



**Geo-Environmental**

**GROUND INVESTIGATION REPORT**

**for the land at**

**HOLLY TREE FARM,**

**MADDOXFORD LANE,**

**BOORLEY GREEN, HAMPSHIRE,**

**SO32 2DB**

**on behalf of**

**BLOOR HOMES LIMITED**



|                                                                                                                                                                                       |                                                                                               |
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| Report:                                                                                                                                                                               | GROUND INVESTIGATION REPORT                                                                   |
| Site:                                                                                                                                                                                 | HOLLY TREE FARM, MADDOXFORD LANE, BOORLEY GREEN, HAMPSHIRE,<br>SO32 2DB                       |
| Client:                                                                                                                                                                               | BLOOR HOMES LIMITED                                                                           |
| Date:                                                                                                                                                                                 | 16/10/2025                                                                                    |
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AMENDMENT RECORD

| Revision ref. | Date       | Reasons for amendment                  | Author's initials | Reviewed by | Approved by |
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| 1.0           | 16/10/2025 | First Issue                            | FG                | SA          | GR          |
| 1.1           | 16/02/2026 | Updated following comments from Client | FG                | FG          | FG          |
|               |            |                                        |                   |             |             |
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| EXECUTIVE SUMMARY           |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site Details                | Site Address            | Holly Tree Farm, Maddoxford Lane, Boorley Green, Hampshire, SO32 2DB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                             | National Grid Reference | 451483, 114186                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                             | Site Area               | 10.1ha (approx.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                             | Form of Development     | It is understood that the proposed development is to comprise the construction of residential properties (up to 280 dwellings) with private gardens, access roads, landscaping and associated infrastructure. At the time of investigations, a proposed high-level masterplan layout was made available. This has since evolved to be the Land Use and Access Plan submitted with the application. This plan has been reviewed, and the results of this report remain consistent.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Encountered Conditions      | Scope of works          | An intrusive investigation was commissioned by the Client to investigate the ground and groundwater conditions and to support geotechnical and geo-environmental assessments pertaining to the site in relation to the proposed development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                             | Ground Conditions       | The encountered ground conditions typically comprised a mantle of Topsoil overlying soils of the River Terrace Deposits, which were found to be underlain by soil inferred to be of the Wittering Formation across the majority of the site with soils inferred to be the London Clay Formation in the western and south-western portions of the site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                             | Groundwater             | Groundwater was encountered at depths between 3.00m and 9.30m bgl within exploratory holes.<br><br>Groundwater monitoring wells were installed within all of the dynamic sampler boreholes (WS01-WS10) to facilitate return winter groundwater monitoring. Monitoring is proposed to be undertaken monthly from October 2025 through to March 2026 and will be reported upon completion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Geotechnical Considerations | Foundations             | Based on the ground and groundwater conditions encountered in the exploratory holes, it is considered that conventional foundations may be suitable for low rise structures with foundations terminating within the River Terrace Deposits, the Wittering Formation or the London Clay Formation.<br><br>On the basis of the results of the Atterberg Limit tests in conjunction with the field observations it is considered that the cohesive elements of the River Terrace Deposits, the Wittering Formation and the London Clay Formation should be classified 'en-masse' as High Volume Change Potential as defined by NHBC Standards, Chapter 4.2, for which a minimum founding depth of 1.00m bgl is required.<br><br>A piled foundation could be required in areas where shallow groundwater, running sands, pit instability and deep Made Ground arise due to the potential for constructability issues. If piled foundations, vibratory ground improvement or the like, are proposed on this site, consultation with the gas pipeline owner and their agent will be essential at the earliest opportunity in order to determine acceptable construction options such that the pipeline's structural integrity remains unaffected.<br><br>On the basis of the ground conditions encountered, a net allowable bearing capacity of 90kPa is recommended for the encountered granular soils and firm to very stiff clay soils of the River Terrace Deposits, the Wittering Formation and the London Clay, this being limited to reflect the presence of firm clay. Total settlements should remain within tolerable limits for these bearing capacities. Foundations terminating in, on or loading soft clay will not be suitable.<br><br>Given the variability in ground conditions (varying proportions of clay, silt and sand), it is recommended that reinforcement is included in foundations. |



| EXECUTIVE SUMMARY            |                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              | Floor Slabs     | Given the presence of shrinkable soils, suspended floor slabs are recommended. The minimum void height should be determined in accordance with NHBC Standards and account for the volume change potential of the underlying soils.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                              | Excavations     | <p>The intrusive investigation identified minimal pit instability within some of the looser gravel layers, however in general excavations were stable in the short term.</p> <p>Should excavations be exposed to groundwater or surface water, excavations are likely to be unstable in the short term and will therefore need to be shored adequately with appropriate retention systems and dewatering. Conventional sump pumping might not be sufficient to control water within excavations. As such, it is possible that conventional foundations might not be the best construction solution in terms of mitigating or controlling construction risk, especially if groundwater control has limited or variable effects. Dewatering should only be used with due caution as excessive pumping rates can cause internal erosion of the soil mass, which together with removal of water can result in settlement of the ground and potential adverse impact on adjacent/nearby structures and infrastructure. Consideration may need to be given to seasonal construction, i.e. construction works to be undertaken during the drier summer months.</p> <p>The need for entry into excavations should, where possible, be designed out. However, where this cannot be achieved entry of any personnel must only be permitted in accordance with an approved risk assessment, method statement and safe system of work.</p> |
|                              | Pavements       | <p>Based on the results of testing to date, a preliminary design CBR of 1.5% is recommended for the shallow soils encountered. Further testing may be required at the time of construction.</p> <p>The shallow soils should be assumed to be frost susceptible, thus requiring a minimum pavement thickness of 450mm. Any hard or soft spots in the formation level may induce reflective cracking in the pavement and allowance should be made for removing hard or soft spots that may be present.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                              | Buried Concrete | <p>The results of the water-soluble sulphate and pH analyses from soils of the River Terrace Deposits indicate that buried concrete should be designed in accordance with Class DS-2 of BRE Special Digest 1, with an ACEC class of AC-2.</p> <p>Buried concrete constructed in soils of the Wittering Formation should be designed in accordance with Class DS-4 of BRE Special Digest 1, with an ACEC class of AC-4.</p> <p>Buried concrete constructed in soils of the London Clay Formation should be designed in accordance with Class DS-1 of BRE Special Digest 1, with an ACEC class of AC-1.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                              | Soakaways       | <p>Soakage testing was undertaken within 6No. trial pits, SA01-SA06 at depths between 1.00m and 2.00m bgl.</p> <p>On the basis of the results from testing undertaken and the observed ground conditions, it is considered that infiltration is variable, but that the discharge of storm water to the ground within the more granular layers of the encountered River Terrace Deposits and Wittering Formation may be possible, assuming the absence of shallow groundwater.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Environmental Considerations | Human Health    | Asbestos was detected with a sample of Made Ground in WS10 at 0.1m bgl, in the form of loose chrysotile asbestos fibres. In addition, Barium was also detected within this sample from WS10 at 0.1m bgl at a concentration above the relevant screening criteria. Remediation will be required to break the pathway between this contaminant and end users of the proposed development, should development be proposed within this area of the site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**EXECUTIVE SUMMARY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   | <p>At this stage and based on the depth of the asbestos impacted Made Ground encountered, remediation is likely to comprise removal of the impacted Made Ground within the vicinity of WS10.</p> <p>It must be noted that at the time of the intrusive investigation works, only limited access was available for the scrapyard area of the site, due to the presence of buildings, vehicles and vehicle parts. As such, supplementary investigation will be required within this area of the site once the vehicles have been removed and the buildings demolished, to enable the assessment of shallow soils in this area to determine their suitability for use and possible requirements for remediation/risk mitigation.</p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Topsoil           | The results of the laboratory analyses indicate that the soils tested were broadly compliant with respect to nutritional suitability based on BS3882 criteria. It is recommended that additional sampling of the Topsoil be undertaken following stripping and storage of the material prior to re-use.                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Groundwater       | No pollutant linkages for groundwater have been identified in relation to the site, and it is therefore considered that no risk mitigation measures are required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Radon Gas         | Basic radon protection measures would be required within any development proposed in the extreme northeastern portion of the site. The remainder of the site would not require radon protection measures.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Built Environment | The results of the relevant chemical analyses met the criteria for standard polyethylene pipe materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Waste Disposal    | The soil analyses from the site, were assessed using HazWasteOnline software. None of the samples assessed were found to comprise properties attributable to hazardous waste, with exception of WS10 which might be hazardous waste depending on the concentration of asbestos within the Made Ground.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>Further Action:</p> <ul style="list-style-type: none"> <li>• Undertake a post-demolition/decommission intrusive investigation in the scrapyard area of the site to assess the shallow soils to determine their suitability for use and delineation of remediation area around WS10.</li> <li>• Production of a Remediation Strategy and Verification Plan.</li> <li>• Preparation of a Water Pipe Material Risk Assessment to be sent to the elected potable water supplier for confirmation of the selected water pipe.</li> <li>• Should Made Ground and/or natural soils originating from the site be proposed for disposal, it is recommended that further testing of these specific soils be undertaken.</li> <li>• A discovery strategy must be maintained during development such that any abnormal or unexpected conditions (geotechnical or potential contamination) are identified, the discovery strategy must be enacted as soon as reasonably practicable and their potential impact on the proposed development assessed prior to determining any potential mitigation measures.</li> </ul> |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <p><i>This Executive Summary is intended to provide a brief summary of the main findings and conclusions of the investigation. For detailed information, the reader is referred to the main report ref. GE23094/GIR/OCT25.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



## 1.0 INTRODUCTION

### 1.1 General

Geo-Environmental Services Limited (Geo-Environmental) was instructed by Bloor Homes Southern (the Client), to undertake an investigation of the geotechnical and geo-environmental factors pertaining to the proposed development of Holly Tree Farm, Maddoxford Lane, Boorley Green, Hampshire, SO32 2DB (herein referred to as 'the site'). The site's location is presented in Figure 1.

### 1.2 Form of Development

It is understood that the proposed development is to comprise the construction of residential properties (up to 280 dwellings) with private gardens, access roads, landscaping and associated infrastructure. At the time of the investigations, a proposed high-level masterplan layout was made available, and this is shown in Figure 2. This has since evolved to be the Land Use and Access Plan submitted with the application. This plan has been reviewed, and the results of this report remain consistent.

### 1.3 Objectives

The ground investigation was undertaken to assess the geotechnical and geo-environmental conditions pertaining to the site.

The data from the geotechnical investigation was to form the basis of a preliminary interpretation with respect to foundation design, concrete specification, pavement design, drainage and excavation stability.

The objective of the investigation and subsequent environmental assessments was to evaluate the risks posed to the proposed redevelopment, adjacent land uses and the wider environment, in the context of likely planning requirements, immediate liabilities under the Environmental Protection Act 1990 and risks posed to Controlled Waters under the Water Resources Act from the current status of the site and in line with the current redevelopment.

### 1.4 Standards and References

Where practicable, the ground investigation and subsequent geotechnical and environmental assessments were undertaken in accordance with the following documents and guidance.

- National Planning Policy Framework, updated February 2025;
- Land Contamination Risk Management (LCRM), updated June 2025;
- Model Procedures for the Management of Contaminated Land, CLR11, DEFRA and Environment Agency 2004; (withdrawn)
- Environment Agency Guidance on Requirements for Land Contamination Reports, Version 1 dated July 2005;
- BS10175:2011+A2:2017 - Investigation of Potentially Contaminated Sites - Code of Practice, BSI 2017;
- BS5930:2015+A1:2020 - Code of Practice for Site Investigations, BSI 2020;
- EN ISO 14688 Geotechnical Investigation and Testing Part 1-2002 and Part 2-2004;
- BS1377: 1990 - Soils for Civil Engineering Purposes, BSI1990;
- NHBC Standards Chapter 4.1 Land Quality - Managing Ground Conditions;
- NHBC Standards Chapter 4.2 Building Near Trees;
- CIRIA C665 – Assessing risks posed by hazardous ground gases to buildings (2007);
- NHBC NF94 – Hazardous Ground Gas – an essential guide for housebuilders – April 2023
- BS8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings;



- BRE BR240 Low-rise buildings on shrinkable clay soils: Part 1, 1993;
- BS3882:2015 Specification for topsoil and requirements for use, BSI 2015;
- BS8601:2013 Specification for subsoil and requirements or re-use, BSI 2013.

## 1.5 Conditions

This report does not purport to be a “Geotechnical Design Report” as defined in Clause 2.8 of Eurocode 7 (Geotechnical Design BS EN 1997-1:2004) and some of the data used to support this preliminary geotechnical assessment may not be fully compliant with that design code. It is considered possible that further detailed ground investigations could be required to facilitate the detailed geotechnical design process and should be carried out on a structure specific basis if necessary.

The desk study data where obtained/reviewed for the site, or where presented as part of a previous phase of assessment is assumed to be factually correct and up to date at the point of purchase. No liability is taken for any omissions or inaccuracies in the data presented. It must also be noted that changes to the desk study data may occur following the production of this report, Geo-Environmental accepts no liability where this subsequently affects the assessment presented herein.

The data collected from the investigations have been used to provide an interpretation of the geotechnical and/or environmental conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. Geo-Environmental takes no responsibility for conditions that either have not been revealed in the available records, or that occur between or under points of physical investigation, or that result from updates to desk-based data utilised subsequent to that presented herein or reviewed at the time of writing which may in turn alter the presented assessment. Whilst every effort has been made to interpret the conditions, such information is only indicative and liability cannot be accepted for its accuracy.

It must be noted that the findings and assessment presented herein are based on the ground and groundwater conditions as encountered at the time of investigation within the investigation positions undertaken and any associated testing and monitoring. The ground by its very nature is variable and the engineering properties of soils can vary over time, such as due to changes in soil moisture content, disturbance and similar factors. Similarly, groundwater conditions can and do vary over time. As such, if conditions are encountered which differ from those described herein, the Client or their appointed representative, e.g. contractor, must seek advice from a Geotechnical Engineer at the earliest practicable opportunity. It is possible that this could result in changes to the assessment presented herein.

It should be noted that in particular the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore only be representative of the conditions at the time of sampling. The absence of asbestos noted during the site walkover or within any soil samples analysed does not guarantee the absence of asbestos within buildings, within or bonded to concrete, as discrete burials, or within the soils mass elsewhere within a site. This report should not be taken as any guarantee that a site is free of hazardous or potentially contaminative materials.

