined ground gas and groundwater depth monitoring wells were installed in DS04, DS05, DS09 and DS15 which were utilised to perform falling head tests on 12th September 2025.

A factual report was to be provided to summarise the findings of this investigation. The limitations of the investigation work and report are included in Appendix 1.

Findings

The shallow ground conditions, though noted to vary across site, are generalised below:

- **Asphalt (only across the former playground and social club)** to depths of 0.10m to 0.15m bgl (23.99m to 24.10m AOD), OR:
- **Made Ground Topsoil** comprising soft dark brown slightly gravelly very sandy CLAY to depths of 0.10m to 0.20m bgl (23.99m to 24.05m AOD), underlain by:
- **Made Ground** comprising dark brown, very gravelly, clayey SAND to a depth of 0.30m to 2.00m bgl (24.14m to 22.46m AOD), underlain by:
- **Made Ground** comprising soft to firm bluish grey slightly gravelly sandy silty CLAY to depths of between 0.60m to 1.60m bgl (22.39m to 23.61m AOD), underlain by:
- **Glacial Till** comprising firm to stiff, orangish brown, slightly gravelly, sandy CLAY to a depth of at least 5.45m bgl (18.56m AOD).

The following dynamic sampling boreholes were installed with a standpipe to allow for monitoring of ground gas concentrations and any underlying groundwater which may be present, falling head tests were undertaken in DS04, DS05, DS09 and DS15. Falling head tests were not undertaken within DS07 or DS19 due to their response zones being within Made Ground.

Exploratory Hole	Response Zone Stratum	Response Zone Depth m bgl (m AOD)	
		Top of Response Zone	Base of Response Zone
DS04	Glacial Till comprising firm slightly gravelly sandy CLAY	1.00 (23.17)	5.00 (19.17)
DS05	Glacial Till comprising stiff slightly gravelly sandy CLAY	1.00 (23.29)	2.00 (22.29)
DS07	Made Ground comprising firm slightly gravelly sandy CLAY	0.50 (23.59)	1.00 (23.09)
DS09	Glacial Till comprising stiff slightly gravelly sandy CLAY	1.50 (22.63)	3.00 (21.13)
DS15	Glacial Till comprising firm slightly gravelly sandy CLAY	1.50 (23.01)	3.00 (21.51)
DS19	Made Ground comprising dark brown very gravelly slightly clayey fine to coarse SAND	0.50 (23.68)	1.00 (23.18)

The monitoring wells are constructed of 51mm diameter HDPE plain pipe to the depth of the response zone. The response zones comprise slotted pipe surrounded by a gravel annulus which are sealed

above and below with hydrated bentonite seals. The monitoring wells are topped with a flush, lockable cover

No water strikes were recorded within the dynamic sample boreholes used for falling head tests, however, upon inspection of the wells on arrival on the 12th September water was recorded in 3 No. of the wells, the water depths prior to the tests are presented below:

Exploratory Hole	Water Depth (m bgl)	Well base (m bgl)
DS04	1.66	4.62
DS05	Dry	1.99
DS09	0.45	2.89
DS15	2.18	2.89

An extract of the exploratory hole location plan is shown below:

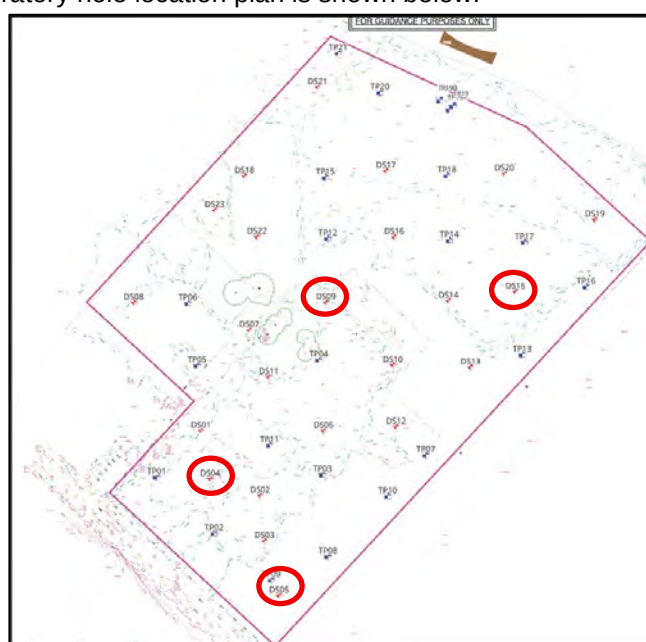


Figure 2: Extract of the exploratory hole location plan, falling head test locations are circled in red.

Falling Head Testing

Falling head tests carried out in DS04, DS05, DS09 and DS15. A singular run was undertaken in all 4 boreholes due to a lack of significant infiltration; additional runs were not undertaken. Infiltration rates could not be determined from the falling head tests results undertaken in DS05, DS09 and DS15 as the water level either did not change or rose slightly during the duration of the falling head tests. It should be noted that it was raining heavily during the time of the infiltration tests, however, this is unlikely to have significantly impacted the results. The following infiltration rates were recorded:

Exploratory Hole	Soil Infiltration Rate (m/sec ²)
DS04	Not achieved
DS05	5.74x10 ⁻⁶
DS09	Not achieved
DS15	Not achieved

The falling head test calculations are contained within Appendix 4.

If additional information is needed, do not hesitate to ask.

