



## FACTUAL REPORT ON GROUNDWATER MONITORING INVESTIGATION

### Plot B The Airfields Deeside

**Reference**

**4671-JPG-XX-XX-RP-G-0660-S2-P01**

**Date**

**March 2023**

**Author**

**DMH**

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Email Received  
14th March 2023  
Marshall (MCWY) Ltd





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JPG (Leeds) Limited. Plot B, The Airfields, Deeside. Exploratory Hole Location Plan (AS BUILT). Drawing Ref. 4671-JPG-ZZ-ZZ-DR-G-1102-S2-P01, dated March 2023.

Building Management Services. Industrial Development, Plot B, The Airfields, Deeside. Site Layout Plan – Plot B. Drawing Ref. M3125-Rev.C. Dated September 2021 for Commercial Development Projects Limited.

### Appendix B Exploratory Hole Logs

### Appendix C Notes on Limitations

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## CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Commercial Development Projects Limited  
Marshall House  
Huddersfield Road  
ELLAND  
West Yorkshire  
HX5 9BW

This report has been prepared for the sole use and reliance of the above-named party. This report shall not be relied upon or transferred to any other parties without the express written authorisation of JPG (Leeds) Limited. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party.

## DOCUMENT HISTORY

Revision	Date	Revision Details	Status	Author(s)	Approved
P01	10.03.2023	First Issue	Final	DMH	RJM

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## 1.0 INTRODUCTION

### 1.1 Instruction

JPG Leeds Limited (JPG) has been instructed by Commercial Development Projects Limited to provide a factual report on a groundwater monitoring investigation for the commercial development at Plot B, The Airfields, Deeside.

### 1.2 Objectives

The objective of these works was to monitor the groundwater levels for up to four weeks in order to assess whether the tide has any influence on groundwater levels on the plot.

### 1.3 Location

Plot B forms part of a large mixed-use development at The Airfields, Deeside. It is proposed to develop this plot for a commercial end-use. The site is located in the northern part of The Airfields development, approximately 6km northwest of Chester; the approximate centre of Plot B is located at NGR 332560, 369979.

A site location plan is provided as Figure 1 in Appendix A.

### 1.4 Site Description and Topography

The site is irregular in shape and occupies an area of approximately 9.90 ha. Access to the site can be gained along the southern and western boundaries.

The site comprises generally flat undeveloped grassland with some trees along the boundaries.

The site's northern boundary is formed by Chester Millenium Greenaway, beyond which is smaller commercial units within Deeside Industrial Estate and to the east by Amazon DCE1. The site's southern boundary is formed by a road, beyond which is undeveloped land (proposed for residential dwellings) and to the west by a road, beyond which is undeveloped land (proposed for commercial units).

An aerial photograph of the site is provided as Figure 2 in Appendix A.

### 1.5 Proposed Development

The proposed development comprises a commercial unit with an associated service yard, car parking and soft landscaping. The schematic site layout plan is referenced below, a copy is provided in Appendix A.

- Building Management Services. Industrial Development, Plot B, The Airfields, Deeside. Site Layout Plan – Plot B. Drawing Ref. M3125-Rev.C. Dated September 2021 for Commercial Development Projects Limited.



## 1.6 Previous Reports

JPG have completed a desk study report, geoenvironmental ground investigation and remedial strategy for the site, these are referenced below:

- JPG (Leeds) Limited. Geoenvironmental Desk Study Report. Plot B, The Airfields, Deeside. Report Ref. 4671-JPG-XX-XX-RP-G-0644-S2-P01. Dated June 2022 for Commercial Development Projects Limited.
- JPG (Leeds) Limited. Geoenvironmental Ground Investigation Report. Plot B, The Airfields, Deeside. Report Ref. 4671-JPG-XX-XX-RP-G-0645-S2-P01. Dated June 2022 for Commercial Development Projects Limited.
- JPG (Leeds) Limited. Remedial Strategy Report. Plot B, The Airfields, Deeside. Report Ref. 4671-JPG-XX-XX-RP-G-0646-S2-P02. Dated June 2022 for Commercial Development Projects Limited.

## 1.7 Limitations

The general limitations to the nature of the investigation are outlined in Appendix C.

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## 2.0 FIELDWORK

The scope of works and ground investigation was designed by JPG. The fieldwork was carried out between the 10 February and the 8 March 2023.

The investigation comprised the drilling of 4No Window Sample Boreholes.