Information contained in this report is intended for the use of the Client and Geo-Environmental can take no responsibility for the use of this information by any party for uses other than that described in this report. Geo-Environmental makes no warranty or representation whatsoever express or implied with respect to the use of this information by any third party. Geo-Environmental does not indemnify the Client or any third parties against any dispute or claim arising from any finding or other result of this investigation report or any consequential losses.

Assessment criteria or other parameters developed for the evaluation of contamination on this site are based on a number of assumptions regarding exposure and toxicology. Exposure to contaminants and levels of adverse effects may therefore vary. Whilst reasonable care and expertise have been employed in the development of such criteria, no liability is accepted in this respect. Other criteria or guidance on the development of assessment criteria may be published in the future and no liability is accepted in this respect.



This report remains the property of Geo-Environmental and the Client has no rights to, or reliance upon this document or supporting documents until such time as payment has been received in full for all invoices for works undertaken in connection with this report.



## 2.0 DESK STUDY

A standalone Desk Study Report has previously been produced for the site by Geo-Environmental, ref. GE23094/DSR/JUL25. A summary of the key findings of this desk study is presented in the following sections. For further detail reference should be made to the Desk Study Report.

Comments made in the following section regarding possible ground conditions on the site are based purely on the desk study and associated site walkovers.

### 2.1 Site Description

At the time of the intrusive site works, August 2025, the site comprised an irregularly shaped area of land incorporating agricultural fields with a farmhouse, scrap yard and selection of workshops and storage buildings located in the northeast of the site. The site was accessed via a driveway off Maddoxford Lane. Holly Tree Farmhouse was located to the east of the access road, comprising a 2-storey brick built residential property with associated garden area. A static caravan type dwelling was located to the west of the access road opposite the farmhouse.

The scrap yard area was located to the south of these dwellings and accessed via the driveway from Maddoxford Lane. Numerous vehicles in varying states of dereliction were stored to the east of this access track. A porta-cabin and workshop building were located to the west of the access track. It was noted that the roof of the workshop building was constructed with potential asbestos containing material (ACM). A number of tyres, oil drums and gas canisters were stored in the vicinity of this workshop building. The workshop was located on an area of hardstanding. Two storage units were located within the southeastern portion of the scrap yard area, both located on an area of hardstanding. Immediately to the east of these storage units were piles of car bumpers and car doors. Cars, car parts, engine blocks, gearboxes, scrap and various paraphernalia were underlain directly by grass or bare soil. Several washing machines were also present in the scrap yard area, as were numerous plastic drums (seemingly empty) and occasional buckets containing what appeared to be engine oil. No oil containment, spillage prevention or the like was observed within any of the drums or buckets. Surface staining of the bare soil/grassed ground surface was observed in some locations within the scrap yard. In addition, bags of broken parts were present in the scrap yard area and appeared to have been present for some time given the vegetation growth around them. An old steel oil drum was located between the scrap yard and workshop and was being used for *ad hoc* burning, with the contents burning and smouldering throughout the duration of the intrusive works.

The workshops and hardstanding in front of the workshop doors (southern end of the workshop) were in use at the time of the intrusive investigation works and whilst detailed inspection of this area was not feasible, the workshop and hardstanding were in use for vehicle repair/working on vehicles and parts, tyres and the like were observed stacked/stored around this portion of the site.

An overhead power line crossed from the central field to a pole to the north of the workshop and cabling fed into a pole-mounted transformer type unit.

The field immediately to the south of the scrap yard area comprised an oval-shaped flat dirt track area, with evidence of burning (including a number of bonfires that were witnessed whilst the intrusive works were undertaken). Plastic, wood and glass debris were observed on the bare soil surface on and around the dirt track. A public footpath ran along the western boundary of this area of the site in a north-south direction.

The central field was recently harvested and fell towards the south, with overhead power lines running in an east-west direction across the northern portion of the field. This field was bounded by trees along the eastern and southern boundaries.

The western field comprised a hay meadow which fell from the north towards the south. A manure heap was located within the eastern portion of the field. A ditch containing water at the time of the walkover, was noted to be present along the southern boundary. Gas service marker posts were observed in the south western corner of the western



field, and along the northern boundary of this field. A brick-built gas governor station was observed to be present offsite immediately adjacent to the north of the western field.

It must be noted that given the use and status of the scrap yard and workshop area, these areas were not fully accessible, and it is possible that evidence of contamination may have been obscured, such as in areas where cars were stacked and the like.

The easternmost portion of the site could not be accessed and appeared to comprise woodland and an overgrown field as observed from the western and northern boundaries. A watercourse appeared to flow through this portion of the site but could not be accessed for observation.

The site was bounded by residential land to the west, Maddoxford Lane to the north, overgrown woodland and fields to the east and open agricultural land to the south.

## 2.2 Geology

British Geological Survey (BGS) geological mapping indicated the ground conditions beneath the site to comprise superficial geology of River Terrace Deposits (Sand and Gravel) in the central-northern area and central-north-eastern area of the site and Alluvium in the north-eastern area of the site overlying bedrock comprising clay silt and sand of the Wittering Formation overlying clay, silt and sand of the London Clay Formation. Given that the site use comprised agricultural land and comprises a number of buildings and scrap yard in the north-eastern area, it is considered likely that there may be areas of reworked, disturbed or Made Ground across areas of the site.

BS5930:2015+A1:2020 defines **Made Ground** as anthropogenic ground in which the material has been placed without engineering control and/or manufactured by man in some way, such as through crushing or washing, or arising from an industrial process. Great variations in material type, thickness and degree of compaction invariably occur and there can be deleterious or harmful matter, as well as potentially methanogenic organic material. In addition, where identified it is not uncommon for asbestos to be present within Made Ground soils.

**Alluvium** is the most recent river or estuarine deposit and generally comprises silty clays usually with an appreciable organic content. Lenses of sand and gravel are also commonly found, as are pockets of peat.

The rivers of southern England, including the River Hamble and its tributaries, have been subject to several changes of level since Pleistocene times. One result has been the formation of a complex series of **River Terrace Deposits**. The deposits are generally found at an elevation close to or higher than that of the existing rivers, and generally comprise sand and gravel of roughly bedded flint or chert of varying degrees of coarseness.

The **Wittering Formation** is the lowest unit of the Bracklesham Group and was deposited by intertidal sedimentation during the Eocene. It comprises mainly brown grey laminated sandy clays and clayey sands with beds of green to brown glauconitic sands. Lignite beds may be encountered towards the base of the formation.

Within the Southampton area the **London Clay Formation** consists predominantly of sandy clay and silty sand. Sporadic claystones occur and thin but persistent bands of rounded flint pebbles occur at the bases of sedimentary cycles.

## 2.3 Hydrogeology

With reference to information provided by the Environment Agency, the superficial geology of the Alluvium and the River Terrace Deposits were both classified as Secondary 'A' Aquifers, along with the bedrock geology of the Wittering Formation, whilst the bedrock strata of the London Clay were classified as Unproductive.

Secondary 'A' Aquifers are 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

Unproductive strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site was noted to be located within a medium groundwater vulnerability area with a low leaching class. The site was noted to be located in an area where no significant soluble rocks are present.

The site was not located within Source Protection Zone. The site was reported to be in a Water Framework Directive (WFD) catchment area for South East Hants Bracklesham Group, the overall rating for which was reported to be poor on site in 2019.

No pollution incidents were recorded within 1000m of the site, nor were any groundwater abstractions or licensed discharges to groundwater identified.

Ambiental Risk Analytics data indicated that the site had a high potential for groundwater flooding to occur along the eastern boundary in the vicinity of the river with the remainder of the site indicated as either a moderate or moderate to high potential for groundwater flooding to occur.

## 2.4 Hydrology

The Groundsure data identified the River Hamble to flow along the eastern site boundary of the site.

The site was identified as being located in the Water Framework Directive (WFD) surface water body catchment for the rivers reported as Horton Heath Stream and Main River Hamble with an overall rating of moderate to good.

No pollution incidents to surface water were identified within 1000m of the site.

Five licensed discharges to surface waters were identified within 500m of the site to freshwater streams or rivers, as summarised below:

- 37m NW – Oakridge Farm, Sewage Discharge – Final treated effluent - not water company, Issue date 19/01/1990, revocation date 31/03/1997. Receiving water: into land;
- 39m N – Maddoxford Farmhouse, Sewage Discharge – Unspecified - not water company, Issue date 15/04/1965, revocation date 31/03/1997. Receiving water: freshwater river;
- 98m N – Maddoxford Farm, Unspecified, Issue date 15/04/1965, revocation date 19/10/1992. Receiving water: freshwater river;
- 265m W – Oatlands Lane, Crows Nest Lane, Miscellaneous Discharges – Surface Water, Issue date 25/04/1980, revocation date 31/03/1997. Receiving water: freshwater river;
- 306m E – Wangfield Farm, Unspecified effluent type, Issue date 18/10/1963, revocation date 01/10/1991. Receiving water: freshwater river.

The highest risk of surface water flooding to occur on site was identified in the immediate vicinity of the adjacent river, as being 1 in 30 year, greater than 1.0m. This eastern area of the site was also located within Flood Zones 2 and 3 (Fluvial/Tidal Models).

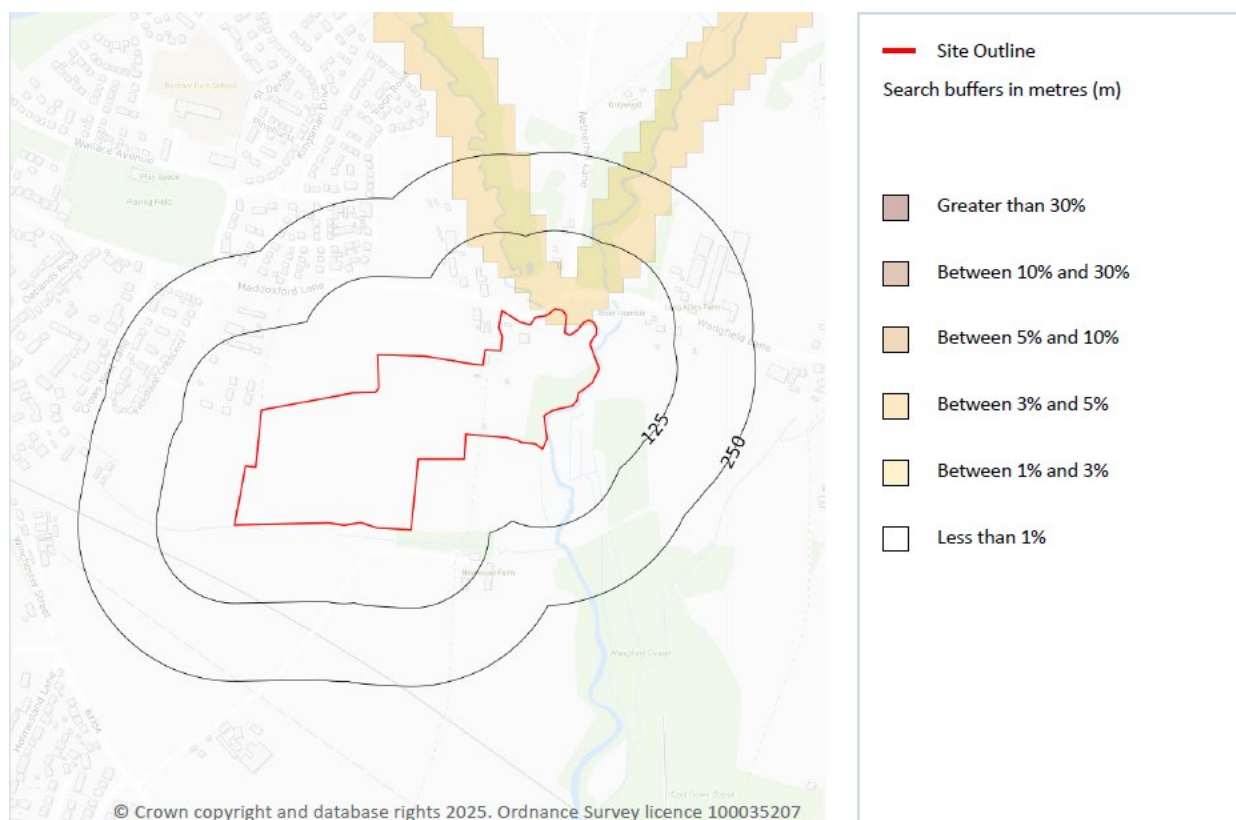
One surface water abstraction was identified onsite along with one abstraction identified within 500m of the site, as summarised below:

- On-site – Holly Tree Farm, Spray Irrigation – Historical – Start date 15/01/1971, no end date or volumes provided;
- 395m SE – Newhouse Farm, Spray Irrigation – Historical – Annual Volume 7910m<sup>3</sup>, Max Daily Volume 159.11m<sup>3</sup> - Start date 21/04/1972, no end date provided.

## 2.5 Radon

The Groundsure report states the majority of the site lies in an area where less than 1% of homes are estimated to be at or above the Action Level as defined by Public Health England. The BGS record states that no radon protective measures are necessary in the construction of the new dwellings or extensions within this specific area of the site.

However, the Groundsure report also states that extreme north-eastern portion of the site lies in an area where between 3% and 5% of homes are estimated to be at or above the Action Level as defined by Public Health England. The BGS record states that basic radon protection measures are necessary in the construction of the new dwellings or extensions within this specific area of the site. It is noted that the current high-level masterplan shows the 3-5% radon area to remain as open space. This must be considered further, if development proposal change for this area of the site.



Extract of Radon map from the desk study



### 3.0 PRELIMINARY RISK ASSESSMENT SUMMARY

The Preliminary Risk Assessment (PRA) and Conceptual Site Model (CSM) developed as part of the desk study identified plausible potential pollutant linkages that exist in relation to the proposed residential redevelopment of the site. However, the preliminary risk rating for each potential linkage identified ranged from moderate to low, low or very low. A moderate risk rating was assigned in relation to radon.

It was recommended that an intrusive investigation and associated testing was to be undertaken to confirm the findings of the desk study report and to provide a robust risk assessment for the site and proposed redevelopment. As such, it was recommended that a geochemical and geotechnical investigation be carried out on the site to include analysis of soil and groundwater (if encountered) samples for the range of potential contaminants identified within the desk study.

#### 3.1 Potential Contamination

The desk study has shown the subject site to have comprised fields across the majority of the site with a farmhouse, storage buildings and scrap yard developed in the northeast of the site from around 1987. The walkover noted the possible presence of asbestos/asbestos containing materials within the workshop structure present on site, along with an area of apparent burning located immediately to the south of the still active scrap yard.