Yours sincerely,

Written By:

Authorised by:

Luke Griffith BSc (Hons) FGS
Graduate Geo-Environmental Engineer

Andrew Edwards
MSc, PIEMA, MEnvSoc, FGS, CEnv
Director

Enc

Appendix 1 – Limitations of Report and Investigation Works

Appendix 2 – Figures & Drawings

Appendix 3 – Dynamic Sample Logs and Photographs

Appendix 4 – Falling Head Test Calculations

APPENDIX 1

Limitations of Report and Investigation Works

LIMITATIONS OF REPORT

This consultancy report was compiled and carried out by IGE Consulting Limited ('IGE') for the client, as defined in the main report (the 'client'), on the basis of a defined programme and scope of works and the terms of a contract between IGE and the client. IGE undertook this with all reasonable skill and care, taking into account the limits of the scope of works required by the client, the prevailing site conditions, the time scale involved and the resources, including financial and manpower resources, agreed between IGE and the client. IGE cannot accept responsibility to any parties whatsoever, following the issue of this report, for any matters arising which may be considered outwith the agreed scope of works.

Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices. This report may not be relied upon, or transferred to, by any other party without the written agreement of its author. If a third party relies on this report, it does so wholly at its own and sole risk and IGE disclaims any liability to such parties.

It is IGE's understanding that this report is to be used for the purpose described in the 'Brief' section of this report. That purpose was a significant factor in determining the scope and the services to be provided. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without IGE's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of IGE.

This report is a function of the date it was written and should be read in light of any subsequent changes in legislation, statutory requirements and industry practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of IGE. In the absence of such written advice of IGE, reliance on the report in the future shall be at the client's own and sole risk. Should IGE be requested to review the report in the future, IGE shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between IGE and the client.

The observations and conclusions described in this report are based solely upon the scope of works agreed between the client and IGE. IGE has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. IGE is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the agreed scope of works. For the avoidance of doubt, this report is strictly limited to the nature of contamination contained within the ground and groundwater at the site. The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species (e.g. Japanese Knotweed). It is recommended that the client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected. Where mention has been made to the identification of asbestos or asbestos-containing materials this is for indicative purposes only and does not constitute or replace full and proper surveys.

LIMITATIONS OF INVESTIGATION WORK

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations, the potential exists for ground conditions to be encountered which are different to those considered in this report. The explored extent of the site area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried

out for a limited number of parameters, based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Exploratory Holes

Where exploratory holes have been carried out as part of this investigation, the spacing has been determined to provide a reasonable indication of the general ground conditions across the site, but the number has ultimately been limited by commercial constraint and / or client specification. The findings of the exploratory holes relate specifically to the exploratory hole locations and are no absolute guarantee of the ground conditions between such locations. Due allowance should be made for the possibility of variation in conditions between exploratory hole locations.

Extent of Contamination Testing

The extent of contaminated land testing carried out on samples has been specified by the client or obtained from the site has been determined in accordance with the latest legal guidance issued by the government to provide, with reasonable certainty, the probable general levels of contamination present on site that could pose a significant hazard to human health or waters. The extent of site investigation works including chemical testing has also been limited by reasonable commercial constraints and / or client specification. Although extensive testing of samples has been carried out, the volume of samples taken for testing are a minute fraction of the total volume of soils and groundwater present on site. Therefore, there is a residual risk that undetected pockets of contamination may be present on site, situated between testing locations.