Solinst Levellogger 5 Juniors were installed in the boreholes. These monitored the groundwater level every 30 minutes, commencing at 2.00pm on 10 February and ending at 9.00am on 8 March.

A Solinst Barologger 5 was installed in WS202 and monitored the barometric pressure every 30 minutes, commencing at 2.00pm on 10 February and ending at 9.00am on 8 March.

The works undertaken are summarised in Table 2.0 below.

**Table 2.0 – Summary of Ground Investigation**

Investigation Method	No of Positions	Maximum Depth (m bgl)	Monitoring Wells	Monitoring
Window Sample Boreholes	4 (WS201 and WS204)	4.00	4 x 50mm	WL

bgl – below ground level.

WL – continuous monitoring with Solinst Levellogger 5 Junior.

The works were carried out under the full-time supervision of an engineer from JPG.

The exploratory hole location plan (as-built) is provided in Appendix A and copies of the exploratory hole logs are provided in Appendix B.

The ground investigation has been undertaken in general accordance with the techniques outlined in BS5930:2015+A1:2020 Code of Practice for Ground Investigations.

## 2.1 Surveying

Exploratory locations were surveyed using Leica GPS equipment (accuracy +/- 10mm). The surveyed positions were then transferred onto the survey drawing.

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### 3.0 GROUNDWATER MONITORING

The groundwater level was monitored in every borehole at 30 minute intervals for 26 days. The data readings from the waterloggers were uploaded into the Solinst Levellogger software (Version 4.6.2), the data was compensated with the barologger data readings and monitored water depth recorded during the ground investigation.

A summary of the monitored groundwater levels for each of the boreholes are presented in Tables 3.0 to Table 3.3.

**Table 3.0 – Recorded Groundwater Levels in WS201**

Borehole	Date (dd/mm/yyyy)	Level (m AOD)		
		Minimum	Maximum	Average
WS201	10/02/2023	3.480	3.486	3.483
	11/02/2023	3.474	3.482	3.478
	12/02/2023	3.471	3.464	3.474
	13/02/2023	3.464	3.473	3.468
	14/02/2023	3.461	3.467	3.463
	15/02/2023	3.453	3.468	3.459
	16/02/2023	3.452	3.465	3.457
	17/02/2023	3.440	3.455	3.446
	18/02/2023	3.431	3.447	3.439
	19/02/2023	3.426	3.432	3.429
	20/02/2023	3.422	3.431	3.426
	21/02/2023	3.420	3.425	3.423
	22/02/2023	3.419	3.437	3.427
	23/02/2023	3.415	3.427	3.419
	24/02/2023	3.406	3.421	3.416
	25/02/2023	3.399	3.409	3.404
	26/02/2023	3.392	3.402	3.397
	27/02/2023	3.389	3.395	3.392
	28/02/2023	3.389	3.403	3.394
	01/03/2023	3.394	3.420	3.407
	02/03/2023	3.398	3.423	3.412
	03/03/2023	3.389	3.395	3.390
	04/03/2023	3.387	3.392	3.390
	05/03/2023	3.390	3.415	3.404
	06/03/2023	3.415	3.481	3.452
	07/03/2023	3.460	3.482	3.469
	08/03/2023	3.464	3.469	3.467

The groundwater levels in WS201 varied between 3.383m AOD (1.29m bgl) and 3.486m AOD (1.19m bgl), with an average of 3.431m bgl (1.25m bgl).

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**Table 3.1 – Recorded Groundwater Levels in WS202**

Borehole	Date (dd/mm/yyyy)	Level (m AOD)		
		Minimum	Maximum	Average
WS202	10/02/2023	3.482	3.492	3.486
	11/02/2023	3.473	3.486	3.480
	12/02/2023	3.472	3.480	3.476
	13/02/2023	3.471	3.480	3.476
	14/02/2023	3.467	3.478	3.473
	15/02/2023	3.461	3.483	3.470
	16/02/2023	3.462	3.483	3.471
	17/02/2023	3.449	3.470	3.457
	18/02/2023	3.436	3.470	3.452
	19/02/2023	3.428	3.443	3.437
	20/02/2023	3.424	3.440	3.431
	21/02/2023	3.424	3.450	3.437
	22/02/2023	3.432	3.451	3.443
	23/02/2023	3.426	3.444	3.434
	24/02/2023	3.424	3.456	3.446
	25/02/2023	3.399	3.423	3.414
	26/02/2023	3.389	3.406	3.399
	27/02/2023	3.383	3.401	3.395
	28/02/2023	3.386	3.396	3.391
	01/03/2023	3.387	3.400	3.394
	02/03/2023	3.387	3.402	3.395
	03/03/2023	3.374	3.391	3.386
	04/03/2023	3.371	3.386	3.379
	05/03/2023	3.384	3.419	3.409
	06/03/2023	3.420	3.491	3.457
	07/03/2023	3.476	3.495	3.484
	08/03/2023	3.489	3.496	3.492

The groundwater levels in WS202 varied between 3.371m AOD (1.31m bgl) and 3.496m AOD (1.18m bgl), with an average of 3.437m bgl (1.24m bgl).