If the scrap yard area end use changes from proposed open space to developed land, the risk assessment must be revisited and it is possible that heightened risk ratings will be derived.

A number of gravel pits were mapped within 250m of the site, all of which were mapped as old pits, and subsequently redeveloped over the course of the mapping period. Two railway lines were mapped within 200m of the site to the east and south, with the railway line to the east being mapped as disused from c.1968 and then dismantled from c.1985. A number of garden nurseries were also mapped within 750m of the site along with a gas valve company site located immediately adjacent to the north wester site boundary.

The site walkover identified marker posts for an intermediate pressure gas pipeline which runs beneath the site along the western site boundary, and overhead power lines located in the north of the site running off site to the east and west.

Whilst site-wide gross contamination is considered unlikely based on the information reviewed, there is the potential for heavy metals, metalloids, sulphates, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), Volatile Organic Compounds (VOCs), battery acid, antifreeze, brake fluid (typically glycol-ether or silicone based) and asbestos to be present within the scrap yard area of the site. In addition, based on the previous site uses and environmental information reviewed, there is the potential for heavy metals, metalloids, sulphates, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), asbestos and pesticides to be present within any Made Ground and shallow soils on the remainder of the site.

If Made Ground is present on site and contained a significant amount of organic matter or organic contamination, it could have the potential to represent a source of ground gases/vapours.

The scrap yard is not considered a plausible source for generation of bulk ground gas, but if organic contaminants such as fuels, oils, hydraulic fluids are present, they could represent a potential vapour source, albeit the proposed open space end use would be less sensitive than if buildings were present. If development proposals change and this portion of the site is to be developed for housing, any vapour focussed risk assessment will need to be revisited.

The environmental data and historic mapping do not suggest that the former gravel pit located c.60m north of the site was backfilled with household or putrescible waste, that would give rise to the generation of ground gases. In addition, this gravel pit was redeveloped for a residential use by c.1965, so is unlikely to contain putrescible waste due to waste treatment and deposition activities at that time, i.e. pre-1960s wastes tended to comprise soils, solids



such as brick and ash type materials with negligible potential for decomposition and gas generation. Therefore, this former gravel pit is not considered a viable source of ground gas that could impact the site.



## 4.0 GROUND INVESTIGATION

### 4.1 Scope of Works

The scope of the works undertaken as part of the intrusive investigation at the site comprised:

- Attendance of a specialist surveyor to undertake a buried utilities clearance survey of the proposed exploratory hole locations using radio-detection and ground penetrating radar techniques. The survey included capture of co-ordinates and levels of exploratory holes using GPS surveying.
- Attendance of a Geo-Environmental Engineer to set out and supervise the intrusive investigation, undertake sampling, in-situ testing and logging of recovered soils from exploratory holes.
- Construction of 3No. cable percussive boreholes (BH01-BH03) to a depth of 25m bgl with Standard Penetration Tests (SPTs) and sampling.
- The construction of 6No. machine dug trial pits (SA01-SA06) to depths of between 1.00m and 2.00m bgl, to enable trial pit soakage testing in general accordance with BRE Digest 365 at differing depths.
- The construction of 18No. machine dug trial pits (TP01-TP18) to depths of 3.00m bgl to provide general site coverage.
- Construction of 10No. dynamic sampler boreholes (WS01-WS10) with Standard Penetration Tests (SPTs) at regular intervals to depths of up to 4m bgl.
- Installation of groundwater monitoring wells within each dynamic sampler borehole (10No.) to a depth of 4m bgl.
- Return winter groundwater 'spot' monitoring, undertaken over the winter period October 2025 to March 2026.
- Geotechnical laboratory testing to support the geotechnical assessment for foundations, ground floor construction and buried concrete design.
- Geochemical laboratory testing for a suite of commonly occurring brownfield contaminants as identified by the desk study for the site.

### 4.2 Investigation Strategy

The positioning of exploratory holes was determined on site to provide general coverage and to target specific areas. Table 4.1 sets out the investigation strategy adopted.

| Area of Concern                               | Investigation                                                                                                                | Positions                     |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| General ground conditions                     | Exploratory holes located across the site, coupled with sampling and laboratory analysis.                                    | All                           |
| Potential contamination of near surface soils | Exploratory holes located to provide coverage of the site, coupled with sampling and laboratory analysis.                    | All                           |
| Scarp-yard (currently still in use)           | Where possible, exploratory holes located to target this use.                                                                | SA05, TP02, WS07, WS09 & WS10 |
| Area of burning                               | Where possible, exploratory holes located to target this use.                                                                | SA06 and WS08                 |
| Permeability of underlying soils              | Soakage testing in line with BRE365 within exploratory hole locations located across the site.                               | SA01-SA06                     |
| Ground conditions at depth                    | Exploratory holes located across the site, coupled with SPTs and sampling and laboratory analysis.                           | BH01-BH03                     |
| Depth of groundwater                          | Monitoring wells were installed within boreholes located across the site to facilitate return winter groundwater monitoring. | WS01-WS10                     |

**Table 4.1 Summary of the Investigation Strategy**



Soil samples were collected and placed into amber jars and cool boxes on site for transit to the office, where they were stored under chilled conditions (<4°C) prior to final transportation in cool boxes to the laboratory by their in-house courier. Both the geotechnical and contamination testing were undertaken by UKAS accredited laboratories (where appropriate). Contamination testing of soil samples was also undertaken in accordance with accredited MCERTS protocols. Samples were stored in temperature-controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with laboratory's protocols.



## 5.0 ENCOUNTERED CONDITIONS

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

For further details of the ground conditions, reference should be made to the exploratory hole logs and in situ testing presented in Appendix A, the geotechnical testing results presented in Appendix B, geochemical testing results presented in Appendix C, and the soakage testing results presented in Appendix D.

The physical ground investigation works were undertaken from 7<sup>th</sup> to 15<sup>th</sup> August 2025.

### 5.1 Soils

The ground conditions encountered during the investigation were broadly consistent with the anticipated published sequence of strata. In summary, ground conditions typically comprised a mantle of Topsoil overlying soils of the River Terrace Deposits, which were found to be underlain by soil inferred to be of the Wittering Formation across the majority of the site with soils inferred to be of the London Clay Formation in the western and south-western portions of the site.

A generalised summary of the encountered shallow ground conditions is presented in Table 5.1.

Unless stated otherwise, all depths are reported as metres below ground level (m bgl).

| Top<br>(m bgl) | Base<br>(m bgl) | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Locations                                                                                                  |
|----------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 0 – 0.20       | 0.10 – 0.60     | <b>TOPSOIL:</b><br>Grass over CLAY with varying proportions of silt, sand and gravel with frequent roots and rootlets, colouration dark brown and brown.                                                                                                                                                                                                                                                                                                             | All except WS10                                                                                            |
| 0              | 0.20            | <b>MADE GROUND:</b><br>Grey silty SAND with much limestone gravel and occasional plastic and metal.                                                                                                                                                                                                                                                                                                                                                                  | WS10 only                                                                                                  |
| 0.10 – 0.50    | 0.80 – >4.00    | <b>RIVER TERRACE DEPOSITS:</b><br>Firm to very stiff orange and grey and orange brown CLAY with varying proportions of silt, sand and gravel; Orange brown and brown GRAVEL with varying proportions of sand and clay; Brown and orange brown SAND with varying proportions of silt and clay                                                                                                                                                                         | BH01-BH02, SA02-SA03, SA05-SA06, TP02, TP04, TP05-TP07, TP09-TP10, TP12, TP16-TP17, WS01-WS02, & WS04-WS10 |
| 0.15 – 3.00    | >25.00          | <b>WITTERING FORMATION:</b><br>Encountered soils were a mixed composition, of predominantly either CLAY or SAND;<br><br>Firm to very stiff CLAY with varying proportions of silt, sand and gravel, colouration brown and blue-grey;<br>Fine SAND with varying proportions of clay and silt, colouration orange brown, orange and grey, light grey and greenish grey.<br><br>Visible desiccation was noted within shallow soils within a number of exploratory holes. | BH01-BH03, SA04, TP01, TP05, TP07, TP09, TP11, TP13-TP18, WS01-WS02, WS04, WS06, & WS08-WS10               |



| Top<br>(m bgl) | Base<br>(m bgl) | Description                                                                                                         | Locations                                                   |
|----------------|-----------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 0.15 –<br>2.60 | >3.00           | <b>LONDON CLAY FORMATION:</b><br>Firm to very stiff orange and grey CLAY with varying proportions of silt and sand. | SA01, TP03-<br>TP04, TP08-<br>TP13, WS01,<br>WS03 &<br>WS05 |

**Table 5.1 Summary of Ground Conditions**

Hand penetrometer testing was undertaken in the cohesive soils of the River Terrace Deposits, Wittering Formation and London Clay Formation within the trial pits and dynamic sampler boreholes to depths of up to 4.00m bgl. These results ranged from 2.5kg/cm<sup>2</sup> to 4.5kg/cm<sup>2</sup> (stiff to very stiff) in the River Terrace Deposits, from 1.2kg/cm<sup>2</sup> to 4.5kg/cm<sup>2</sup> (firm to very stiff) in the Wittering Formation and from 1.4kg/cm<sup>2</sup> to 3.5kg/cm<sup>2</sup> (firm to very stiff) in the London Clay.

Standard Penetration Tests (SPTs) were undertaken within the cable percussive boreholes (BH01-BH03) and within the dynamic sampler boreholes (WS01-WS10). The results of Standard Penetration Tests are discussed in Section 5.4 below.

The exploratory hole logs are presented within Appendix A and the exploratory hole location plan is presented in Figure 2.

## 5.2 Groundwater

Groundwater was encountered within a number of exploratory holes during the intrusive investigation works as summarised in Table 5.2 below.

| Location | Depth (m bgl) | Comment                                                               |
|----------|---------------|-----------------------------------------------------------------------|
| BH01     | 8.00          | Rising to 6.00m after 20mins (borehole subsequently cased to advance) |
| BH02     | 9.30          | Rising to 8.15m after 20mins (borehole subsequently cased to advance) |
| BH03     | 9.00          | Rising to 7.91m after 20mins (borehole subsequently cased to advance) |
| TP11     | 3.00          | Water seepage in base of pit                                          |
| WS01     | 3.00          | Rising to 2.70m after 20mins                                          |
| WS08     | 3.00          | Wet at 3.00m                                                          |

**Table 5.2 Summary of groundwater encountered within exploratory holes during investigation works**

It is possible that groundwater could be present at differing depths over time, e.g. during or following prolonged wet periods. The presence of groundwater in excavations could influence suitability and buildability of foundations, services and the like. This may mean that conventional foundations are not constructible under some conditions, during winter months and following heavy rainfall. This will require careful consideration throughout the design and construction process.

Groundwater monitoring wells were installed within all of the dynamic sampler boreholes (WS01-WS10) to facilitate return winter groundwater monitoring. Monitoring is proposed to be undertaken monthly from October 2025 through to March 2026 and will be reported upon completion.

## 5.3 Obstructions

An intermediate pressure gas pipeline runs along the western site boundary. This pipeline was marked by Southern Gas Networks (SGN) whilst Geo-Environmental were on site to ensure all exploratory hole locations were sufficiently distanced. All exploratory holes were sited at least 15m from this pipeline, as marked and confirmed by SGN's representative.



## 5.4 Geotechnical Testing

SPTs were undertaken within the cable percussive boreholes with SPT 'N' values ranging between uncorrected SPT 'N' values of N=9 and N=50 in the River Terrace Deposits, and N=7 to N>50 in the Wittering Formation, with blow counts and inferred 'strength' varying with depth. SPT testing was also undertaken within the dynamic sampler boreholes with SPT 'N' values ranging between uncorrected SPT 'N' values of N=4 and N=47 in the River Terrace Deposits, N=8 to N=24 in the Wittering Formation and N=10 to N=24 in the London Clay Formation. SPT results are presented on the exploratory hole logs presented in Appendix A and an SPT 'N' Value vs Depth Plot presented within Figure 4.

The results of geotechnical testing undertaken as part of the ground investigation are summarised in Table 5.3 with test results presented in Appendix B.

| Parameter                                   |             | River Terrace Deposits | Wittering Formation | London Clay Formation | Number of tests |
|---------------------------------------------|-------------|------------------------|---------------------|-----------------------|-----------------|
| Natural Moisture Content (%)                |             | 7.8 – 37               | 9.2 – 38            | 31 – 44               | 23              |
| Liquid Limit (%)                            |             | 47 – 110               | 32 – 84             | 75 – 110              |                 |
| Plastic Limit (%)                           |             | 16 – 37                | 13 – 45             | 29 – 46               |                 |
| Plasticity Index (%)                        |             | 29 – 72                | 18 – 51             | 42 – 72               |                 |
| Modified Plasticity Index (%)               |             | 7 – 71                 | 16 – 51             | 42 – 72               |                 |
| Volume Change Potential                     |             | Non-shrinkable to High | Low to High         | High                  |                 |
| Particle Size Distribution % Passing 425µm  |             | 25 – 99                | 82 – 100            | 100                   |                 |
| Particle Size Distribution (%)              | Very Coarse | 0                      | 0                   | -                     | 6               |
|                                             | Gravel      | 1 – 70                 | 0                   | -                     |                 |
|                                             | Sand        | 15 – 77                | 60 – 79             | -                     |                 |
|                                             | Fines       | 15 – 45                | 21 – 40             | -                     |                 |
| pH                                          |             | 7.1                    | 4.7 – 7.7           | 4.7 – 5.2             | 9               |
| Water Soluble Sulphate (mg/l)               |             | 675                    | 22.8 – 93.4         | 32 – 69.9             |                 |
| Acid Soluble Sulphate (%)                   |             | 0.324                  | 0.019 – 0.174       | 0.036 – 0.066         |                 |
| Total Sulphur (%)                           |             | 0.075                  | 0.008 – 0.466       | 0.014 – 0.029         |                 |
| Total Potential Sulphate (%) *              |             | 0.225                  | 0.024 – 1.398       | 0.042 – 0.087         |                 |
| Oxidisable Sulphides (%) *                  |             | -0.099                 | 0.004 – 1.363       | 0.003 – 0.024         |                 |
| Soaked CBR (%)                              |             | 2.1                    | 1.3 – 1.8           | -                     | 3               |
| Optimum Moisture Content (Compaction 2.5kg) |             | 12.4 – 13.4            | 30                  | -                     | 3               |
| Maximum Dry Density (Compaction 2.5kg)      |             | 1.85 - 1.91            | 1.36                | -                     | 3               |
| Optimum Moisture Content (Compaction 4.5kg) |             | 11.7                   | 10.6 – 18.9         | -                     | 3               |
| Maximum Dry Density (Compaction 4.5kg)      |             | 1.91                   | 1.65 - 2.03         | -                     | 3               |

NOTE: Modified plasticity index is defined in NHBC Standards Chapter 4.2; \* values derived from lab results in accordance with BRE SD1

**Table 5.3 Summary of Geotechnical Test Results**

## 5.5 Chemical Analysis

In order to assess the general chemical quality of the strata encountered, samples of soils recovered from the exploratory holes were submitted for analysis for a range of potential contaminants selected on the basis of the findings of the desk study report and supported by CLR publication CLR8 and Environment Agency R&D66 publication. The intrusive investigation did not encounter conditions that required a revision of the preliminary risk



assessment presented within the desk study for the site.