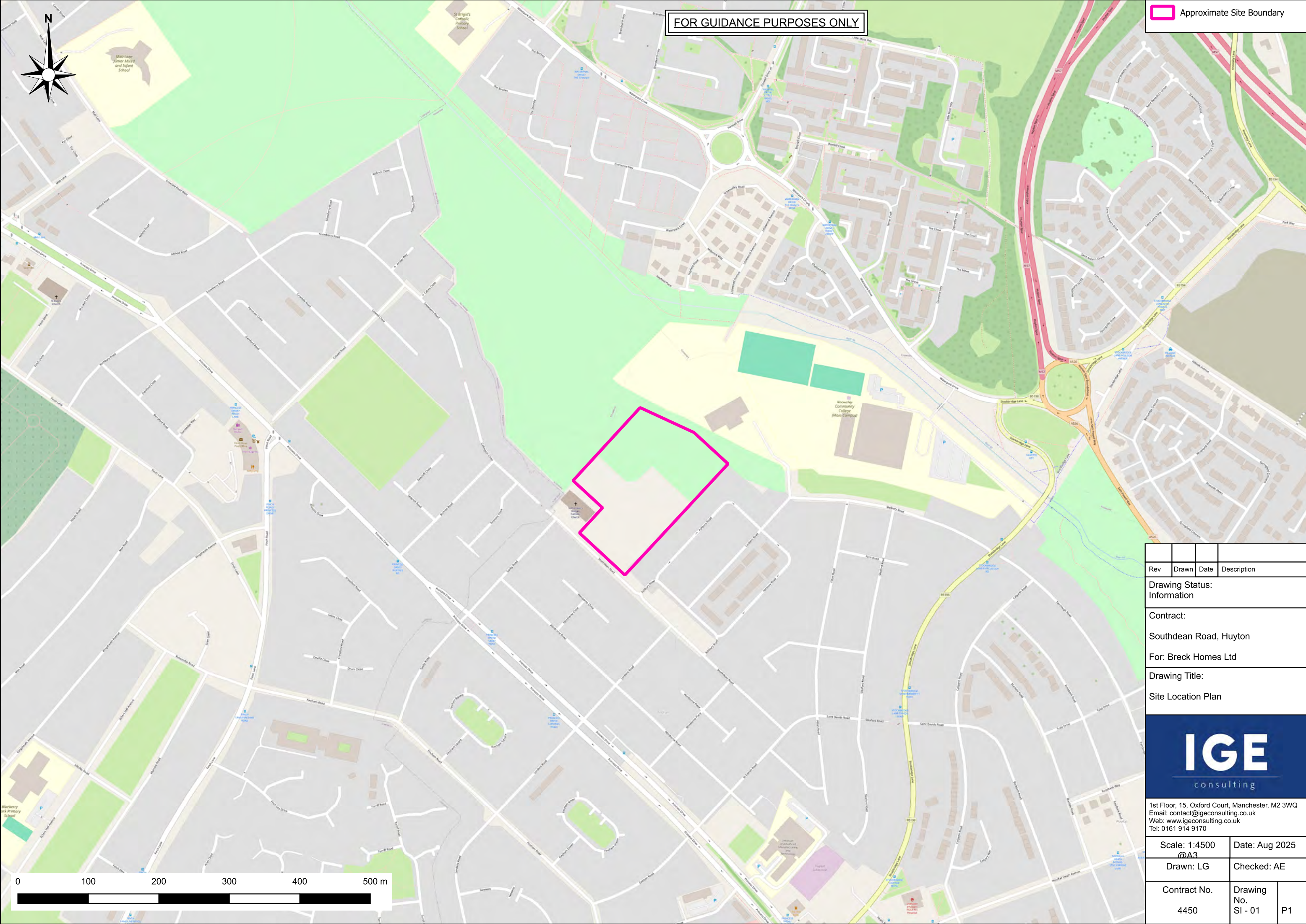
When investigating or developing potentially contaminated land it is important to recognise that sub-surface conditions may vary spatially and temporally. The absence of certain ground, ground gas, contamination or groundwater conditions at the positions tested is not a guarantee that such conditions do not exist anywhere across the site. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

Extent of Geo-Environmental Studies

The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species e.g. Japanese Knotweed. It is recommended that the Client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected. Where mention has been made to the identification asbestos or asbestos-containing materials this is for indicative purposes only and does not constitute or replace a full and proper survey. If an Unexploded Ordnance (UXO) report has been obtained within the report, it has been so on the basis of Health and Safety concerns and no assessment has been made other than transcribing the recommendations of the sub-contractor contained within the report. In terms of a potential contaminative source, unless ordnance has been manufactured / stored on site, UXOs will only be determined as a contaminative source following a positive identification on site.

APPENDIX 2

Figures and Drawings



FOR GUIDANCE PURPOSES ONLY

Approximate Site Boundary

Rev	Drawn	Date	Description
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Drawing Status:
Information

Contract:

Southdean Road, Huyton

For: Breck Homes Ltd

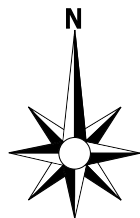
Drawing Title:

Site Location Plan



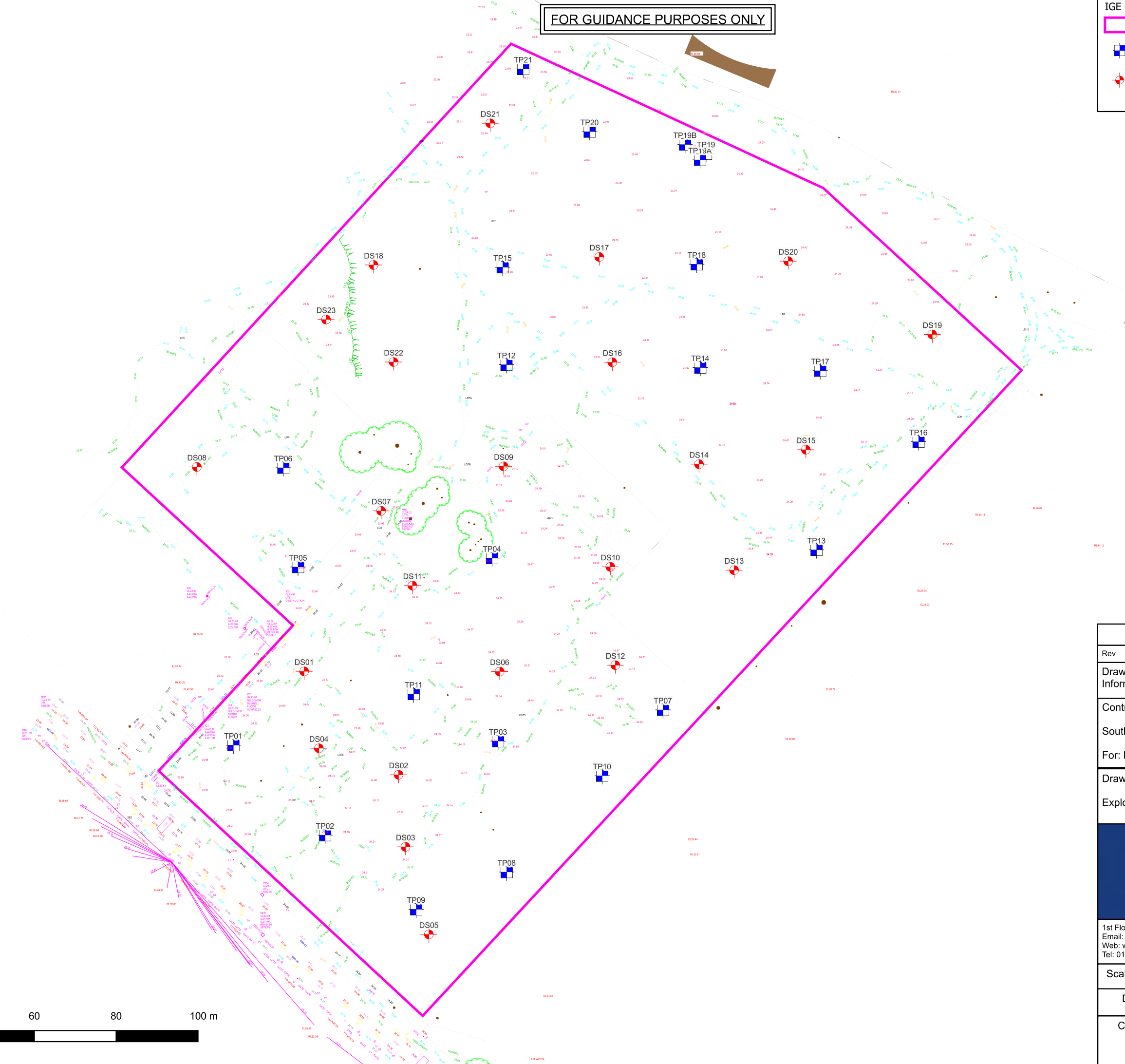
1st Floor, 15, Oxford Court, Manchester, M2 3WQ
Email: contact@igeconsulting.co.uk
Web: www.igeconsulting.co.uk
Tel: 0161 914 9170