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**Table 3.2 – Recorded Groundwater Levels in WS203**

Borehole	Date (dd/mm/yyyy)	Level (m AOD)		
		Minimum	Maximum	Average
WS203	10/02/2023	3.306	3.321	3.312
	11/02/2023	3.294	3.314	3.302
	12/02/2023	3.298	3.304	3.301
	13/02/2023	3.292	3.301	3.297
	14/02/2023	3.283	3.303	3.292
	15/02/2023	3.282	3.307	3.294
	16/02/2023	3.280	3.295	3.286
	17/02/2023	3.259	3.285	3.271
	18/02/2023	3.247	3.282	3.267
	19/02/2023	3.245	3.262	3.253
	20/02/2023	3.252	3.269	3.259
	21/02/2023	3.252	3.263	3.259
	22/02/2023	3.243	3.263	3.251
	23/02/2023	3.238	3.247	3.241
	24/02/2023	3.231	3.250	3.243
	25/02/2023	3.223	3.234	3.230
	26/02/2023	3.219	3.225	3.222
	27/02/2023	3.215	3.223	3.219
	28/02/2023	3.211	3.218	3.215
	01/03/2023	3.214	3.227	3.222
	02/03/2023	3.209	3.231	3.218
	03/03/2023	3.204	3.217	3.211
	04/03/2023	3.203	3.216	3.210
	05/03/2023	3.215	3.243	3.231
	06/03/2023	3.243	3.282	3.262
	07/03/2023	3.273	3.286	3.279
	08/03/2023	3.284	3.291	3.287

The groundwater levels in WS203 varied between 3.203m AOD (1.47m bgl) and 3.321m AOD (1.36m bgl), with an average of 3.255m AOD (1.42m bgl).

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**Table 3.3 – Recorded Groundwater Levels in WS204**

Borehole	Date (dd/mm/yyyy)	Level (m AOD)		
		Minimum	Maximum	Average
WS204	10/02/2023	3.428	3.440	3.432
	11/02/2023	3.418	3.434	3.425
	12/02/2023	3.419	3.427	3.422
	13/02/2023	3.415	3.424	3.421
	14/02/2023	3.411	3.422	3.416
	15/02/2023	3.404	3.430	3.416
	16/02/2023	3.407	3.424	3.413
	17/02/2023	3.384	3.411	3.397
	18/02/2023	3.378	3.411	3.392
	19/02/2023	3.364	3.388	3.378
	20/02/2023	3.374	3.389	3.381
	21/02/2023	3.372	3.400	3.387
	22/02/2023	3.375	3.405	3.388
	23/02/2023	3.365	3.85	3.373
	24/02/2023	3.358	3.394	3.384
	25/02/2023	3.343	3.365	3.56
	26/02/2023	3.333	3.348	3.341
	27/02/2023	3.334	3.344	3.339
	28/02/2023	3.329	3.343	3.336
	01/03/2023	3.337	3.366	3.352
	02/03/2023	3.332	3.369	3.354
	03/03/2023	3.328	3.337	3.332
	04/03/2023	3.325	3.342	3.332
	05/03/2023	3.342	3.381	3.368
	06/03/2023	3.382	3.447	3.414
	07/03/2023	3.438	3.454	3.445
	08/03/2023	3.451	3.461	3.457

The groundwater levels in WS204 varied between 3.325m AOD (1.35m bgl) and 3.461m AOD (1.22m bgl), with an average of 3.384m AOD (1.29m bgl).

Based on all of the recorded levels, groundwater ranges between 3.203m AOD (1.47m bgl) and 3.496m AOD (1.18m bgl). JPG compared the recorded groundwater levels to the tidal level at Connahs Quay. The levels at Connah's Quay are presented in Table 3.4.