The testing rationale included sampling and analysis to provide a general coverage of the subject site. Testing was undertaken for a broad range of commonly occurring contaminants including metals, metalloids, inorganic compounds, speciated TPH, PAH, and asbestos.

| Laboratory Test          | Number of samples tested | Geological Unit        |
|--------------------------|--------------------------|------------------------|
| Generic Brownfield Suite | 1                        | Made Ground            |
|                          | 8                        | Topsoil                |
|                          | 7                        | River Terrace Deposits |
|                          | 3                        | Wittering Formation    |
|                          | 1                        | London Clay Formation  |
| VOC and SVOC             | 2                        | River Terrace Deposits |
| BS3882 Topsoil Suite     | 4                        | Topsoil                |

**Table 5.4 Summary of Chemical Laboratory Tests Undertaken by Soil Type**



## 6.0 ENGINEERING CONSIDERATIONS

Subsequent to the intrusive investigation of the site and receipt of the laboratory test results, the following geotechnical assessments have been made.

### 6.1 Foundations

Based on the ground and groundwater conditions encountered in the exploratory holes, it is considered that conventional foundations may be suitable for low rise structures with foundations terminating within either the River Terrace Deposits, the Wittering Formation or the London Clay Formation.

On the basis of the results of the Atterberg Limit tests in conjunction with the field observations it is considered that the cohesive elements of the River Terrace Deposits, the Wittering Formation or the London Clay Formation should be classified 'en-masse' as High Volume Change Potential as defined by NHBC Standards, Chapter 4.2, for which a minimum founding depth of 1.00m bgl is required. It is noted that this is a minimum depth based on volume change potential and conventional foundations are often constructed to a depth of 1.20-1.50m bgl on many sites in order to accommodate services and the like.

However, it is also likely that localised deepening of foundations would be required if/where desiccation or roots are present at the time of construction and for foundations constructed within the zone of influence of trees (up to c. 20-25m from high water demand trees) and that piled foundations could be required within 5-10m of high water demand trees, or in areas where shallow groundwater has been identified due to the potential for constructability issues. In addition, foundations must pass through any Made Ground, disturbed/reworked ground, desiccated ground, root zones and the like, and terminate within competent strata of the River Terrace Deposits, Wittering Formation or London Clay Formation.

Foundations which are proposed in proximity to trees and hedgerows (remaining, removed or proposed) should be designed in accordance with NHBC Standards Chapter 4.2, and design approaches 4.2B and 4.2C, which incorporate the water demand of trees and the distance of the tree from the nearest portion of foundation. Where foundations are proposed to be constructed within the zone of influence of trees, it is possible that foundations would need to be deepened to account for the presence and influence of trees. It is possible that foundation bases would require to be stepped and as such, it is recommended that steps do not exceed 0.50m in height at any point and are at least 1.00m (lateral distance) away from any corner or node point on the foundations. Where this cannot be accommodated, the foundation should be formed at the greater depth.

Heave protection measures in accordance with NHBC Standards will be required where foundation depths exceed 1.50m.

SPTs and hand penetrometer results indicated the cohesive soils of the River Terrace Deposits, Wittering Formation and London Clay to generally range from firm to very stiff consistency. The firm to very stiff soils would be a suitable bearing stratum for conventional strip or trench foundations, albeit assuming that groundwater is absent at the proposed founding depth and that these soils are not desiccated. The presence of water within excavations could significantly hinder or potentially prevent construction of conventional foundations. Soft, soft to firm soils are not suitable as a founding stratum.

On the basis of the ground conditions encountered, a net allowable bearing capacity of 90kPa is recommended for the firm to very stiff clay soils of the River Terrace Deposits, Wittering Formation and London Clay Formation, this being limited to reflect the presence of firm clay. Total settlements should remain within tolerable limits for this bearing capacity. Foundations terminating in, on or loading soft clay will not be suitable.

Foundations must pass through any Made Ground, disturbed or reworked ground, root zones or the like and terminate in competent non-desiccated strata. It must be noted that shallow soils were visually assessed to be desiccated in several areas of the site.



Given the variability in ground conditions (varying proportions of clay, silt and sand), it is recommended that reinforcement is included in foundations.

Foundation excavations should be concreted or blinded as soon after excavation as possible. Where concreting could take place the following day it is recommended that excavations are not taken to full depth overnight and that the final 0.5m of cover is only removed immediately prior to concreting.

## 6.2 Piled Foundations

The construction of a piled foundation is a specialist job and the advice of a reputable contractor familiar with the type of ground and groundwater conditions encountered on this site should be sought prior to finalising the design. The actual working load for proposed piles will depend on the particular type of pile and method of installation adopted. If piled foundations, vibratory ground improvement or the like, are proposed on this site, consultation with the gas pipeline owner and their agent will be essential at the earliest opportunity in order to determine acceptable construction options such that the pipeline's structural integrity remains unaffected.

Preliminary load capacities calculated for single, vertically loaded Continuous Flight Auger (CFA) piles are given in Table 6.1. for BH01, Table 6.2 for BH02 and Table 6.3 for BH03. An SPT 'N' Value vs Depth Plot is presented within Figure 4. These values should be used for preliminary purposes only, as the actual working load is dependent on the type of pile and method of installation. Piles should be taken at least five times the pile diameter into the founding strata.

| Pile Type | Pile Diameter (m) | Pile Depth (m) | Working Load (kN) |
|-----------|-------------------|----------------|-------------------|
| CFA       | 0.30              | 6.00           | 60                |
|           |                   | 8.00           | 90                |
|           |                   | 10.00          | 100               |
|           |                   | 14.00          | 160               |
|           |                   | 17.00          | 220               |
|           | 0.40              | 6.00           | 130               |
|           |                   | 8.00           | 150               |
|           |                   | 10.00          | 190               |
|           |                   | 14.00          | 250               |
|           |                   | 17.00          | 320               |
|           | 0.60              | 6.00           | 270               |
|           |                   | 8.00           | 380               |
|           |                   | 10.00          | 390               |
|           |                   | 14.00          | 560               |
|           |                   | 17.00          | 700               |

**Table 6.1 Preliminary Pile Working Loads BH01**

| Pile Type | Pile Diameter (m) | Pile Depth (m) | Working Load (kN) |
|-----------|-------------------|----------------|-------------------|
| CFA       | 0.30              | 6.00           | 60                |
|           |                   | 8.00           | 90                |
|           |                   | 10.00          | 110               |
|           |                   | 14.00          | 170               |
|           |                   | 17.00          | 230               |
|           | 0.40              | 6.00           | 130               |
|           |                   | 8.00           | 150               |
|           |                   | 10.00          | 210               |



| Pile Type | Pile Diameter (m) | Pile Depth (m) | Working Load (kN) |
|-----------|-------------------|----------------|-------------------|
|           |                   | 14.00          | 260               |
|           |                   | 17.00          | 340               |
|           | 0.60              | 6.00           | 270               |
|           |                   | 8.00           | 380               |
|           |                   | 10.00          | 410               |
|           |                   | 14.00          | 590               |
|           |                   | 17.00          | 730               |

Table 6.2 Preliminary Pile Working Loads BH02

| Pile Type | Pile Diameter (m) | Pile Depth (m) | Working Load (kN) |
|-----------|-------------------|----------------|-------------------|
| CFA       | 0.30              | 6.00           | 50                |
|           |                   | 8.00           | 90                |
|           |                   | 10.00          | 120               |
|           |                   | 14.00          | 220               |
|           |                   | 17.00          | 310               |
|           | 0.40              | 6.00           | 80                |
|           |                   | 8.00           | 120               |
|           |                   | 10.00          | 180               |
|           |                   | 14.00          | 310               |
|           |                   | 17.00          | 450               |
|           | 0.60              | 6.00           | 140               |
|           |                   | 8.00           | 220               |
|           |                   | 10.00          | 310               |
|           |                   | 14.00          | 510               |
|           |                   | 17.00          | 880               |

Table 6.3 Preliminary Pile Working Loads BH03

These working loads have been calculated on the basis of the ground and groundwater conditions encountered within the boreholes and assume the following:

- The contribution to the working load on the upper 3.00m has been ignored;
- For the calculation of Safe Working Load, factors of safety of 3 were used on the skin friction and end bearing working loads;
- No allowance has been made for additional forces acting on the pile shaft, such as negative skin friction, loading due to desiccation, heave forces or raising of ground levels.

Settlement of single piles is generally assumed to be less than 10mm where pile diameters do not exceed 600mm. For piles of larger diameter, settlement can become a critical factor.

The bearing values given are applicable to single vertically loaded piles. BRE Research indicates that where groups of piles are to be constructed at 2\* pile diameter centre to centre spacing or less, the bearing value of each individual pile should be reduced by a factor of 0.8 and a calculation made to check for the factor of safety against block failure.

The piling contractor should be aware that boreholes BH02 and BH03 were cased to the full depth (25m bgl) and BH01 was cased to 22m bgl, during drilling and that water was added to aid the drilling process and thus might have masked water inflows at depths other than those recorded. Any requirement for casing during pile construction will ultimately depend on the method of construction, i.e. casing might be required for a cast in-situ bored pile but not for a driven pile. Continuous Flight Auger (CFA) piles do not generally require casing as the auger supports the pile bore during formation and concreting. The piling contractor should ensure that the piles are constructed



satisfactorily and that necking or other damage to the pile shaft does not arise during construction. For further details on the casing and water utilised in the construction of the boreholes reference should be made to the exploratory hole logs presented in Appendix A.

A working platform is likely to be required for the piling plant to traverse and operate on. This should be clarified once piling plant and relevant load cases have been confirmed. The design of a temporary working platform should be undertaken in accordance with BRE Report BR470, or similar good practice guidance. Winter conditions are likely to be worse than summer and it would be prudent to assume winter ground conditions when designing the temporary working platform.

### **6.3 Floor Slabs**

Given the presence of shrinkable soils, suspended floor slabs are recommended. The minimum void height should be determined in accordance with NHBC Standards and account for the volume change potential of the underlying soils.

### **6.4 Excavations**

The intrusive investigation identified minimal pit instability within some of the looser gravel layers, however in general excavations are likely to be stable in the short term based on observations during the intrusive investigation.

Should excavations be exposed to groundwater or surface water excavations are likely to be unstable in the short term and will therefore need to be shored adequately with appropriate retention systems and dewatering. Conventional sump pumping might not be sufficient to control water within excavations. As such, it is possible that conventional foundations might not be the best construction solution in terms of mitigating or controlling construction risk, especially if groundwater control has limited or variable effects. Dewatering should only be used with due caution as excessive pumping rates can cause internal erosion of the soil mass, which together with removal of water can result in settlement of the ground and potential adverse impact on adjacent/nearby structures and infrastructure. Consideration may need to be given to seasonal construction, i.e. construction works to be undertaken during the drier summer months.

In the event that excavations become unstable, the sides should either be shuttered or over-excavated to form vertical sides in order to avoid potential adverse heave on foundations at a later date. Long, deep excavations will require support, particularly if they are to be left open for long periods.

In addition, contingency allowance should be made for encountering water within excavations and this could require a combination of dewatering/pumping and excavation support.

Groundworks should be designed in such a manner to avoid personnel entry into unsupported excavations. Where this cannot be avoided, such entry must only be into supported excavations in accordance with a safe system of work and relevant legislation, e.g. Confined Spaces Regulations, and accounting for potential contamination.

### **6.5 Pavements**

Remoulded soaked laboratory CBR testing was undertaken from samples recovered from shallow depth (assumed sub-grade formation level) across the site to provide a general coverage. The results of the laboratory testing indicated a remoulded soaked CBR value of between 1.3% and 2.1%.

Therefore, based on the laboratory results and the soils encountered on site, a preliminary equilibrium CBR of 1.5% is recommended for the soils at the anticipated formation depth.

The shallow soils should be assumed to be frost susceptible thus requiring a minimum pavement thickness of 450mm. For clay soils, frost susceptibility is based on a Plasticity Index value of <20% where drainage is poor and



shallow water is anticipated (as observed with winter waterlogging). Any hard or soft spots in the formation level may induce reflective cracking in the pavement and allowance should be made for removing hard or soft spots that may be present.

In accordance with Hampshire County Council's guidance, geogrid reinforcement would be recommended within the road construction for any road sections which cross areas of previously vegetated ground, i.e. hedgerows, where trees have been felled and the like.

## 6.6 Sulphates

The results of the water-soluble sulphate and pH analyses from soils of the River Terrace Deposits indicate that buried concrete should be designed in accordance with Class DS-2 of BRE Special Digest 1, with an ACEC class of AC-2.

Buried concrete constructed in soils of the Wittering Formation should be designed in accordance with Class DS-4 of BRE Special Digest 1, with an ACEC class of AC-4.

Buried concrete constructed in soils of the London Clay Formation should be designed in accordance with Class DS-1 of BRE Special Digest 1, with an ACEC class of AC-1.

The advice of this publication should be taken for the design and specification of all sub surface concrete.

## 6.7 Soakaways

Soakage testing was undertaken within 6No. trial pits, SA01-SA06 at depths between 1.00m and 2.00m bgl. The soakage testing was undertaken in general accordance with BRE Digest 365 'Soakaway Design'.

The testing was undertaken over two consecutive days such that where soakage was successful, three drainage cycles were undertaken within the relevant pits. Preliminary infiltration rates have been estimated for each of the test runs undertaken within each trial pit.

