

Groundwater Monitoring Report

SITE ADDRESS	Land adj. to Church Lane, Climping, West Sussex, BN17 5GG																																																																	
CLIENT	Foreman Homes Limited																																																																	
REPORT REFERENCE	GWPR6300/GMR/March 2025. The conditions and limitations of this groundwater monitoring report can be viewed within Appendix A. A technical glossary has also been provided within Appendix B.																																																																	
SCOPE OF WORKS	The scope of works comprised winter groundwater monitoring within wells previously drilled at the site. This was to formalise the drainage design. This report should be read in conjunction with the following previous reports for the site: - Geotechnical Desk Study and Chalk Dissolution Report by Ground and Water dated July 2024 (Report ref: GWPR5903/GIR/February 2024), - Phase II Site Investigation Report by Ground and Water dated July 2024 (Report ref: GWPR6003/SIR/July 2024). The techniques adopted for the investigation were chosen considering the requirements of the client, anticipated ground conditions, and bearing in mind the nature of the site, limitations to site access and other logistical limitations.																																																																	
SITE DETAILS	The site was located within Climping, within West Sussex. The site comprised an undeveloped field. A Site Location Plan is provided within Figure 1.																																																																	
GROUNDWATER MONITORING	Winter groundwater monitoring was undertaken within 8no. boreholes (BH2-BH6 and WS1-WS5, WS7 and WS14) identified to remain on site during 6No. visits throughout the wet winter months, to provide an insight on worse case levels of groundwater. A trial hole location plan can be viewed within Figure 2. The results from the monitoring have been tabulated below: <table><tr><th colspan="4">Summary of Groundwater Observations</th></tr><tr><th>Date</th><th>Trial Hole</th><th>Water Level</th><th>Final Well Depth</th></tr><tr><td rowspan="8">22/10/2024</td><td>BH2</td><td>2.60</td><td>4.40</td></tr><tr><td>BH6</td><td>2.90</td><td>4.20</td></tr><tr><td>WS1</td><td>3.20</td><td>3.60</td></tr><tr><td>WS2</td><td>Dry</td><td>2.80</td></tr><tr><td>WS3</td><td>Dry</td><td>1.80</td></tr><tr><td>WS4</td><td>3.70</td><td>3.80</td></tr><tr><td>WS5</td><td>2.60</td><td>3.00</td></tr><tr><td>WS7</td><td>2.40</td><td>2.50</td></tr><tr><td rowspan="7">15/11/2024</td><td>WS1</td><td>2.90</td><td>3.51</td></tr><tr><td>WS2</td><td>Dry</td><td>2.61</td></tr><tr><td>WS3</td><td>Dry</td><td>1.85</td></tr><tr><td>WS4</td><td>3.28</td><td>3.76</td></tr><tr><td>WS5</td><td>2.63</td><td>3.15</td></tr><tr><td>WS7</td><td>3.02</td><td>3.90</td></tr><tr><td>WS14</td><td>2.63</td><td>3.94</td></tr><tr><td rowspan="3">17/12/2024</td><td>WS1</td><td>2.86</td><td>3.51</td></tr><tr><td>WS2</td><td>Dry</td><td>2.61</td></tr><tr><td>WS3</td><td>Dry</td><td>1.85</td></tr></table>	Summary of Groundwater Observations				Date	Trial Hole	Water Level	Final Well Depth	22/10/2024	BH2	2.60	4.40	BH6	2.90	4.20	WS1	3.20	3.60	WS2	Dry	2.80	WS3	Dry	1.80	WS4	3.70	3.80	WS5	2.60	3.00	WS7	2.40	2.50	15/11/2024	WS1	2.90	3.51	WS2	Dry	2.61	WS3	Dry	1.85	WS4	3.28	3.76	WS5	2.63	3.15	WS7	3.02	3.90	WS14	2.63	3.94	17/12/2024	WS1	2.86	3.51	WS2	Dry	2.61	WS3	Dry	1.85
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		WS14	2.60	3.94
	17/02/2025	WS1	3.17	4.00
		WS2	2.42	2.80
		WS3	Dry	1.88
		WS4	1.88	3.00
		WS5	3.94	4.35
		WS7	2.53	4.00
	13/03/2025	WS1	Dry	3.60
		WS2	Dry	3.62
		WS3	Dry	1.88
		WS4	2.73	3.70
		WS5	2.20	3.14
		WS7	2.51	4.08
		WS14	2.15	3.88