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**Table 3.4 – Connah's Quay Tidal Times and Levels**

Date	Low Tide				High Tide			
	AM		PM		AM		PM	
	Time	Height (m)	Time	Height (m)	Time	Height (m)	Time	Height (m)
10 Feb 23	07:59	-0.80	08:26	-0.80	01:05	5.40	01:20	5.70
11 Feb 23	08:41	-0.30	09:11	-0.30	01:41	5.10	01:59	5.20
12 Feb 23	09:30	0.10	10:00	0.00	02:23	4.70	02:45	4.80
13 Feb 23	10:30	0.40	11:09	0.20	03:16	4.30	03:44	4.30
14 Feb 23	11:42	0.40	-	-	04:25	4.00	05:04	4.20
15 Feb 23	12:22	0.20	12:57	0.10	05:51	4.10	06:31	4.40
16 Feb 23	01:34	-0.20	02:05	-0.50	07:09	4.60	07:43	5.00
17 Feb 23	02:36	-0.70	03:05	-1.20	08:10	5.30	08:39	5.60
18 Feb 23	03:31	-1.30	03:58	-1.90	09:01	6.10	09:29	6.20
19 Feb 23	04:20	-1.80	04:47	-2.40	09:48	6.70	10:15	6.60
20 Feb 23	05:06	-2.10	05:34	-2.70	10:33	7.20	11	6.80
21 Feb 23	05:52	-2.20	06:20	-2.70	11:18	7.30	11:44	6.70
22 Feb 23	06:36	-2.10	07:05	-2.40	-	-	12:02	7.20
23 Feb 23	07:21	-1.80	07:50	-2.00	12:27	6.40	12:46	6.80
24 Feb 23	08:08	-1.40	08:37	-1.30	01:12	6.00	01:32	6.10
25 Feb 23	08:56	-0.90	09:25	-0.70	01:57	5.40	02:20	5.40
26 Feb 23	09:47	-0.40	10:17	-0.10	02:47	4.80	03:15	4.70
27 Feb 23	10:44	0.00	11:14	0.30	03:46	4.30	04:23	4.20
28 Feb 23	11:46	0.20	-	-	04:59	4.00	05:45	3.90
01 Mar 23	12:18	0.40	12:52	0.20	06:18	4.00	06:59	4.00
02 Mar 23	01:22	0.30	01:54	0.00	07:23	4.30	07:55	4.30
03 Mar 23	02:19	0.00	02:48	-0.30	08:14	4.60	08:40	4.70
04 Mar 23	03:08	-0.30	03:34	-0.70	08:57	5.10	09:20	5.00
05 Mar 23	03:51	-0.70	04:16	-1.10	09:36	5.40	09:57	5.30
06 Mar 23	04:31	-1.00	04:56	-1.30	10:12	5.70	10:32	5.50
07 Mar 23	05:11	-1.20	05:36	-1.50	10:46	5.90	11:06	5.60
08 Mar 23	05:50	-1.30	06:15	-1.50	11:20	6.00	11:40	5.60

There is no correlation between the groundwater levels recorded during the monitoring and the low and high tides recorded at Connah's Quay. It is concluded that the groundwater beneath Plot B is not tidally influenced.

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## Appendix A Figures/Drawings