For SA01 and SA03 there was an insufficient fall in water to calculate the infiltration rate for these pits, therefore the tests within SA01 and SA03 were deemed to have failed, for SA02 and SA05 test one achieved 75% drainage but for test two there was an insufficient fall in water to calculate the infiltration rates, and for SA04 tests one and two achieved 75% drainage but for test three there was an insufficient fall in water to calculate an infiltration rate. As such, the infiltration rates for these tests are presented within Table 6.4.

| Location | Test Number | Depth of Pit (m bgl) | Calculated infiltration rate (m/s) |
|----------|-------------|----------------------|------------------------------------|
| SA02     | 1           | 1.00                 | $2.0 \times 10^{-6}$               |
| SA04     | 1           | 1.00                 | $6.9 \times 10^{-6}$               |
|          | 2           | 0.90*                | $3.9 \times 10^{-6}$               |
| SA05     | 1           | 1.30                 | $2.6 \times 10^{-6}$               |
| SA06     | 1           | 1.70                 | $8.2 \times 10^{-4}$               |
|          | 2           | 1.70                 | $6.0 \times 10^{-4}$               |
|          | 3           | 1.70                 | $3.4 \times 10^{-4}$               |

\*Pit depth changed between tests due to pit collapse/spalling

**Table 6.4 Soakage testing results**

On the basis of the results from testing undertaken and the observed ground conditions, it is considered that infiltration is variable, but that the discharge of storm water to the ground within the more granular layers of the encountered River Terrace Deposits and Wittering Formation may be possible, assuming the absence of shallow groundwater. The results from the soakage testing are presented within Appendix D.



On-site storage and attenuation, or alternative storm water disposal options should also be considered.

Changes in groundwater levels, such as shallower groundwater during winter months, could reduce storage capacity and performance of soakaways. This might also adversely impact the ability of any ponds to drain via infiltration to the ground and thus attenuated discharge to ditches and surface water may be more appropriate under extension of existing riparian rights.



## 7.0 ENVIRONMENTAL CONSIDERATIONS

A Generic Quantitative Risk Assessment (GQRA) has been undertaken incorporating the results of the ground investigation, the findings of which are presented in the following sections.

Site workers involved in the preparation and construction of the development have not been considered further in this assessment as the Principal Contractor is duty bound under the current CDM Regulations to undertake their own risk assessments with respect to their employees.

### 7.1 Outline Risk Assessment

Soil samples were collected from across the site and included analysis of Topsoil and natural soils. The samples were submitted for analysis for a suite of commonly occurring contaminants including metals, metalloids, inorganic compounds, speciated TPH, PAH and asbestos. Two samples were also scheduled for VOC and SVOC testing from WS09 and WS10 which were located in the scrap yard area.

Apart from localised surface staining on the scrap yard area, no clear visual or olfactory evidence of contamination was identified during the investigation. However, it should be noted that access to the current scrap yard and workshop areas was very limited due to them being operational at the time of the intrusive investigation works.

No other visual or olfactory evidence of contamination was identified within the exploratory holes.

Made Ground composed of soils with a high organic content were not encountered, nor was any infill comprising putrescible wastes. As such, no plausible sources of ground gas were encountered on the site.

### 7.2 Soil Contamination vs. End Users

The presence of a possible contaminant does not necessarily imply that a site or area is contaminated or that there is any unacceptable risk to human health. A Preliminary Quantitative Risk Assessment has been undertaken in order to evaluate any unacceptable risks posed to human health with respect to the proposed redevelopment. It should be noted that this assessment is protective of the chronic long-term effects of contaminants, which is also likely to be protective of any possible immediate acute effects.

A quantitative risk assessment has been undertaken by comparing the results of the laboratory chemical testing of shallow soils against the ATRISKOIL Soil Screening Values (SSVs) derived by Atkins, or against the Suitable for Use Levels (S4ULs) published by LQM (Copyright Land Quality Management Limited reproduced with permission, Publication Number S4UL3453. All rights Reserved) and Category 4 Screening Levels (C4SLs) published by DEFRA for the proposed end use. Although the C4SLs were released for Part 2A use, the associated policy companion document for the C4SLs indicated that they may also be used for planning. Although the C4SLs represent a marginally higher risk level than the SSACs (low risk rather than minimal risk) it is considered that the risk levels remain very low. Therefore, the final C4SLs are considered to be suitable to assess soils under the planning regime.

In the first instance the results of the sample analysis were compared to the Tier 1 screening criteria, for a residential with plant uptake use, where available. Where samples exceeded these criteria, these are summarised in Table 7.1.

| Determinand | Tier 1 Criteria (mg/kg)               | Location & depth (m bgl) | Concentration (mg/kg, unless otherwise stated) | Soil Type   |
|-------------|---------------------------------------|--------------------------|------------------------------------------------|-------------|
| Asbestos    | None                                  | WS10 @ 0.10              | Asbestos Loose Fibres                          | Made Ground |
| Barium      | 56.8 – SSV (1% SOM)<br>283.05 – UKSO* | WS10 @ 0.10              | 120                                            | Made Ground |

NOTES: \* - UKSO UK Soil Observatory background concentration in Topsoil; SOM - soil organic matter

**Table 7.1 Contamination Exceedances Summary (residential land use with plant uptake)**



Asbestos has been detected with the Made Ground in WS10 at 0.1m bgl, in the form of loose chrysotile asbestos fibres. In addition, Barium has also been detected at a concentration above the relevant screening criteria. Remediation will be required to break the pathway between these contaminants and end users of the proposed development, should development be proposed within this area of the site.

It must be noted that at the time of the intrusive investigation works, only limited access was available for the scrapyards area of the site, due to the presence of buildings, vehicles and vehicle parts. As such, supplementary investigation will be required within this area of the site once the vehicles have been removed and the buildings demolished, to enable the assessment of shallow soils in this area to determine their suitability for use.

At this stage and based on the depth of the asbestos impacted Made Ground encountered, remediation is likely to comprise removal of the impacted Made Ground within the vicinity of WS10.

### 7.3 Topsoil Assessment

An assessment was also undertaken on the suitability of the Topsoil encountered onsite to re-use within areas of proposed soft landscaping and private gardens.

The nutritional suitability of the sampled soils has been assessed by reference to BS3882:2015. BS3882 has been referred to as good practice guidance rather than there being a specific requirement to comply with BS3882. A summary of the results is presented below. Where the results are not in accordance with the British Standards this has been highlighted below.

- The recommended concentration of Nitrogen is  $>0.15\text{m/m}$ . All the samples were noted to be within the range of  $0.06\text{m/m} - 0.19\text{m/m}$ . As such, nutrient addition may be required with respect to nitrogen within the soils prior to use as Topsoil. Two of the four samples tested, SA04 and TP15, were below the recommended range.
- The recommended concentration range of Phosphate is  $16-140\text{mg/l}$ . All the samples were noted to be within the range of  $22\text{mg/l} - 67\text{mg/l}$ .
- The recommended concentration range of Potassium is  $121-1500\text{mg/l}$ . All the samples were noted to be within the range of  $70.70\text{mg/l} - 357\text{mg/l}$ . As such, nutrient addition may be required with respect to potassium within the soils prior to use as Topsoil. Two of the four samples tested, SA04 and TP11, were below the recommended range.
- The recommended concentration range of Magnesium is  $51-600\text{mg/l}$ . All the samples were noted to be within the range of  $66\text{mg/l} - 160\text{mg/l}$ .

The stone content of the soils sampled was in line with BS3882 with the stone content of  $>2\text{mm}$ ,  $>20\text{mm}$  and  $>50\text{mm}$  recorded to be compliant within all samples tested.

The average result for Loss on Ignition for the Topsoil was recorded at 3.62% which was noted to be within the acceptable range for a multipurpose Topsoil.

The results of the laboratory analyses indicate that the soils tested were, for most of the criteria, broadly compliant with respect to nutritional suitability. It is recommended that additional sampling of the Topsoil be undertaken following stripping and storage of the material prior to re-use to identify any changes in chemical and physical compositions that may result of any prolonged period of stockpiling on site.

Whilst general garden soil contains nutrients, three major nutrients often require rebalancing or topping up: nitrogen, in a form such as nitrate; phosphorus, as soluble phosphate; and potassium, in the form of potash. These are often referred to as 'NPK' or, more correctly, as  $\text{N:P}_2\text{O}_5:\text{K}_2\text{O}$  (nitrogen, phosphate and potassium), because the ratio between them is as important as the absolute amounts. These major nutrients can be found in natural products such as garden compost and animal manures, or they can be man-made fertilisers. As such, further sampling following any period of stockpiling and closer to the proposed date of placement should be undertaken in order to



assess the concentrations of these nutrients so this can be corrected where required prior to or following the re-use of the materials on-site.

Should further Topsoil need to be imported onto site, for use within to private gardens and soft landscaped areas of the site, prior to importation, the chemical, physical and nutritional suitability should be verified. Importation of topsoil or subsoil from unverified or unsuitable sources would require their removal from site and replacement with suitable materials. As a matter of good practice, it is recommended that the location, approximate extent and thickness of any imported topsoil are recorded and presented in the Validation/Verification Report to be prepared by the Environmental Consultant.

#### 7.4 Soil Contamination vs. Adjacent land Users

Surrounding land uses comprised residential properties to the west of the site and primarily agricultural uses to the north, south and east. On the basis of the testing undertaken to date, it is considered that no significant risks to adjacent land users exist.

However, short term risks to adjacent land users may arise in relation to the generation of soil derived dust and particles as fugitive emissions from the site during the construction phase. Therefore, it is recommended that dust suppression techniques, e.g. damping down exposed soils, are employed during the ground works and construction phases on site in order to minimise and manage potential nuisance issues for adjacent land users.

#### 7.5 Soil Contamination vs. Soft Landscaping

British Standard BS3882:2015 *Specification for topsoil and requirements for use* provides assessment criteria for a number of potentially phytotoxic contaminants in terms of new planting.

The results of the chemical analysis for determinands known to pose a potential phytotoxic risk to plant growth are summarised in Table 7.2, together with the respective adopted Generic Assessment Criteria (GAC) for plant growth. The compliance criteria set out in BS3882:2015 are pH dependent and thus the GAC used relate to the pH range measured on samples recovered from the site.

| Determinand | Phytotoxicity GAC (mg/kg) |            |         | GAC Exceedances |
|-------------|---------------------------|------------|---------|-----------------|
|             | pH <6.0                   | pH 6.0-7.0 | pH >7.0 |                 |
| Zinc        | 200                       | 200        | 300     | No              |
| Copper      | 100                       | 135        | 200     | No              |
| Nickel      | 60                        | 75         | 110     | No              |

**Table 7.2 Summary of Plant Phytotoxicity Assessment**

The phytotoxicity assessment did not identified any exceedances of the phytotoxicity criteria. As such, it is considered that no specific measures are required in this respect.

#### 7.6 Soil Contamination vs. Built Environment

Recommendations with respect to pH and sulphate in relation to buried concrete are made in Section 6.6.

The current guidance on the selection of materials for water supply pipes to be laid in contaminated land is contained in UK Water Industry Research's (UKWIR) report reference 10/WM/03/21 (re-issued 2010). However, the guidance is not mandatory and there has been concerns raised by various industry technical associations regarding the document and the methodologies proposed. Although there are concerns regarding the document, in lieu of any further guidance in the first instance the results of this investigation have been compared with the proposed thresholds published in UKWIR Table 3.1.

The results of the relevant chemical analyses indicate that all results were below the specific thresholds, and



therefore the use of barrier pipe is unlikely to be a requirement. It is therefore recommended that the results of this investigation be presented to the water utility company as soon as reasonably practicable in order to confirm the pipe material.

As a matter of good practice and to maximise the protection to maintenance workers, it is recommended that clean, granular backfill is used in service runs and that marker tapes are used for all buried services.

#### **7.7 Soil Contamination vs. Groundwater**

The investigation did not identify any mobile contamination and thus in the absence of a pollutant linkage, no further action is warranted.

#### **7.8 Groundwater vs Human Health**

The desk study did not identify any potential sources of highly mobile contamination on the site and the intrusive investigation works have not identified any mobile contamination within the soils analysed on the site.

Due diligence and a watching brief should be undertaken as a part of the site clearance/demolition and development works and if any currently unidentified potential sources of mobile contamination are identified these should then be further assessed in line with the discovery strategy for the site.

End users are unlikely to come in to contact with groundwater and thus in the absence of a plausible pollutant linkage between groundwater and end-users, no specific protection measures are considered likely to be required in this respect.

#### **7.9 Groundwater vs Soft Landscaping**

Encountered groundwater levels are considered to be located within the root zone of influence for the soft landscaping on the site. However, soil analysis has not identified elevated contaminant concentrations, that could have resulted in contaminants being mobilised to the groundwater and the vegetation on and around the site showed no evidence of stress. As such, it is considered that no specific action is warranted with respect to soft landscaping.

#### **7.10 Groundwater vs Built Environment**

Protection measures for the Built Environment as discussed in Section 7.6 are considered appropriate.

#### **7.11 Groundwater vs Controlled Waters**

In the absence of any evidence of mobile contamination and elevated contaminant concentrations within soils tested, it is considered that no action is required in terms of risks to control waters.

However, should dewatering be required as part of the proposed development then water pumped out will need to be disposed of under the appropriate duty of care and should not be discharge to any watercourses or ditches without an appropriate permission, sediment control measures and any other limitations or regulatory/statutory requirements being met prior to discharge.

#### **7.12 Update Conceptual Site Model**

Intrusive investigation and subsequent generic quantitative risk assessments have been undertaken to provide a general coverage of the site in relation to the proposed purchase of the site. These assessments are considered sufficient to suitably refine the risks identified in the preliminary Conceptual Site Model.