Scale: 1:4500 @A3	Date: Aug 2025	
Drawn: LG	Checked: AE	
Contract No. 4450	Drawing No. SI - 01	P1



FOR GUIDANCE PURPOSES ONLY

- IGE GI
- Approximate Site Boundary
 - Trial Pits
 - Dynamic Sample Boreholes



Rev	Drawn	Date	Description
Drawing Status: Information			
Contract: Southdean Road, Huyton			
For: Breck Homes Ltd			
Drawing Title: Exploratory Hole Location Plan			
IGE consulting 1st Floor, 15, Oxford Court, Manchester, M2 3WQ Email: contact@igeconsulting.co.uk Web: www.igeconsulting.co.uk Tel: 0161 914 9170			
Scale: 1:900@A3		Date: Aug 2025	
Drawn: LG		Checked: AE	
Contract No. 4450		Drawing No. SI - 05	P1

APPENDIX 3

Dynamic Sample Logs and Photographs

IGE consulting		Dynamic Sampler DS04 Sheet 1 of 1							
		Hole Type DS	Easting 342604.67	Northing 392655.82	Ground Level (m) 24.17	Scale 1:35			
		Project Name Southdean Road	Project No. 4450	Start Date 2025-08-19	End Date 2025-08-19				
Client Breck Homes Ltd		Consultant IGE Consulting Ltd		Contractor					
Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth (thickness)	Strata		
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description	
		0.40	ES		23.57	0.60		Light brown gravelly slightly clayey fine to coarse SAND. Gravel is very angular to subrounded fine to coarse of red brick, plastic, coal, mudstone and sandstone. [MADE GROUND]	0.5
		0.80 0.80	ES B		23.07	1.10		Stiff to very stiff orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to subangular fine to coarse of sandstone, mudstone and coal. [GLACIAL TILL]	1.0
		1.20 1.20	SPT D	N=14 (4,3/3,4,4,3)				Firm orangish brown slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of mudstone and sandstone. [GLACIAL TILL]	1.5
		1.70 1.80	HV HV	83 (kPa) 84 (kPa)					2.0
		2.00 2.00	SPT D	N=17 (4,3/4,4,4,5)					2.5
								Becoming stiff. (2.50m)	3.0
		3.00 3.00	SPT D	N=16 (4,4/4,4,4,4)		(4.35)			3.5
		3.50	B						4.0
		4.00 4.00	SPT D	N=18 (5,4/4,4,5,5)				Becoming firm. (3.90m)	4.5
		5.00 5.00	SPT D	N=21 (5,5/5,4,6,6)				Gravel sized pockets of fine to coarse SAND. (4.80m)	5.0
					18.72	5.45	End of Borehole at 5.45m		5.5
									6.0
									6.5
									7.0
Remarks Terminated at target depth. Borehole dipped upon completion; water at 4.07m bgl, base at 4.70m bgl.							Method, Plant, Stability, Dimensions 0.00 - 1.20m 1.20 - 5.45m		Logger AH AH
Checked By: LM Approved By: LM									