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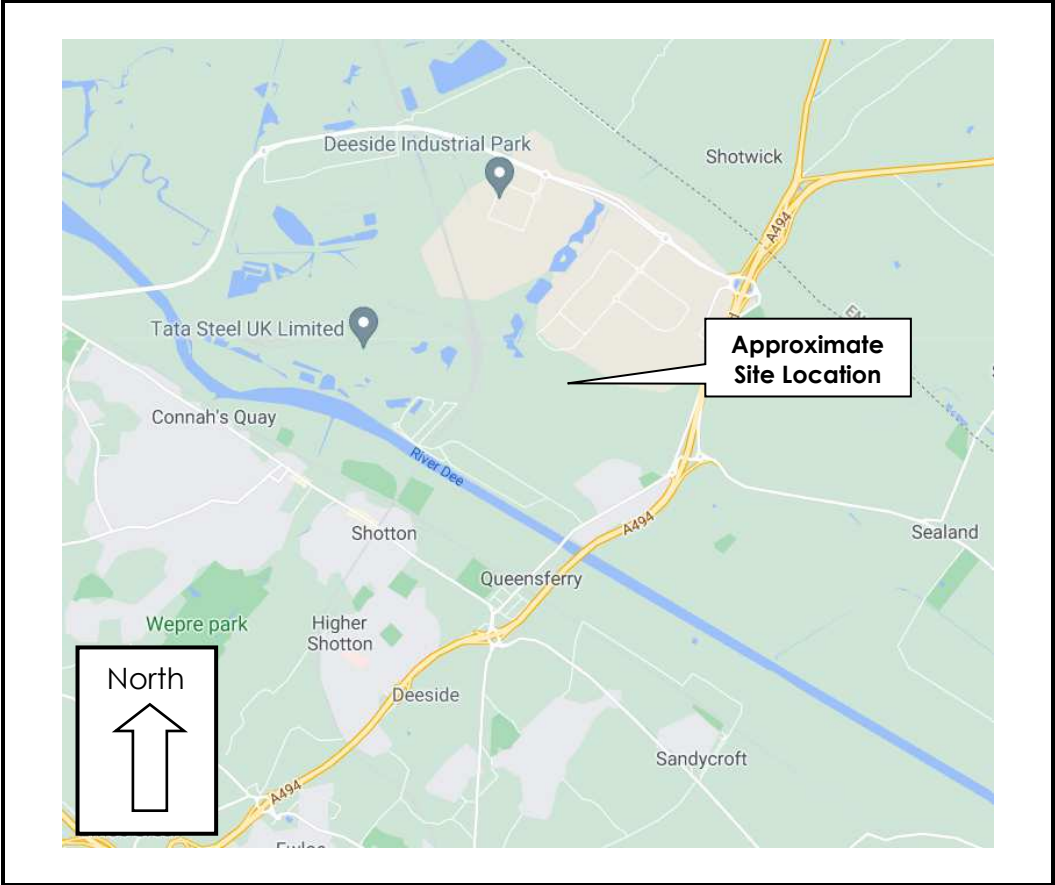


Figure 1 – Site Location Plan	
Site	Plot B, The Airfields, Deeside
Client	Commercial Development Projects Limited
Job Number	4671
Scale	NTS

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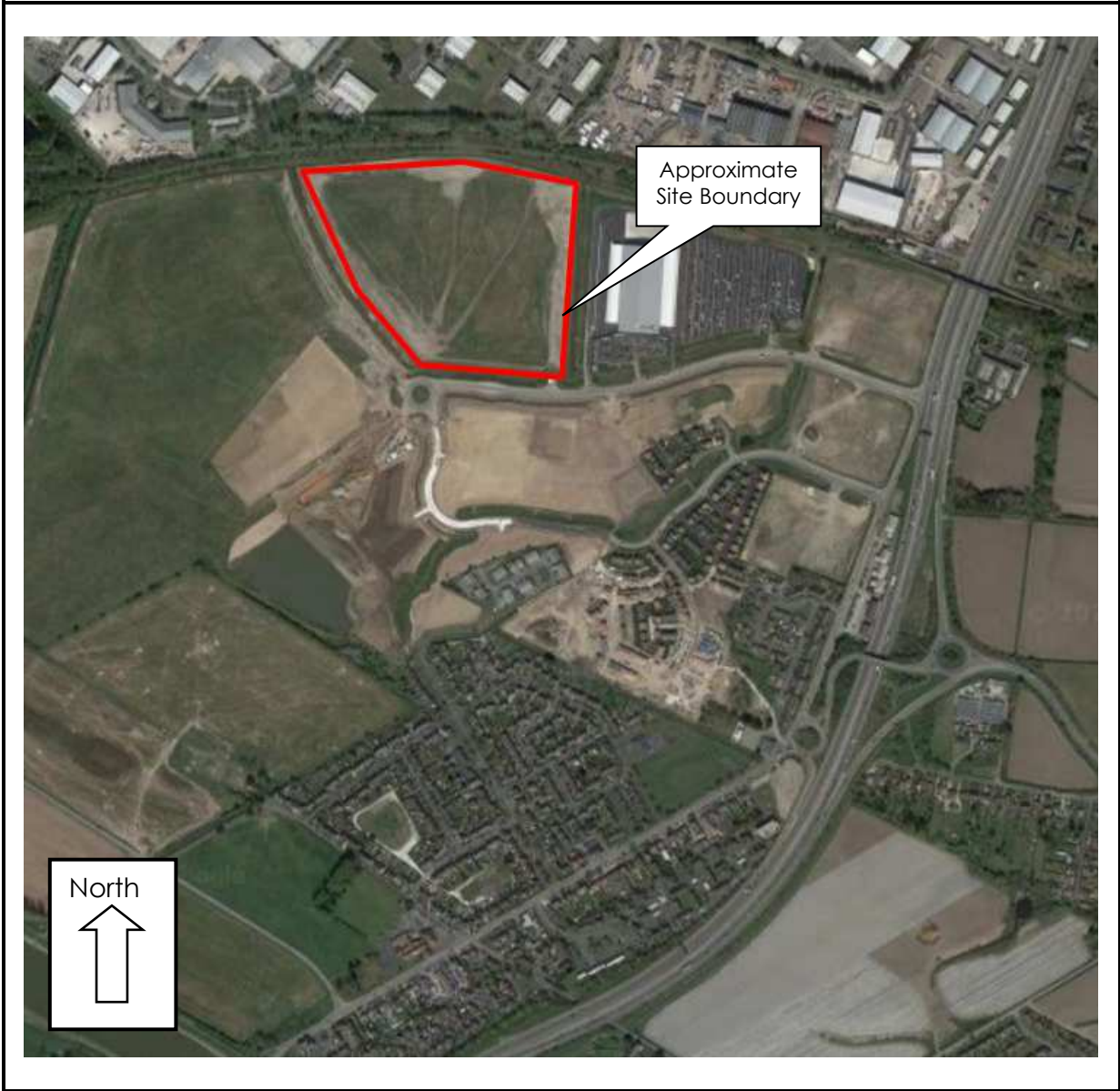