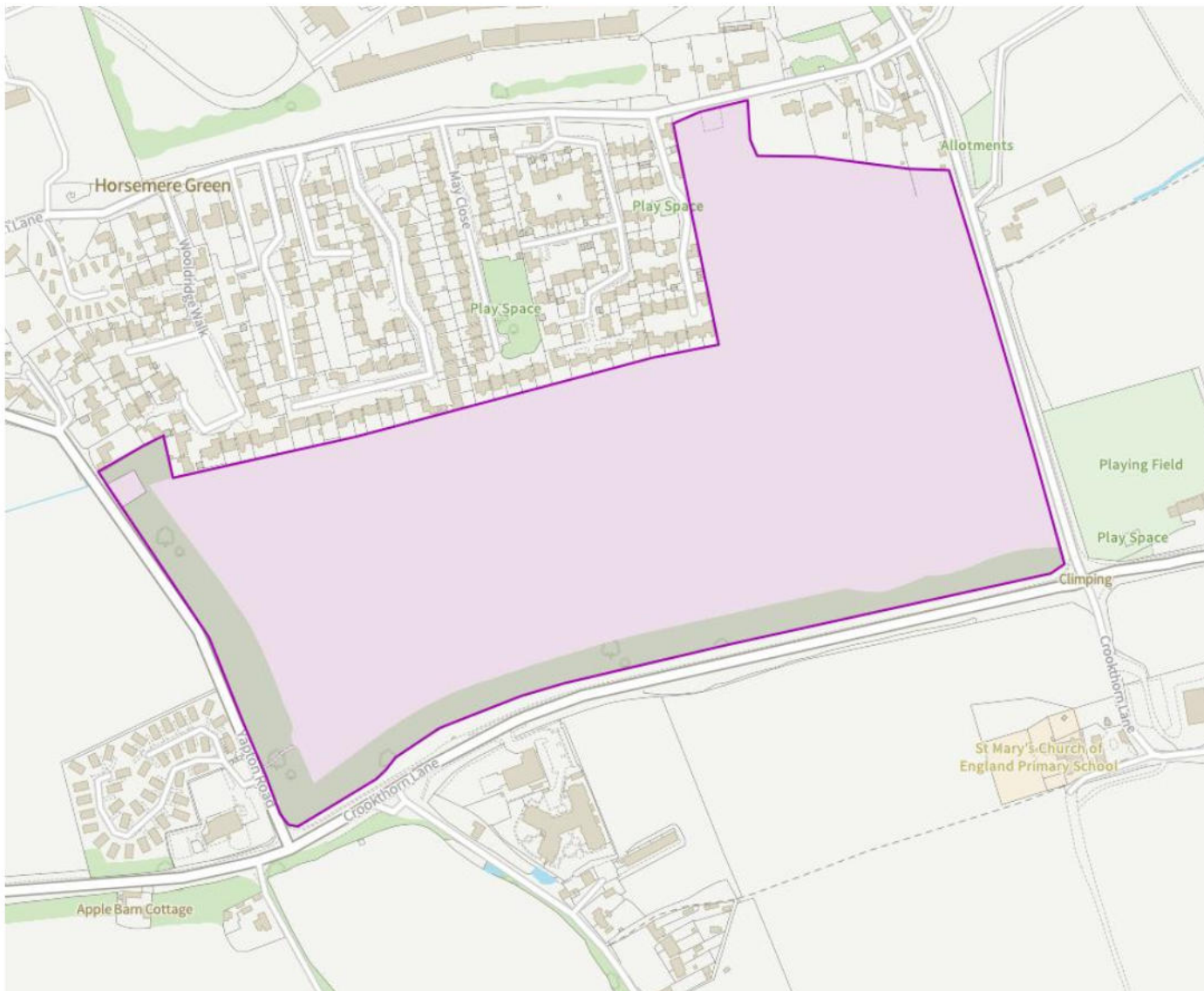
Please feel free to contact us should you have any queries regarding the information enclosed within this report.