	Dynamic Sampler				DS04
	SUPPLEMENTARY INFO				
	Hole Type DS	Easting 342604.67	Northing 392655.82	Ground Level (m) 24.17	Scale 1:35
Project Name Southdean Road		Project No. 4450	Start Date 2025-08-19	End Date 2025-08-19	
Client Breck Homes Ltd		Consultant IGE Consulting Ltd	Contractor		
Water Strike - General					
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks	
				Borehole dipped upon completion; water at 4.07m bgl, base at 4.70m bgl.	
SPT - Details					
Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.20 (S)			DART504	67	N=14 (4,3/3,4,4,3)
2.00 (S)			DART504	67	N=17 (4,3/4,4,4,5)
3.00 (S)			DART504	67	N=16 (4,4/4,4,4,4)
4.00 (S)			DART504	67	N=18 (5,4/4,4,5,5)
5.00 (S)			DART504	67	N=21 (5,5/5,4,6,6)
Sample Details					
Sample ID	Type	Water Level (m)	Remarks		
	ES				
	ES				
	B				
	D				
	D				
	D				
	B				
	D				
	D				
Depth Related Remarks					
Top Depth (m)	Base Depth (m)	Remarks			
1.20	2.00	87mm - 90% recovery			
2.00	3.00	77mm - 95% recovery			
3.00	4.00	67mm - 90% recovery			
4.00	5.00	67mm - 100% recovery			
Remarks Terminated at target depth. Borehole dipped upon completion; water at 4.07m bgl, base at 4.70m bgl.					
					Method, Plant, Stability, Dimensions 0.00 - 1.20m IP Hand Tools 1.20 - 5.45m DS Archway DART 504
Checked By: LM Approved By: LM					

Hole Type DS	Easting 342604.67	Northing 392655.82	Ground Level (m) 24.17	Scale 1:35
Project Name Southdean Road	Project No. 4450		Start Date 2025-08-19	End Date 2025-08-19

Client
Breck Homes Ltd

Consultant
IGE Consulting Ltd

Contractor



Remarks

Terminated at target depth. Borehole dipped upon completion; water at 4.07m bgl, base at 4.70m bgl.

Method, Plant, Stability, Dimensions

0.00 - 1.20m IP Hand Tools
1.20 - 5.45m DS Archway DART 504

Logger

AH
AH

Checked By: LM Approved By: LM

IGE consulting		Dynamic Sampler DS05 Sheet 1 of 1							
		Hole Type DS	Easting 342631.56	Northing 392610.35	Ground Level (m) 24.25	Scale 1:35			
		Project Name Southdean Road	Project No. 4450	Start Date 2025-08-19	End Date 2025-08-19				
Client Breck Homes Ltd		Consultant IGE Consulting Ltd		Contractor					
Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth (thickness)	Strata		
		Depth (m)	Type/Ref	Results	(m)	(m)	Legend	Description	
		0.45	ES		23.65	(0.60)		Light brown gravelly slightly clayey fine to coarse SAND. Gravel is very angular to subrounded fine to coarse of sandstone, mudstone, red brick, ceramic and plastic. [MADE GROUND]	0.5
		1.10	B			0.60		Stiff orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to subrounded fine to coarse of sandstone, mudstone and quartzite. [GLACIAL TILL]	1.0
		1.20	SPT	N=17 (4,3/4,4,4,5)				Becoming firm to stiff. (1.20m)	1.5
		1.20	D						2.0
		1.70	HV	89 (kPa)					2.5
		1.80	HV	91 (kPa)					3.0
		2.00	SPT	N=19 (5,4/4,5,5,5)		(2.75)		Becoming stiff. (2.60m)	3.5
		2.00	D						4.0
		2.50	B						4.5
		3.00	SPT	N=50 for 200mm (6,14/19,22,9 for 50mm)					5.0
		3.00	D		20.90	3.35		End of Borehole at 3.35m	5.5
Remarks Terminated due to refusal. Borehole dipped upon completion; borehole dry, base at 2.70m bgl.							Method, Plant, Stability, Dimensions 0.00 - 1.20m 1.20 - 3.35m		Logger AH AH
Checked By: LM Approved By: LM									

	Dynamic Sampler				DS05
	SUPPLEMENTARY INFO				
	Hole Type DS	Easting 342631.56	Northing 392610.35	Ground Level (m) 24.25	Scale 1:35
Project Name Southdean Road		Project No. 4450	Start Date 2025-08-19	End Date 2025-08-19	
Client Breck Homes Ltd		Consultant IGE Consulting Ltd	Contractor		
Water Strike - General					
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks	
SPT - Details					
Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.20 (S)			DART504	67	N=17 (4,3/4,4,4,5)
2.00 (S)			DART504	67	N=19 (5,4/4,5,5,5)
3.00 (S)			DART504	67	N=50 for 200mm (6,14/19,22,9 for 50mm)
Sample Details					
Sample ID	Type	Water Level (m)	Remarks		
	ES				
	B				
	D				
	D				
	B				
	D				
Depth Related Remarks					
Top Depth (m)	Base Depth (m)	Remarks			
1.20	2.00	87mm - 100% recovery			
2.00	3.00	77mm - 100% recovery			
Remarks Terminated due to refusal. Borehole dipped upon completion; borehole dry, base at 2.70m bgl.			Method, Plant, Stability, Dimensions		Logger
			0.00 - 1.20m IP Hand Tools		AH
			1.20 - 3.35m DS Archway DART 504		AH
Checked By: LM Approved By: LM					

Hole Type DS	Easting 342631.56	Northing 392610.35	Ground Level (m) 24.25	Scale 1:35
Project Name Southdean Road	Project No. 4450		Start Date 2025-08-19	End Date 2025-08-19

Client
Breck Homes Ltd

Consultant
IGE Consulting Ltd

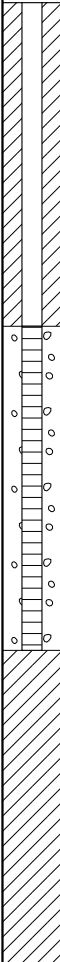
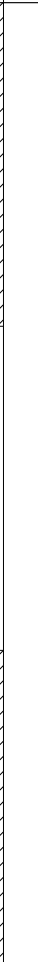
Contractor



Remarks
Terminated due to refusal. Borehole dipped upon completion; borehole dry, base at 2.70m bgl.