Figure 2 – Aerial Photograph	
Site	Plot B, The Airfields, Deeside
Client	Commercial Development Projects Limited
Job Number	4671
Scale	NTS





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DO NOT SCALE (A1)

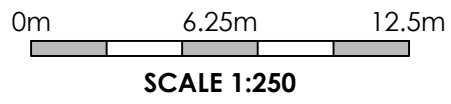
NOTES

JPG SITE INVESTIGATION  
FEBRUARY 2023

WS201

WINDOW SAMPLE BOREHOLE

RED LINE BOUNDARY



P01	INFORMATION	10/03/23	DMH	AJS
REV	DESCRIPTION	DATE	CHK	BY
	Project PLOT B THE AIRFIELDS DEESIDE			

Drawing Title  
EXPLORATORY HOLE LOCATION PLAN  
(AS BUILT)

### INFORMATION

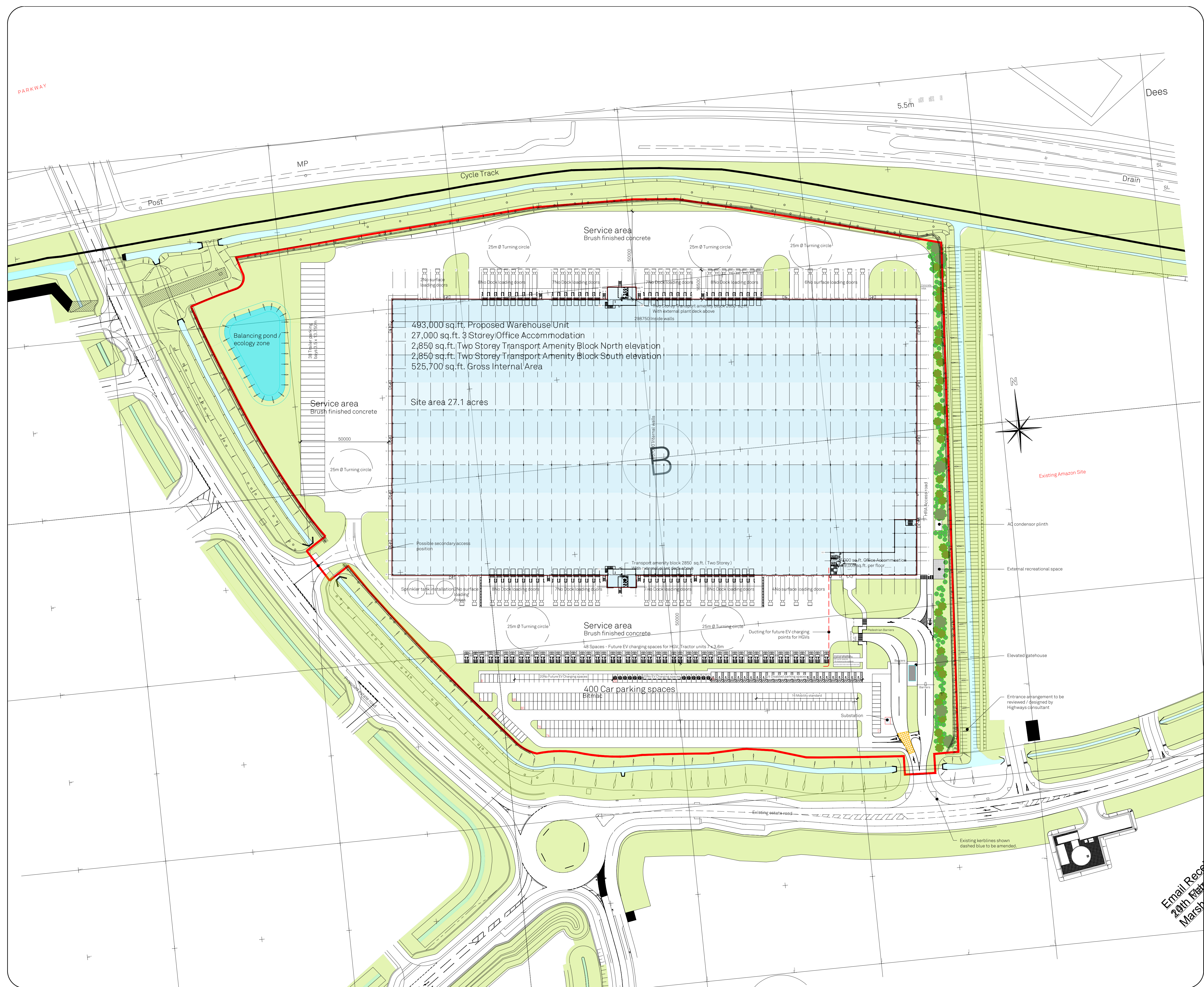
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## Notes