Summary of Authors		
Prepared By	Checked By	Approved By
Libby Bennett BSc (Hons) Geotechnical and Geoenvironmental Engineer	Miltiadis Mellios MSc(Eng) GMICE FGS MEnvSc Principal Engineer	Francis Williams MGeol (Hons) FGS CEnv CGeol Director

For and on behalf of Ground and Water Limited

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FIGURES



 Site boundary

Land adj. to Church Lane, Climping, West Sussex, BN17 5GG

Foreman Homes Limited

March 2025

Figure 1 – Site Location Plan

GWPR6300





-  Site boundary
-  Windowless Sampler Borehole
-  Cable Percussive Borehole

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Figure 2 – Trial Hole Location Plan

GWPR6300



APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to Land adj. to Church Lane, Climping, West Sussex, BN17 5GG.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

The aim of the investigation was understood to be to supply the client and their designers with information regarding the ground conditions underlying the site to assist them in preparing an appropriate scheme for development.

APPENDIX B: Technical Glossary

TECHNICAL GLOSSARY

The list of possible definitions within the report may be seen below. Please note that some definitions may not be relevant to this report.

HYDROGEOLOGY:

A **Principal Aquifer** is a layer of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary (A) Aquifers consist of deposits with permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as Minor Aquifers.

Secondary (B) Aquifers consist of deposits with predominantly lower permeability layers with may stoke and yield limited amounts of groundwater due to localised features such as fissures, think permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Aquifers (Undifferentiated) are assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata are rock layers with low permeability that have negligible significance for water supply or river base flow. These were formerly classified as non-aquifers.

FLOOD ZONES:

Environment Agency Flood Zone 2, defined as; land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

Environment Agency Flood Zone 3 shows the extent of a river flood with a 1 in 100 (1%0 or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year.

Environment Agency Flood Zone 3 area that benefits from flood defences, defined as; land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.

GROUNDWATER SOURCE PROTECTION ZONES (SPZS):

Inner Zone (SPZ1): This zone is 50 day travel time of pollutant to source with a 50 metres default minimum radius.

Outer Zone (SPZ2): This zone is 400 day travel time of pollutant to source. This has a 250 or 500 metres minimum radius around the source depending on the amount of water taken.

Total Catchment (SPZ3): This is the area around a supply source within which all the groundwater ends up at the abstraction point. This is the point from where the water is taken. This could extend some distance from the source point.

Zone of Special Interest (SPZ4): This zone is where local conditions require additional protection.

IN-SITU STRENGTH GEOTECHNICAL TESTING:

Windowless Sample and/or Cable Percussion and/or Rotary Boreholes provide samples of the ground for assessment but they do not give any engineering data. The standard penetration test (SPT) is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test uses a thick-walled sample tube, with an outside diameter of 50mm and an inside diameter of 35mm, and a length of around 650mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5kg falling through a distance of 760mm. The sample tube is driven 150mm into the ground and then the number of blows needed for the tube to penetrate each 75mm up to a depth of 450mm is recorded. The sum of the number of blows is termed the "standard penetration resistance" or the "N-value".

Dynamic Probing involves the driving of a metal cone into the ground via a series of steel rods. These rods are driven from the surface by a hammer system that lifts and drops a 63.5kg (SHDP) hammer onto the top of the rods through a set height, thus ensuring a consistent energy input. The number of hammer blows that are required to drive the cone down by each 100mm increment are recorded. These blow counts then provide a comparative assessment from which correlations have been published, based on dynamic energy, which permits engineering parameters to be generated. (The Dynamic Probe 'Super Heavy' (SHDP) Tests were conducted in accordance with BS 1377; 1990; Part 9, Clause 3.2).