Method, Plant, Stability, Dimensions	Logger
0.00 - 1.20m IP Hand Tools	AH
1.20 - 3.35m DS Archway DART 504	AH

Checked By: LM Approved By: LM

IGE consulting		Dynamic Sampler				DS09				
						Sheet 1 of 1				
		Hole Type DS	Easting 342649.82	Northing 392724.68	Ground Level (m) 24.13	Scale 1:35				
Project Name Southdean Road			Project No. 4450		Start Date 2025-08-20	End Date 2025-08-20				
Client Breck Homes Ltd			Consultant IGE Consulting Ltd			Contractor				
Inst/ Backfill	Water Levels	Samples and Tests			Level	Depth	Strata			
		Depth (m)	Type/ Ref	Results	(m)	(m)	Legend	Description		
		0.50	ES		23.93	(0.20)		ASPHALT. [MADE GROUND]		
						(0.20)				
						(0.20)				
		23.73	0.40		23.73	0.40		CONCRETE [MADE GROUND]		
									Light brown gravelly slightly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of red brick and sandstone. [MADE GROUND]	
		23.13	1.00						Firm blueish grey slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of red brick, sandstone, mudstone and coal. [MADE GROUND]	
22.93	1.20						Stiff orangish brown slightly gravelly slightly sandy CLAY. Gravel is angular to subangular fine to coarse of mudstone and sandstone. [GLACIAL TILL]			
1.80	HV	98 (kPa)								
1.90	HV	90 (kPa)								
2.00	SPT	N=15 (3,2/3,4,4,4)								
2.00	D									
3.00	SPT	N=14 (3,3/3,4,3,4)								
3.00	D									
3.50	B									
4.00	SPT	N=50 for 185mm (17,8/19,20,11 for 35mm)								
4.00	D									

	Dynamic Sampler				DS09
	SUPPLEMENTARY INFO				
	Hole Type DS	Easting 342649.82	Northing 392724.68	Ground Level (m) 24.13	Scale 1:35
Project Name Southdean Road		Project No. 4450	Start Date 2025-08-20	End Date 2025-08-20	
Client Breck Homes Ltd		Consultant IGE Consulting Ltd	Contractor		
Water Strike - General					
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks	
				Borehole dipped upon completion; borehole is dry, base at 2.97m bgl.	
SPT - Details					
Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.20 (S)			DART504	67	N=8 (2,2/2,2,2,2)
2.00 (S)			DART504	67	N=15 (3,2/3,4,4,4)
3.00 (S)			DART504	67	N=14 (3,3/3,4,3,4)
4.00 (S)			DART504	67	N=50 for 185mm (17,8/19,20,11 for 35mm)
Sample Details					
Sample ID	Type	Water Level (m)	Remarks		
	ES				
	ES				
	B				
	D				
	ES				
	D				
	D				
	B				
	D				
Depth Related Remarks					
Top Depth (m)	Base Depth (m)	Remarks			
1.20	2.00	87mm - 80% recovery			
2.00	3.00	77mm - 80% recovery			
3.00	4.00	67mm - 100% recovery			
Remarks Terminated due to refusal. Borehole dipped upon completion; borehole is dry, base at 2.97m bgl.			Method, Plant, Stability, Dimensions 0.00 - 1.20m IP Hand Tools 1.20 - 4.24m DS Archway DART 504		
			Logger AH AH		
Checked By: LM Approved By: LM					

Hole Type DS	Easting 342649.82	Northing 392724.68	Ground Level (m) 24.13	Scale 1:35
Project Name Southdean Road	Project No. 4450		Start Date 2025-08-20	End Date 2025-08-20

Client
Breck Homes Ltd

Consultant
IGE Consulting Ltd

Contractor



Remarks

Terminated due to refusal. Borehole dipped upon completion; borehole is dry, base at 2.97m bgl.

Method, Plant, Stability, Dimensions

0.00 - 1.20m IP Hand Tools
1.20 - 4.24m DS Archway DART 504

Logger

AH
AH

Checked By: LM Approved By: LM



	Dynamic Sampler				DS15
	SUPPLEMENTARY INFO				
	Hole Type DS	Easting 342723.70	Northing 392728.75	Ground Level (m) 24.51	Scale 1:35
Project Name Southdean Road		Project No. 4450	Start Date 2025-08-21	End Date 2025-08-21	
Client Breck Homes Ltd		Consultant IGE Consulting Ltd	Contractor		
Water Strike - General					
Struck (m)	Seal Depth (m)	Casing Depth (m)	Date and Time	Remarks	
				Borehole dipped upon completion; borehole is dry, base at 3.30m bgl.	
SPT - Details					
Top Depth (m) (Type)	Casing Depth (m)	Water Depth (m)	Hammer Serial No.	Energy Ratio (%)	Results
1.20 (S)			DART504	67	N=15 (4,3/3,4,4,4)
2.00 (S)			DART504	67	N=17 (3,3/3,5,4,5)
3.00 (S)			DART504	67	N=50 for 290mm (5,8/12,13,15,12 for 65mm)
Sample Details					
Sample ID	Type	Water Level (m)	Remarks		
	ES				
	ES				
	B				
	D				
	D				
	B				
	D				
Depth Related Remarks					
Top Depth (m)	Base Depth (m)	Remarks			
1.00	2.00	87mm - 70% recovery			
2.00	3.00	77mm - 95% recovery			
Remarks Terminated due to refusal. Borehole dipped upon completion; borehole is dry, base at 3.30m bgl.			Method, Plant, Stability, Dimensions		Logger
			0.00 - 1.20m IP Hand Tools		AH
			1.20 - 3.44m DS Archway DART 504		AH
Checked By: LM Approved By: LM					