Following the assessments detailed above the Conceptual Site Model has been updated as summarised in Table 7.3.



| Potential Source/media                                                             | Potential Receptors          | Potential Pathways | Likelihood | Severity | Risk and Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------|------------------------------|--------------------|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Onsite - Contaminants of concern within Made Ground (if present) and shallow soils | End users                    | Direct contact     | Likely     | Medium   | <b>Moderate to Low</b><br>End users could come into contact with soils via direct contact as the development will include private gardens and soft landscaping. Sampling and laboratory testing identified the presence of Asbestos within the Made Ground in the vicinity of WS10. Further investigation is recommended within the scrapyards area of the site to establish the full extent of the impacted soils. Remediation is likely to be required. This is specific to this area of the site only. In other areas of the site (current fields), a low risk rating is considered applicable. |
|                                                                                    | Soft Landscaping             | Root uptake        | Likely     | Minor    | <b>Low</b><br>The proposed development is likely to include areas of private gardens and soft landscaping. No elevated phytotoxic contaminant concentrations were recorded.                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                    | Adjacent land users          | Direct contact     | Unlikely   | Mild     | <b>Very Low</b><br>Adjacent site users are unlikely to come into contact with soils. Sampling and laboratory testing did not identify the presence of contaminant concentrations above the relevant screening criteria, in the vicinity of adjacent site users.                                                                                                                                                                                                                                                                                                                                    |
|                                                                                    | Water supply pipes           | Direct contact     | Unlikely   | Mild     | <b>Very Low</b><br>Water supply pipes would come into contact with impacted or aggressive soils depending upon depth of installation. Sampling and laboratory testing indicate that standard polyethylene pipe would be suitable. However, this should be confirmed with the water utility provider.                                                                                                                                                                                                                                                                                               |
|                                                                                    | Buildings and infrastructure | Direct contact     | Likely     | Minor    | <b>Low</b><br>Foundations and utilities will be placed within potentially aggressive soils. Sampling and laboratory testing demonstrated that buried concrete should be designed in line with DS-2 and AC-2 in soils of the River Terraces Deposits, DS-4 AC-4 in the Wittering Formation and DS-1 AC-1 in the London Clay Formation.                                                                                                                                                                                                                                                              |



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| Potential Source/media                               | Potential Receptors | Potential Pathways                                | Likelihood | Severity | Risk and Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------|---------------------|---------------------------------------------------|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      | Groundwater         | Vertical migration                                | Unlikely   | Medium   | <b>Low</b><br>The site overlies a Secondary 'A' Aquifer (superficial geology – Alluvium and River Terrace Deposits, bedrock – Wittering Formation) and an Unproductive aquifer (bedrock - London Clay). The site is not located within a Source Protection Zone. Significant potentially mobile contamination is not anticipated to be present on site. Sampling and laboratory testing did not identify the presence of mobile contaminants.                                                                                                    |
|                                                      | Surface Water       | Surface runoff, Over land flow, Lateral migration | Unlikely   | Medium   | <b>Low</b><br>The River Hamble forms the eastern site boundary. Significant potentially mobile contamination is not anticipated to be present on site. Sampling and laboratory testing did not identify the presence of mobile contaminants.                                                                                                                                                                                                                                                                                                     |
| Onsite Former Scrap Yard (in north east of the site) | End users           | Direct contact                                    | Likely     | Medium   | <b>Moderate</b><br>End users could come into contact with soils via direct contact as the development will include private gardens and soft landscaping. Sampling and laboratory testing identified the presence of Asbestos within the Made Ground in the vicinity of WS10. Further investigation is recommended within the scrapyard area of the site following the decommissioning of the scrapyard to establish the full extent of the impacted soils. Remediation is likely to be required. This is specific to this area of the site only. |
|                                                      | Soft Landscaping    | Root uptake                                       | Low        | Medium   | <b>Moderate/Low</b><br>The proposed development is likely to include areas of private gardens and soft landscaping. Further investigation is recommended within the scrapyard area of the site following the decommissioning of the scrapyard to establish the full extent of the impacted soils. Remediation is likely to be required. This is specific to this area of the site only.                                                                                                                                                          |
|                                                      | Adjacent land users | Direct contact                                    | Unlikely   | Mild     | <b>Very Low</b><br>Adjacent site users are unlikely to come into contact with soils. Further investigation is recommended within this area of the site following the decommissioning of the scrapyard.                                                                                                                                                                                                                                                                                                                                           |



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| Potential Source/media | Potential Receptors          | Potential Pathways                                | Likelihood | Severity | Risk and Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------|------------------------------|---------------------------------------------------|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | Water supply pipes           | Direct contact                                    | Likely     | Mild     | <b>Moderate/Low</b><br>Water supply pipes would come into contact with impacted or aggressive soils depending upon depth of installation and extent of soil impact. Further investigation is recommended within this area of the site following the decommissioning of the scrapyard.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | Buildings and infrastructure | Direct contact                                    | Likely     | Minor    | <b>Low</b><br>Foundations and utilities will be placed within potentially aggressive soils. Sampling and laboratory testing demonstrated that buried concrete should be designed in line with DS-2 and AC-2 in soils of the River Terraces Deposits, DS-4 AC-4 in the Wittering Formation and DS-1 AC-1 in the London Clay Formation.                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | Groundwater                  | Vertical migration                                | Low        | Medium   | <b>Moderate/Low</b><br>The site overlies a Secondary 'A' Aquifer (superficial geology – Alluvium and River Terrace Deposits, bedrock – Wittering Formation) and an Unproductive aquifer (bedrock - London Clay). The site is not located within a Source Protection Zone. Although mobile contamination maybe be present it is not considered to be significant. The groundwater within the shallow soil beneath the site is consider likely to be representative of perched water. Given underlying ground conditions are considered to primarily consist of cohesive soils the risk of vertical migration is considered to be low. Further investigation is recommended within this area of the site following the decommissioning of the scrapyard. |
|                        | Surface Water                | Surface runoff, Over land flow, Lateral migration | Low        | Medium   | <b>Moderate/Low</b><br>A tributary to the River Hamble, Ford Lake, forms the eastern site boundary. Although mobile contamination maybe be present it is not considered to be significant. Further investigation is recommended within this area of the site following the decommissioning of the scrapyard.                                                                                                                                                                                                                                                                                                                                                                                                                                           |



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| Potential Source/media | Potential Receptors          | Potential Pathways | Likelihood | Severity | Risk and Justification                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|------------------------------|--------------------|------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Onsite Area of Burning | End users                    | Direct contact     | Unlikely   | Mild     | <p><b>Very Low</b><br/>Future occupiers may come into direct contact with soils where soft landscaping is present. Sampling and laboratory testing did not identify the presence of contaminant concentrations above the relevant screening criteria.</p> <p><b>It must be noted that further investigation, i.e. post demolition/vacant possession, in this area could result in an increased risk rating and requirement for remedial action.</b></p> |
|                        | Soft Landscaping             | Root uptake        | Unlikely   | Mild     | <p><b>Very Low</b><br/>Where soft landscaping is proposed on the site, root uptake is possible. Sampling and laboratory testing did not identify the presence of contaminant concentrations above the relevant screening criteria.</p>                                                                                                                                                                                                                  |
|                        | Adjacent land users          | Direct contact     | Unlikely   | Mild     | <p><b>Very Low</b><br/>Adjacent site users are unlikely to come into contact with soils. Sampling and laboratory testing did not identify the presence of contaminant concentrations above the relevant screening criteria.</p>                                                                                                                                                                                                                         |
|                        | Water supply pipes           | Direct contact     | Unlikely   | Mild     | <p><b>Very Low</b><br/>Water supply pipes would come into contact with impacted or aggressive soils depending upon depth of installation and extent of soil impact. Sampling and laboratory testing indicate that standard polyethylene pipe would be suitable. However, this should be confirmed with the water utility provider.</p>                                                                                                                  |
|                        | Buildings and infrastructure | Direct contact     | Likely     | Minor    | <p><b>Low</b><br/>Foundations and utilities will be placed within potentially aggressive soils. Sampling and laboratory testing demonstrated that buried concrete should be designed in line with DS-2 and AC-2 in soils of the River Terraces Deposits, DS-4 AC-4 in the Wittering Formation and DS-1 AC-1 in the London Clay Formation.</p>                                                                                                           |



## Ground Investigation Report

| Potential Source/media                                             | Potential Receptors          | Potential Pathways                                          | Likelihood | Severity | Risk and Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------|------------------------------|-------------------------------------------------------------|------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                    | Groundwater                  | Vertical migration                                          | Unlikely   | Medium   | <b>Low</b><br>The site overlies a Secondary 'A' Aquifer (superficial geology – Alluvium and River Terrace Deposits, bedrock – Wittering Formation) and an Unproductive aquifer (bedrock - London Clay). The site is not located within a Source Protection Zone. Significant potentially mobile contamination is not anticipated to be present on site. Sampling and laboratory testing did not identify the presence of mobile contaminants.                                                                                                                                                                           |
|                                                                    | Surface Water                | Surface runoff, Over land flow, Lateral migration           | Unlikely   | Medium   | <b>Low</b><br>The River Hamble forms the eastern site boundary. Significant potentially mobile contamination is not anticipated to be present on site. Sampling and laboratory testing did not identify the presence of mobile contaminants.                                                                                                                                                                                                                                                                                                                                                                            |
| Ground gases from any organic rich Made Ground (onsite if present) | End Users                    | Inhalation                                                  | Unlikely   | Minor    | <b>Very Low</b><br>Made Ground with an appreciable organic content was not encountered in the exploratory holes, neither was the presence of extensive putrescible material. As such, no plausible source of ground gas has been identified either on, or in the vicinity of the site. Therefore, it is considered that no gas risk has been identified.                                                                                                                                                                                                                                                                |
|                                                                    | Buildings and infrastructure | Gas accumulation and potential explosion of flammable gases | Unlikely   | Minor    | <b>Very Low</b><br>Extensive putrescible material sufficient for significant methane production was not encountered within the exploratory holes. Therefore, it is considered that no gas risk has been identified.                                                                                                                                                                                                                                                                                                                                                                                                     |
| Radon                                                              | End users                    | Inhalation                                                  | Likely     | Medium   | <b>Moderate to Very Low</b><br>The Groundsure report states that the extreme north-eastern corner of the site lies in an area where 3% to 5% of homes are estimated to be at or above the Action Level as defined by Public Health England. Therefore, should development be proposed in this area of the site basic radon protection measures would be required.<br>The majority of the site lies in an area where less than 1% of homes are estimated to be at or above the Action Level as defined by Public Health England. Therefore, no radon protection measures would be required within this area of the site. |

Table 7.3 Updated Conceptual Site Model



### 7.13 Waste Disposal

The soil analyses from the site were assessed using HazWasteOnline software. None of the samples assessed were indicated to comprise properties attributable to hazardous waste, with exception of WS10 which might be hazardous waste depending on the concentration of asbestos within the encountered Made Ground. The HazWasteOnline results are included within Appendix E.

Natural soils at the site are considered likely be classified as Inert Waste (under the respective EWC codes), suitable for disposal at an inert landfill facility, where they are free for asbestos or mobile contaminants. Any soils identified as containing asbestos or mobile contaminants e.g. hydrocarbon may be classified as Hazardous waste.

It must be noted that any waste classification assessment is indicative only and actual classification would depend on permit status of the final disposal facility. Once soils for disposal have been identified it is recommended that further testing of these specific soils be undertaken in order to confirm the above assessment.

In accordance with the CL:AIRE Definition of Waste Code of Practice (2011) materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded by the holder'.

The Code of Practice therefore allows soils to be reused on site where the following criteria are met:

- The re-use of the soils will not present an unacceptable or increased risk to controlled waters, the environment and human health;
- The soils are suitable both in terms of chemical and geotechnical properties for the intended use without prior treatment;
- Only the required volume is used and no more;
- There is a required use and a certainty of use not just a possibility.

In order to comply with the Code of Practice, a Materials Management Plan (MMP) that confirms the above criteria are met must be prepared. Where a remediation strategy is in place for the site, this must be agreed by the regulators to support the re-use of the MMP. The MMP must be reviewed by a 'Qualified Person' who then issues a declaration to the Environment Agency. The MMP and declaration must be in place before soils are excavated and it cannot be applied retrospectively. Geo-Environmental can provide this service should it be required.

Where materials do not meet the required criteria, it may be possible to treat them under an environmental permit so that they may be re-used on site. In addition, where material is discarded as waste, it may still be possible to reuse the waste on site under a standard rules environmental permit or an appropriate waste exemption (please be aware waste exemptions are changing in 2025). However, strict limits on the volumes that can be reused apply in these cases.

Under current legislation, where wastes are to be disposed of to landfill, they may, depending on their classification, require pre-treatment. Pre-treatment shall comprise a chemical, physical (including sorting), thermal or biological process. The pre-treatment is required to change the characteristics of the waste, reduce its volume, reduce its hazardous nature, and facilitate its handling and enhance its recovery.

Other materials disposed of from site as part of the development of the site may require disposal separately. All materials containing dangerous substances e.g. tar or bitumen, asbestos, mercury, hydrocarbons, PCBs and asbestos are likely to be classified as Hazardous Waste and therefore susceptible to the relevant legislative controls.



## 8.0 DISCOVERY STRATEGY

Whilst an intrusive investigation has been undertaken on the site, it remains possible that unexpected ground and/or groundwater conditions may be encountered during the process of construction.

Should previously undiscovered contamination or unforeseen ground conditions be encountered during construction by the ground workers, this must be reported to the Site Manager immediately in order that the Consultant is notified.

Where deemed necessary, the Consultant shall attend the site to inspect the discovery and provide recommendations on the further actions required, if any. Where necessary the regulatory authority shall be informed. Post any additional investigation or laboratory testing the results and any proposed remedial measures shall be reported to the regulatory authority or other appropriate organisation for consent, before proceeding or implementing the remedial measures.

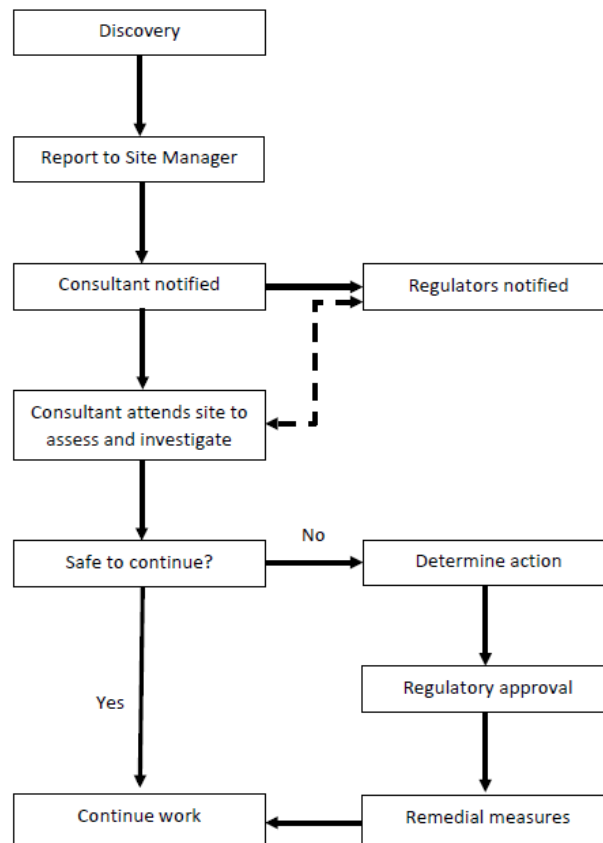
A copy of the discovery strategy must be lodged on site, and provisions made to ensure that all workers are made aware of their responsibility to observe, report, and act on any potentially suspicious, abnormal, unforeseen or contaminated ground and/or groundwater conditions they may encounter.