Revisions		
Rev	Date	Description
Rev.A.	Jan.23	Drawing renumbered from M3125-SK05K
Rev.B.	Feb.23	Access revised to suit existing access of estate road.
Rev.C.	Feb.23	Surface loading door omitted for south elevation.

BUILDING MANAGEMENT SERVICES LTD

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# Building Management Services

Client

C.D.P. LIMITED

Project

INDUSTRIAL DEVELOPMENT  
PLOT B  
THE AIRFIELDS, DEESIDE

SITE LAYOUT PLAN - PLOT B

Drawn	n d jordan	Date	Sept 21
Scale	1:1000 @ A1		
Status	Tender		
Drawing No.	M3125-01	Revision	Rev.C.





## Appendix B Exploratory Hole Logs

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5 John Charles Way  
Leeds  
LS12 6QA

# Window Sampler Log

Project Name: Plot B Deeside

Client: Marshall Construction (West Yorkshire)  
Limited

Date: 10/02/2023

Location: Deeside

Contractor:

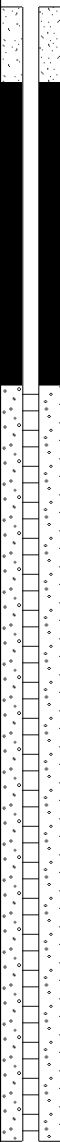





Co-ords: E332492.41 N370074.00

Project No. : 4671 - Plot B

Crew Name: RP Drilling

Drilling Equipment: Window Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS101	WS	4.62m AoD	D.Horne	1:20	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15	4.47		MADE GROUND: Brown silty sandy CLAY with rootlets.	1
								Brown slightly silty fine to medium SAND with occasional shell fragments.	
					1.45	3.17		Dark grey slightly silty fine to medium SAND with occasional shell fragments and thin black lenses with degraded rootlets.	2
								Thin black lenses no longer noted between 2.00m bgl and 2.45m bgl.	
					2.45	2.17		Light brown and brown slightly silty fine to medium SAND.	3
					3.00	1.62		End of Borehole at 3.00m	4

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Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
								0.00	3.00	90	

Remarks  
Groundwater encountered at 1.60m bgl during drilling and at 1.23m bgl during installation. No visual or olfactory evidence of any hydrocarbon contamination. Waterlogger installed at 2.45m bgl.