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Client
Breck Homes Ltd

Consultant
IGE Consulting Ltd

Contractor



Remarks

Terminated due to refusal. Borehole dipped upon completion; borehole is dry, base at 3.30m bgl.

Method, Plant, Stability, Dimensions

0.00 - 1.20m IP Hand Tools
1.20 - 3.44m DS Archway DART 504

Logger

AH
AH

Checked By: LM Approved By: LM

APPENDIX 4

Falling Head Test Calculations

Window Sample Hole Falling Head Test

DS05

FIELD MEASUREMENTS	Time (min)	Water Depth (m below top of casing)	Head (from water level) (m)	INPUT PARAMETERS	Borehole Depth	1.990	m
	0.00	1.370	0.620		Casing Depth	0.000	m
	0.50	1.420	0.570		Difference in Length between bottom of casing/boreholes, L	1.990	m
	1.00	1.430	0.560		Water Depth	1.990	m
	1.50	1.450	0.540		Casing Diameter, D	0.050	m
	2.00	1.460	0.530		Cross Sectional area of casing, A	0.002	m ²
	2.50	1.460	0.530		Height of casing above ground level	0.000	m
	3.00	1.470	0.520		Approximate long term water table (or base of BH see rules)	1.990	m
	3.50	1.480	0.510		Borehole End Condition (important to get right)	d	
	4.00	1.480	0.510		a= Soil flush with bottom at impervious boundary	0.100	
	4.50	1.490	0.500		b= Soil flush with bottom in uniform soil	0.138	
	5.00	1.490	0.500		c= Well point or hole extended at impervious boundary	2.731	
	6.00	1.500	0.490		d= Well point or hole extended in uniform soil	3.260	
	7.00	1.500	0.490		e= Soil in casing with bottom at impervious boundary	0.001	
	8.00	1.500	0.490		f= Soil in casing with bottom in uniform soil	0.001	
	9.00	1.500	0.490		Intake factor, F (Select correct end condition)	3.260	
	10.00	1.500	0.490		Variable Head, H ¹	0.620	m
	20.00	1.540	0.45		Time, T ¹	0.000	min
	30.00	1.560	0.43		Variable Head, H ²	0.350	m
	40.00	1.560	0.430		Time, T ²	60.000	min
	50.00	1.620	0.370	K unsat (m/s)	5.74E-06		
	60.00	1.640	0.350				
				RULES	1. A borehole location MUST be entered to generate <i>k</i> .		
					2. Enter all values in shaded cells: A, F, L and k are calculated automatically in the		
					3. Head is measured to the base of the BH, or use WL if higher.		
					4. End conditions referenced in BS 5930 see notes. Usually d. <u>Formula for uncased hole.</u>		
					5. If groundwater level is below test, k is not permeability, but a result of the test.		
					6. Usually T ¹ =0 and T ² =60, input H at these times.		

DS04

Window Sample Hole Falling Head Test

FIELD MEASUREMENTS	Time (min)	Water Depth (m below top of casing)	Head (from water level) (m)	INPUT PARAMETERS	Borehole Depth	4.620	m
	0.00	3.360	-1.700		Casing Depth	0.000	m
	0.50	3.360	-1.700		Difference in Length between bottom of casing/boreholes, L	4.620	m
	1.00	3.360	-1.700		Water Depth	1.660	m
	1.50	3.360	-1.700		Casing Diameter, D	0.050	m
	2.00	3.360	-1.700		Cross Sectional area of casing, A	0.002	m ²
	2.50	3.360	-1.700		Height of casing above ground level	0.000	m
	3.00	3.360	-1.700		Approximate long term water table (or base of BH see rules)	1.660	m
	3.50	3.360	-1.700		Borehole End Condition (important to get right)	d	
	4.00	3.360	-1.700		a= Soil flush with bottom at impervious boundary	0.100	
	4.50	3.360	-1.700		b= Soil flush with bottom in uniform soil	0.138	
	5.00	3.360	-1.700		c= Well point or hole extended at impervious boundary	5.355	
	6.00	3.360	-1.700		d= Well point or hole extended in uniform soil	6.364	
	7.00	3.360	-1.700		e= Soil in casing with bottom at impervious boundary	0.000	
	8.00	3.360	-1.700		f= Soil in casing with bottom in uniform soil	0.000	
	9.00	3.360	-1.700		Intake factor, F (Select correct end condition)	6.364	
	10.00	3.360	-1.700		Variable Head, H ¹	3.360	m
	20.00	3.360	-1.7		Time, T ¹	0.000	min
	30.00	3.360	-1.7		Variable Head, H ²	2.910	m
	40.00	3.360	-1.700		Time, T ²	60.000	min
	50.00	3.360	-1.700	K unsat (m/s)	Not achieved		
	60.00	3.360	-1.700				
				RULES	1. A borehole location MUST be entered to generate <i>k</i> .		
					2. Enter all values in shaded cells: A, F, L and k are calculated automatically in the		
					3. Head is measured to the base of the BH, or use WL if higher.		
					4. End conditions referenced in BS 5930 see notes. Usually d. <u>Formula for uncased hole.</u>		
					5. If groundwater level is below test, k is not permeability, but a result of the test.		
					6. Usually T ¹ =0 and T ² =60, input H at these times.		