Depending on the type, nature and extent of any such 'discovery', it may be necessary to halt works in that location until such time as the assessment has been completed. This shall be reviewed on a 'discovery' specific basis and in conjunction with consultation with the client, other technical personnel and/or regulatory/approval organisations.

As a general guide, where such unexpected conditions are encountered the following approach is required as a minimum:

- All discoveries are to be reported to the Site Manager immediately and works at that location are to halt until further notice;
- The Site Manager is to report any such discoveries to the Client and the Consultant;
- Following notification from the Site Manager, the Consultant shall discuss the discovery with the Local Authority and/or other relevant parties and if considered necessary, arrange to meet on site to view the discovery;
- The Consultant shall attend the site to record the location, extent and nature of the discovery and implement an appropriate sampling and analysis regime, taking due account of the type and nature of the discovery, known and probable land uses in that area of the site;
- Where remedial action is required, regulatory consultation and approval will be sought;
- A record will be produced by the Consultant and held on site (with copies held by the Consultant, Client and Local Authority/other relevant organisation), detailing the discovery, assessment works undertaken, findings thereof, confirmation either of no action required or detailing the remedial action taken and validation thereof.

The process is summarised overleaf:

**Discovery Strategy Process**



## FIGURES





**Legend**

□ Site Boundary (Holly Tree Farm)

0 50 m 100 m  
© Mapbox

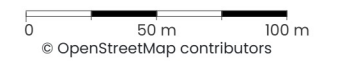
  
**Geo-Environmental**  
Produced by **Datanest.earth**

Title: Site Location Plan

|                              |               |                |
|------------------------------|---------------|----------------|
| Client: Bloor Homes Southern |               | Size: A4       |
| Project:<br>Holly Tree Farm  | Drawn: FG     | Figure No.: 1  |
| Date: 23-06-2025             | Checked: FG   |                |
| Proj No: GE23094             | Scale: 1:2884 | Version: Final |



- Legend**
- Site Boundary (Holly Tree Farm)
  - Proposed Masterplan



**Geo-Environmental**  
Produced by **Datanest.earth**

|                               |               |                   |
|-------------------------------|---------------|-------------------|
| Title: High-Level Master Plan |               |                   |
| Client: Bloor Homes Southern  |               | Size: A4          |
| Project:<br>Holly Tree Farm   | Drawn: FG     | Figure No.: 2     |
| Date: 03-07-2025              | Checked: FG   |                   |
| Proj No: GE23094              | Scale: 1:2884 | Version:<br>Draft |



- Legend**
- Site Boundary (Holly Tree Farm)
  - Cable Percussive Boreholes
  - Monitoring Wells
  - Soakage Testing
  - Trial Pits

0 25 m 50 m  
© Mapbox



**Geo-Environmental**  
Produced by **Datanest.earth**

Title: Exploratory Hole Locations

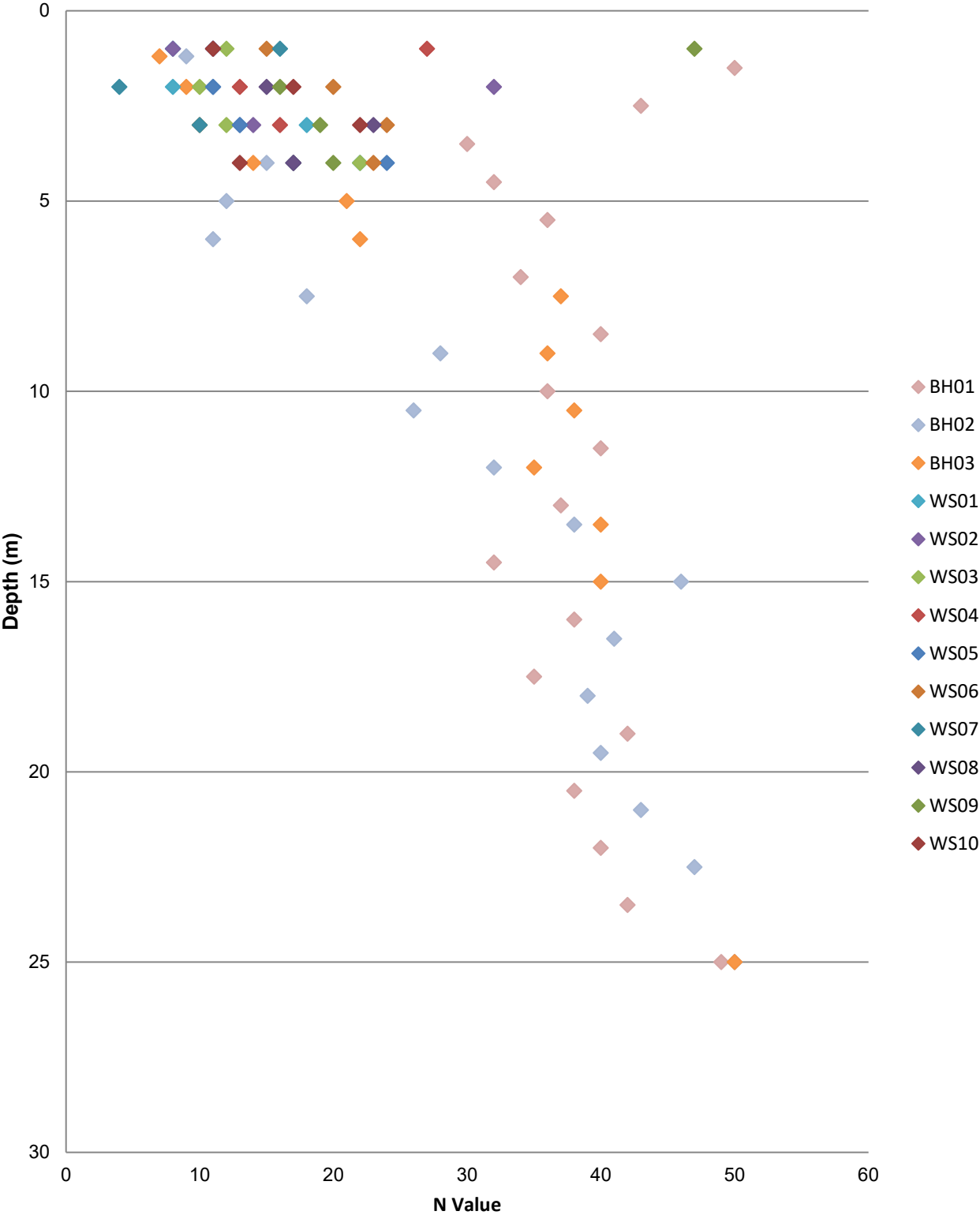
Client: Bloor Homes Southern Size: A4

Project: Holly Tree Farm Drawn: FG Figure No.: 3

Date: 23-06-2025 Checked: FG

Proj No: GE23094 Scale: 1:2534 Version: Final

|                                                                                                        |                                                                              |                                |  |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|--|
| <br>Geo-Environmental | Geo-Environmental<br>Services Limited<br>www.gesl.net<br>+44 (0)1273 832 972 | <h1>SPT N Value Vs Depth</h1>  |  |
| Project ID: <b>GE23094</b>                                                                             |                                                                              | Project Title: Holly Tree Farm |  |
| Client: <b>Bloor Homes Southern</b>                                                                    |                                                                              | Location: Boorley Green        |  |





## **APPENDIX A**

### **Exploratory Hole Logs**





Geo-Environmental  
www.gesl.net

Unit 7, Danworth Farm  
Hurstpierpoint  
BN6 9GL

# Borehole Log

Borehole No.

**BH01**

Sheet 1 of 3

Project Name: Holly Tree Farm

Project No.  
GE23094

Co-ords: 451561E - 114203N

Hole Type  
CP

Location: Boorley Green

Level: 17.78

Scale  
1:50

Client: Bloor Homes Southern

Dates: 11/08/2025

Logged By  
Driller

| Well                    | Water Strikes | Sample and In Situ Testing |         |                       | Depth (m) | Level (m)           | Legend | Stratum Description                           |  |   |
|-------------------------|---------------|----------------------------|---------|-----------------------|-----------|---------------------|--------|-----------------------------------------------|--|---|
|                         |               | Depth (m)                  | Type    | Results               |           |                     |        |                                               |  |   |
|                         |               |                            |         |                       | 0.10      | 17.68               |        | Topsoil                                       |  |   |
|                         |               |                            |         |                       |           |                     |        | TOPSOIL                                       |  |   |
|                         |               |                            |         |                       |           |                     |        | Firm orange brown very gravelly CLAY          |  |   |
|                         |               |                            |         |                       |           |                     |        | RIVER TERRACE DEPOSITS                        |  |   |
|                         |               | 0.80                       | B       |                       | 0.90      | 16.88               |        | Dense orange brown SAND and GRAVEL            |  |   |
|                         |               | 1.00                       | B       |                       |           |                     |        |                                               |  |   |
|                         |               | 1.50 - 1.81                | B       |                       |           |                     |        |                                               |  |   |
|                         |               | 1.50                       | C       | N=50 (6,9/18,21,11,0) |           |                     |        |                                               |  |   |
|                         |               | 2.50 - 2.95                | B       |                       |           |                     |        |                                               |  |   |
|                         |               | 2.50                       | C       | N=43 (2,9/18,18,2,5)  |           |                     |        |                                               |  |   |
|                         |               | 3.00                       | B       |                       | 3.00      | 14.78               |        | Medium dense yellowish brown clayey fine SAND |  | 3 |
| 3.00                    | B             |                            |         |                       |           |                     |        |                                               |  |   |
| 3.50 - 3.95             | B             |                            |         |                       |           | WITTERING FORMATION | 4      |                                               |  |   |
| 3.50                    | C             | N=30 (3,3/4,5,9,12)        |         |                       |           |                     |        |                                               |  |   |
| 4.50 - 4.95             | B             |                            |         |                       |           |                     | 5      |                                               |  |   |
| 4.50                    | C             | N=32 (3,5/5,5,10,12)       |         |                       |           |                     |        |                                               |  |   |
| 5.50 - 5.95             | B             |                            |         |                       |           |                     | 6      |                                               |  |   |
| 5.50                    | C             | N=36 (3,5/7,8,9,12)        |         |                       |           |                     |        |                                               |  |   |
| 7.00 - 7.45             | B             |                            |         |                       |           |                     | 7      |                                               |  |   |
| 7.00                    | C             | N=34 (3,6/6,7,9,12)        |         |                       |           |                     |        |                                               |  |   |
| 8.50 - 8.95             | B             |                            |         |                       |           |                     | 8      |                                               |  |   |
| 8.50                    | C             | N=40 (3,5/6,9,9,16)        |         |                       |           |                     |        |                                               |  |   |
| 10.00 - 10.45           | B             |                            |         |                       |           |                     | 9      |                                               |  |   |
|                         |               |                            |         |                       |           |                     | 10     |                                               |  |   |
| Continued on Next Sheet |               |                            |         |                       |           |                     |        |                                               |  |   |
| Casing                  |               | Water Strikes (mbgl)       |         | Chiselling (mbgl)     |           | Remarks             |        |                                               |  |   |
| Diameter                | Depth (m)     | Depth Strike               | Rose to | Depth from            | Depth to  |                     |        |                                               |  |   |
|                         |               | 8.00                       | 6.00    |                       |           |                     |        |                                               |  |   |
|                         |               |                            |         |                       |           |                     |        |                                               |  |   |
| Status FINAL            |               |                            |         |                       |           |                     |        |                                               |  |   |

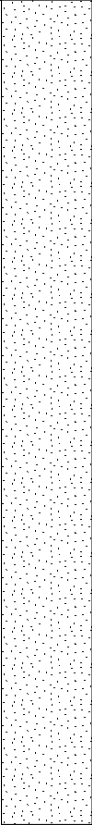
|                                                                                                                                                     |  |                       |  |                            |  |                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br>www.gesl.net |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH01</b><br>Sheet 2 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                       |  | Project No. GE23094   |  | Co-ords: 451561E - 114203N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                             |  |                       |  | Level: 17.78               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                        |  |                       |  | Dates: 11/08/2025          |  | Logged By Driller                           |  |

| Well  | Water Strikes | Sample and In Situ Testing |      |                       | Depth (m) | Level (m) | Legend                                                                       | Stratum Description                                                  |    |    |
|-------|---------------|----------------------------|------|-----------------------|-----------|-----------|------------------------------------------------------------------------------|----------------------------------------------------------------------|----|----|
|       |               | Depth (m)                  | Type | Results               |           |           |                                                                              |                                                                      |    |    |
|       |               | 10.00                      | C    | N=36 (3,5/7,7,10,12)  | 14.20     | 3.58      |                                                                              | Medium dense yellowish brown clayey fine SAND<br>WITTERING FORMATION |    |    |
|       |               | 11.00 - 11.45              | B    |                       |           |           |                                                                              |                                                                      |    | 11 |
|       |               | 11.50                      | C    | N=40 (3,5/8,10,10,12) |           |           |                                                                              |                                                                      |    | 12 |
|       |               | 13.00 - 13.45              | B    |                       |           |           |                                                                              |                                                                      |    | 13 |
|       |               | 13.00                      | C    | N=37 (3,6/6,9,9,13)   |           |           |                                                                              |                                                                      |    | 14 |
|       |               | 14.20                      | B    |                       |           |           |                                                                              |                                                                      |    |    |
|       |               | 14.50 - 14.95              | B    |                       |           |           |                                                                              |                                                                      |    | 15 |
|       |               | 14.50                      | C    | N=32 (3,6/6,7,9,10)   |           |           |                                                                              |                                                                      |    |    |
|       |               | 16.00 - 16.45              | B    |                       | 14.20     | 3.58      | Dense grey blue green fine SAND with pockets of Clay.<br>WITTERING FORMATION |                                                                      |    |    |
|       |               | 16.00                      | C    | N=38 (3,6/7,9,10,12)  |           |           |                                                                              |                                                                      | 16 |    |
|       |               | 17.50 - 17.95              | B    |                       |           |           |                                                                              |                                                                      | 17 |    |
|       |               | 17.50                      | C    | N=35 (3,6/6,7,9,13)   |           |           |                                                                              |                                                                      | 18 |    |
|       |               | 19.00 - 19.45              | B    |                       | 14.20     | 3.58      |                                                                              |                                                                      | 19 |    |
| 19.00 | C             | N=42 (3,9/9,10,11,12)      |      |                       |           |           |                                                                              |                                                                      |    |    |
|       |               | Continued on Next Sheet    |      |                       |           |           |                                                                              |                                                                      | 20 |    |

| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks |
|----------|-----------|----------------------|---------|-------------------|----------|---------|
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |
|          |           | 8.00                 | 6.00    |                   |          |         |