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Leeds  
LS12 6QA

# Window Sampler Log

Project Name: Plot B Deeside

Client: Marshall Construction (West Yorkshire)  
Limited

Date: 10/02/2023

Location: Deeside

Contractor:

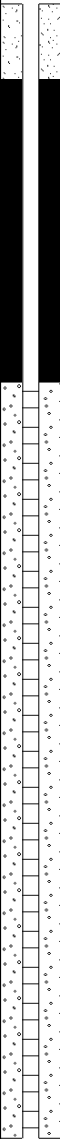


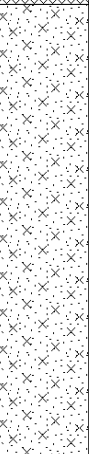

Co-ords: E332724.44 N370055.49

Project No. : 4671 - Plot B

Crew Name: RP Drilling

Drilling Equipment: Window Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS202	WS	4.64m AoD	D.Horne	1:20	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25	4.39		MADE GROUND: Brown silty sandy CLAY with low cobble content and rootlets. Cobbles are subangular of sandstone.	1
								Light brown slightly silty fine to medium SAND with occasional shell fragments.	
					1.45	3.19		Light grey and greyish brown slightly silty SAND with occasional shell fragments. Probable blowing sands noted between 1.45m bgl and 3.00m bgl.	2
					3.00	1.64		End of Borehole at 3.00m	3
									4

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Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
								0.00	3.00	90	

## Remarks

Groundwater encountered at 1.70m bgl during drilling and at 1.08m bgl during installation. No visual or olfactory evidence of any hydrocarbon contamination. Waterlogger installed at 2.55m bgl. Barologger installed at 0.50m bgl.





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Leeds  
LS12 6QA

# Window Sampler Log

Project Name: Plot B Deeside

Client: Marshall Construction (West Yorkshire)  
Limited

Date: 10/02/2023

Location: Deeside

Contractor:

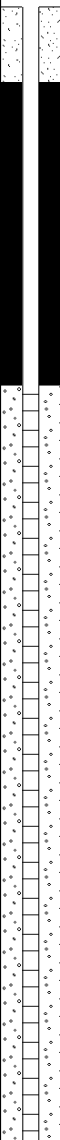



Co-ords: E332486.64 N369969.45

Project No. : 4671 - Plot B

Crew Name: RP Drilling

Drilling Equipment: Window Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS203	WS	4.59m AoD	D.Horne	1:20	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	4.49		MADE GROUND: Brown silty sandy CLAY with rootlets.	1
					1.50	3.09		Light grey and greyish brown slightly silty SAND with occasional shell fragments. Probable blowing sands noted between 1.50m bgl and 3.00m bgl.	2
					3.00	1.59		End of Borehole at 3.00m	3
									4

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Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
								0.00	3.00	90	

## Remarks

Groundwater encountered at 1.60m bgl during drilling and at 1.25m bgl during installation. No visual or olfactory evidence of any hydrocarbon contamination. Water diver installed at 2.05m bgl.





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# Window Sampler Log

Project Name: Plot B Deeside

Client: Marshall Construction (West Yorkshire)  
Limited

Date: 10/02/2023

Location: Deeside

Contractor:

Co-ords: E332711.83 N369951.25

Project No. : 4671 - Plot B

Crew Name: RP Drilling

Drilling Equipment: Window Sample Rig

Borehole Number <b>WS204</b>	Hole Type WS	Level 4.83m AoD	Logged By D.Horne	Scale 1:20	Page Number Sheet 1 of 1
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Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
					0.20	4.63		MADE GROUND: Brown silty sandy CLAY with rootlets.		
								Light brown slightly silty fine to medium SAND with occasional shell fragments.	1	
					2.80	2.03		Dark brown and dark grey slightly silty fine to medium SAND with occasional shell fragments.	2	
					4.00	0.83		End of Borehole at 4.00m	3	
End of Borehole at 4.00m										4

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
								0.00	4.00	90	

## Remarks

Groundwater encountered at 1.80m bgl during drilling and at 1.36m bgl during installation. No visual or olfactory evidence of any hydrocarbon contamination. Water diver installed at 2.65m bgl.





## Appendix C Notes on Limitations

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## General

JPG (Leeds) Limited have prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from JPG (Leeds) Limited; a charge may be levied against such approval.

JPG (Leeds) Limited accepts no responsibility or liability for:

- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) the use of this document by any third party with whom an agreement has not been executed.

## Phase I Desk Study Reports

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including any information provided by the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties where appropriate. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, JPG (Leeds) Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

## Phase II Geo-Environmental Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics and ground and groundwater conditions to allow a reasonable assessment of the environmental risks together with engineering and development implications.

The objectives of the investigation have been limited to establishing the risks associated with potential human receptors, building materials, the environment (including adjacent land) and controlled waters (surface water and groundwater).

The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided, inter alia, take into consideration currently available guidance values relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

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