DS09

Window Sample Hole Falling Head Test

FIELD MEASUREMENTS	Time (min)	Water Depth (m below top of casing)	Head (from water level) (m)	INPUT PARAMETERS	Borehole Depth	2.890	m
	0.00	1.530	-1.080		Casing Depth	0.000	m
	0.50	1.530	-1.080		Difference in Length between bottom of casing/boreholes, L	2.890	m
	1.00	1.530	-1.080		Water Depth	0.450	m
	1.50	1.530	-1.080		Casing Diameter, D	0.050	m
	2.00	1.530	-1.080		Cross Sectional area of casing, A	0.002	m ²
	2.50	1.530	-1.080		Height of casing above ground level	0.000	m
	3.00	1.530	-1.080		Approximate long term water table (or base of BH see rules)	0.450	m
	3.50	1.530	-1.080		Borehole End Condition (important to get right)	d	
	4.00	1.530	-1.080		a= Soil flush with bottom at impervious boundary	0.100	
	4.50	1.530	-1.080		b= Soil flush with bottom in uniform soil	0.138	
	5.00	1.530	-1.080		c= Well point or hole extended at impervious boundary	3.667	
	6.00	1.530	-1.080		d= Well point or hole extended in uniform soil	4.368	
	7.00	1.530	-1.080		e= Soil in casing with bottom at impervious boundary	0.001	
	8.00	1.530	-1.080		f= Soil in casing with bottom in uniform soil	0.001	
	9.00	1.530	-1.080		Intake factor, F (Select correct end condition)	4.368	
	10.00	1.530	-1.080		Variable Head, H ¹	1.530	m
	20.00	1.530	-1.08		Time, T ¹	0.000	min
	30.00	1.530	-1.08		Variable Head, H ²	1.430	m
	40.00	1.530	-1.080		Time, T ²	60.000	min
	50.00	1.530	-1.080	K unsat (m/s)	Not achieved		
	60.00	1.530	-1.080				
				RULES	1. A borehole location MUST be entered to generate <i>k</i> .		
					2. Enter all values in shaded cells: A, F, L and k are calculated automatically in the		
					3. Head is measured to the base of the BH, or use WL if higher.		
					4. End conditions referenced in BS 5930 see notes. Usually d. <u>Formula for uncased hole.</u>		
					5. If groundwater level is below test, k is not permeability, but a result of the test.		
					6. Usually T ¹ =0 and T ² =60, input H at these times.		

DS15

Window Sample Hole Falling Head Test

FIELD MEASUREMENTS	Time (min)	Water Depth (m below top of casing)	Head (from water level) (m)	INPUT PARAMETERS	Borehole Depth	2.890	m
	0.00	1.830	0.350		Casing Depth	0.000	m
	0.50	1.830	0.350		Difference in Length between bottom of casing/boreholes, L	2.890	m
	1.00	1.830	0.350		Water Depth	2.180	m
	1.50	1.830	0.350		Casing Diameter, D	0.050	m
	2.00	1.830	0.350		Cross Sectional area of casing, A	0.002	m ²
	2.50	1.830	0.350		Height of casing above ground level	0.000	m
	3.00	1.830	0.350		Approximate long term water table (or base of BH see rules)	2.180	m
	3.50	1.830	0.350		Borehole End Condition (important to get right)	d	
	4.00	1.830	0.350		a= Soil flush with bottom at impervious boundary	0.100	
	4.50	1.830	0.350		b= Soil flush with bottom in uniform soil	0.138	
	5.00	1.830	0.350		c= Well point or hole extended at impervious boundary	3.667	
	6.00	1.830	0.350		d= Well point or hole extended in uniform soil	4.368	
	7.00	1.830	0.350		e= Soil in casing with bottom at impervious boundary	0.001	
	8.00	1.830	0.350		f= Soil in casing with bottom in uniform soil	0.001	
	9.00	1.830	0.350		Intake factor, F (Select correct end condition)	4.368	
	10.00	1.830	0.350		Variable Head, H ¹	0.350	m
	20.00	1.820	0.36		Time, T ¹	0.000	min
	30.00	1.820	0.36		Variable Head, H ²	0.360	m
	40.00	1.820	0.360		Time, T ²	60.000	min
	50.00	1.820	0.360	K unsat (m/s)	Not achieved		
	60.00	1.820	0.360				
				RULES	1. A borehole location MUST be entered to generate <i>k</i> .		
					2. Enter all values in shaded cells: A, F, L and k are calculated automatically in the		
					3. Head is measured to the base of the BH, or use WL if higher.		
					4. End conditions referenced in BS 5930 see notes. Usually d. <u>Formula for uncased hole.</u>		
					5. If groundwater level is below test, k is not permeability, but a result of the test.		
					6. Usually T ¹ =0 and T ² =60, input H at these times.		

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