  
 Status  
 FINAL

|                                                                                                                                                                                       |  |                       |  |                            |  |                                             |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br><a href="http://www.gesl.net">www.gesl.net</a> |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH01</b><br>Sheet 3 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                                                         |  | Project No. GE23094   |  | Co-ords: 451561E - 114203N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                                                               |  |                       |  | Level: 17.78               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                                                          |  |                       |  | Dates: 11/08/2025          |  | Logged By Driller                           |  |

| Well                                                                               | Water Strikes | Sample and In Situ Testing |        |                            | Depth (m) | Level (m) | Legend                                                                             | Stratum Description                                                          |    |
|------------------------------------------------------------------------------------|---------------|----------------------------|--------|----------------------------|-----------|-----------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----|
|                                                                                    |               | Depth (m)                  | Type   | Results                    |           |           |                                                                                    |                                                                              |    |
|  |               | 20.50<br>20.50             | B<br>C | N=38 (3,6/6,8,10,14)       | 25.45     | -7.67     |  | Dense grey blue green fine SAND with pockets of Clay.<br>WITTERING FORMATION | 21 |
|                                                                                    |               | 22.00 - 22.45<br>22.00     | B<br>C | N=40 (6,7/7,9,12,12)       |           |           |                                                                                    |                                                                              | 22 |
|                                                                                    |               | 23.50 - 23.95<br>23.50     | B<br>C | N=42 (6,8/8,9,12,13)       |           |           |                                                                                    |                                                                              | 23 |
|                                                                                    |               | 25.00 - 25.45<br>25.00     | B<br>C | N=49<br>(9,10/10,12,12,15) |           |           |                                                                                    |                                                                              | 24 |
|                                                                                    |               |                            |        |                            |           |           | End of Borehole at 25.45m                                                          |                                                                              | 25 |
|                                                                                    |               |                            |        |                            |           |           |                                                                                    |                                                                              | 26 |
|                                                                                    |               |                            |        |                            |           |           |                                                                                    |                                                                              | 27 |
|                                                                                    |               |                            |        |                            |           |           |                                                                                    |                                                                              | 28 |
|                                                                                    |               |                            |        |                            |           |           |                                                                                    |                                                                              | 29 |
|                                                                                    |               |                            |        |                            |           |           |                                                                                    |                                                                              | 30 |

| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks |
|----------|-----------|----------------------|---------|-------------------|----------|---------|
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |
|          |           | 8.00                 | 6.00    |                   |          |         |

  
 Status  
 FINAL

|                                                                                                                                                     |  |                       |  |                            |  |                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br>www.gesl.net |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH02</b><br>Sheet 1 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                       |  | Project No. GE23094   |  | Co-ords: 451455E - 114281N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                             |  |                       |  | Level: 20.97               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                        |  |                       |  | Dates: 11/08/2025          |  | Logged By                                   |  |

| Well                                                                               | Water Strikes                                                                       | Sample and In Situ Testing |        |                    | Depth (m)    | Level (m) | Legend                                                                                                  | Stratum Description                                            |                                                           |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------|--------|--------------------|--------------|-----------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|
|                                                                                    |                                                                                     | Depth (m)                  | Type   | Results            |              |           |                                                                                                         |                                                                |                                                           |
|  |  | 0.50 - 1.00                | B      | N=9 (1,1/2,2,2,3)  | 0.30         | 20.67     | <br>Topsoil<br>TOPSOIL | Brown sandy CLAY with gravel/cobbles<br>RIVER TERRACE DEPOSITS | 1                                                         |
|                                                                                    |                                                                                     | 1.20 - 1.70<br>1.20        | B<br>C |                    | 2.00         | 18.97     |                                                                                                         |                                                                |                                                           |
|                                                                                    |                                                                                     | 2.00 - 2.50<br>2.00        | B<br>C | N=11 (1,1/2,2,3,4) | 2.70         | 18.27     | Brown slightly clayey SAND<br>WITTERING FORMATION                                                       | 3                                                              |                                                           |
|                                                                                    |                                                                                     | 3.00 - 3.50<br>3.00        | B<br>C | N=13 (1,2/2,3,4,4) | 4.30         | 16.67     |                                                                                                         |                                                                | Brown slightly sandy gravelly CLAY<br>WITTERING FORMATION |
|                                                                                    |                                                                                     | 4.00<br>4.00               | D<br>S | N=15 (1,2/4,4,4,3) | 5.00         | 15.97     | Brown clayey SAND<br>WITTERING FORMATION                                                                | 5                                                              |                                                           |
|                                                                                    |                                                                                     | 4.50 - 5.00                | B      | N=12 (1,2/2,3,3,4) | 6.00<br>6.00 | D<br>S    |                                                                                                         |                                                                | N=11 (1,2/3,2,3,3)                                        |
|                                                                                    |                                                                                     | 5.00<br>5.00               | B<br>C |                    |              |           | N=18 (1,2/3,4,5,6)                                                                                      | 7.50<br>7.50                                                   |                                                           |
|                                                                                    |                                                                                     | 6.00<br>6.00               | D<br>S | N=28 (3,4/5,7,7,9) | 9.00<br>9.00 | D<br>S    |                                                                                                         |                                                                | 8                                                         |
|                                                                                    |                                                                                     | 7.50<br>7.50               | D<br>S |                    |              |           | 9.50 - 10.00                                                                                            | B                                                              |                                                           |
|                                                                                    |                                                                                     | 9.00<br>9.00               | D<br>S | 10                 |              |           |                                                                                                         |                                                                |                                                           |
| 9.50 - 10.00                                                                       | B                                                                                   |                            |        |                    |              |           |                                                                                                         |                                                                |                                                           |
| Continued on Next Sheet                                                            |                                                                                     |                            |        |                    |              |           |                                                                                                         |                                                                |                                                           |

| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks |
|----------|-----------|----------------------|---------|-------------------|----------|---------|
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |
|          |           | 9.30                 | 8.15    |                   |          |         |

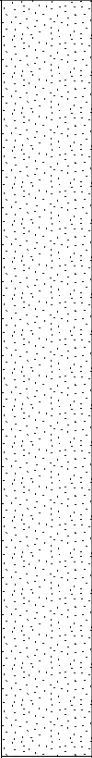
  
 Status  
 FINAL

|                                                                                                                                                     |  |                       |  |                            |  |                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br>www.gesl.net |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH02</b><br>Sheet 2 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                       |  | Project No. GE23094   |  | Co-ords: 451455E - 114281N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                             |  |                       |  | Level: 20.97               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                        |  |                       |  | Dates: 11/08/2025          |  | Logged By                                   |  |

| Well                    | Water Strikes | Sample and In Situ Testing |        |                       | Depth (m) | Level (m) | Legend | Stratum Description                    |    |
|-------------------------|---------------|----------------------------|--------|-----------------------|-----------|-----------|--------|----------------------------------------|----|
|                         |               | Depth (m)                  | Type   | Results               |           |           |        |                                        |    |
|                         |               | 10.50<br>10.50             | D<br>S | N=26 (2,3/4,6,7,9)    |           |           |        | Grey silty SAND<br>WITTERING FORMATION | 11 |
|                         |               | 12.00<br>12.00             | D<br>S | N=32 (2,3/5,8,9,10)   |           |           |        |                                        | 12 |
|                         |               | 13.00 - 13.50              | B      |                       |           |           |        |                                        | 13 |
|                         |               | 13.50<br>13.50             | D<br>S | N=38 (2,4/6,9,11,12)  |           |           |        |                                        | 14 |
|                         |               | 15.00<br>15.00             | D<br>S | N=46 (2,5/8,10,13,15) |           |           |        |                                        | 15 |
|                         |               | 16.00 - 16.50              | B      |                       |           |           |        |                                        | 16 |
|                         |               | 16.50<br>16.50             | D<br>S | N=41 (3,4/7,9,11,14)  |           |           |        |                                        | 17 |
|                         |               | 18.00<br>18.00             | D<br>S | N=39 (3,5/6,8,10,15)  |           |           |        |                                        | 18 |
|                         |               | 19.00 - 19.50              | B      |                       |           |           |        |                                        | 19 |
|                         |               | 19.50<br>19.50             | D<br>S | N=40 (4,5/7,9,11,13)  |           |           |        |                                        | 20 |
| Continued on Next Sheet |               |                            |        |                       |           |           |        |                                        |    |

|          |           |                      |         |                   |          |         |                                                                                                          |
|----------|-----------|----------------------|---------|-------------------|----------|---------|----------------------------------------------------------------------------------------------------------|
| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks | <br>Status<br>FINAL |
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |                                                                                                          |
|          |           | 9.30                 | 8.15    |                   |          |         |                                                                                                          |

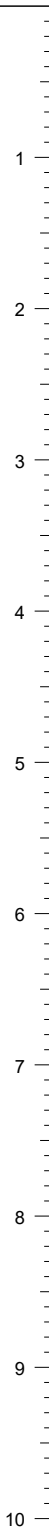
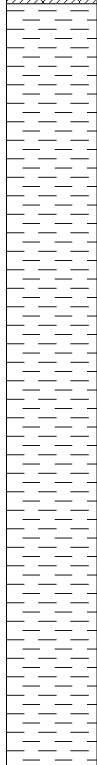
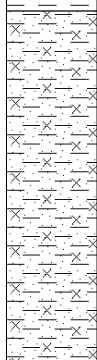
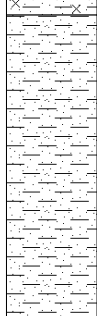
|                                                                                                                                                                                       |  |                       |  |                            |  |                                             |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br><a href="http://www.gesl.net">www.gesl.net</a> |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH02</b><br>Sheet 3 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                                                         |  | Project No. GE23094   |  | Co-ords: 451455E - 114281N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                                                               |  |                       |  | Level: 20.97               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                                                          |  |                       |  | Dates: 11/08/2025          |  | Logged By                                   |  |

| Well                                                                               | Water Strikes | Sample and In Situ Testing |        |                       | Depth (m) | Level (m) | Legend                                                                             | Stratum Description                    |    |
|------------------------------------------------------------------------------------|---------------|----------------------------|--------|-----------------------|-----------|-----------|------------------------------------------------------------------------------------|----------------------------------------|----|
|                                                                                    |               | Depth (m)                  | Type   | Results               |           |           |                                                                                    |                                        |    |
|  |               | 21.00<br>21.00             | D<br>S | N=43 (3,4/7,9,12,15)  |           |           |  | Grey silty SAND<br>WITTERING FORMATION | 21 |
|                                                                                    |               | 22.00 - 22.50              | B      |                       |           |           |                                                                                    |                                        | 22 |
|                                                                                    |               | 22.50<br>22.50             | D<br>S | N=47 (4,6/8,10,13,16) |           |           |                                                                                    |                                        | 23 |
|                                                                                    |               | 24.00 - 24.50              | B      |                       |           |           |                                                                                    |                                        | 24 |
|                                                                                    |               | 25.00<br>25.00             | D<br>S | N=50 (5,6/9,11,13,17) | 25.00     | -4.03     |                                                                                    | End of Borehole at 25.00m              | 25 |
|                                                                                    |               |                            |        |                       |           |           |                                                                                    |                                        | 26 |
|                                                                                    |               |                            |        |                       |           |           |                                                                                    |                                        | 27 |
|                                                                                    |               |                            |        |                       |           |           |                                                                                    |                                        | 28 |
|                                                                                    |               |                            |        |                       |           |           |                                                                                    |                                        | 29 |
|                                                                                    |               |                            |        |                       |           |           |                                                                                    |                                        | 30 |

|          |           |                      |         |                   |          |         |                                                                                                          |
|----------|-----------|----------------------|---------|-------------------|----------|---------|----------------------------------------------------------------------------------------------------------|
| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks | <br>Status<br>FINAL |
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |                                                                                                          |
|          |           | 9.30                 | 8.15    |                   |          |         |                                                                                                          |

|                                                                                                                                                     |  |                       |  |                            |  |                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br>www.gesl.net |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH03</b><br>Sheet 1 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                       |  | Project No. GE23094   |  | Co-ords: 451330E - 114127N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                             |  |                       |  | Level: 21.10               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                        |  |                       |  | Dates: 12/08/2025          |  | Logged By                                   |  |

| Well                                                                               | Water Strikes | Sample and In Situ Testing |        |                      | Depth (m) | Level (m) | Legend                                                                             | Stratum Description                                                                 |                                                                                      |                                                              |
|------------------------------------------------------------------------------------|---------------|----------------------------|--------|----------------------|-----------|-----------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                                                                                    |               | Depth (m)                  | Type   | Results              |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|  |               | 0.10 - 0.50                | B      |                      | 0.50      | 20.60     |   | Topsoil<br>TOPSOIL                                                                  |  |                                                              |
|                                                                                    |               | 0.50 - 1.00                | B      |                      |           |           |  | Soft mottled CLAY<br>WITTERING FORMATION                                            |                                                                                      |                                                              |
|                                                                                    |               | 1.20<br>1.20               | D<br>S | N=7 (1,0/1,1,2,3)    |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 1.60 - 2.00                | B      |                      |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 2.00<br>2.00               | D<br>S | N=9 (1,1/2,2,3,2)    |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 2.50 - 22.50               | D      |                      |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 3.00<br>3.00               | D<br>S | N=10 (1,1/2,2,3,3)   |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 4.00<br>4.00               | D<br>S | N=14 (1,2/3,3,4,4)   |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 4.50 - 5.00                | B      |                      |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 5.00<br>5.00               | D<br>S | N=21 (2,3/4,5,6,6)   |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 5.60 - 6.00                | B      |                      |           |           |                                                                                    |  |                                                                                      | Medium dense blueish silty sandy CLAY<br>WITTERING FORMATION |
|                                                                                    |               | 6.00<br>6.00               | D<br>S | N=22 (2,4/4,5,6,7)   |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 7.50<br>7.50               | D<br>S | N=37 (4,5/7,8,10,12) |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               | 8.00 - 8.50                | B      |                      |           |           |                                                                                    |  |                                                                                      | Medium dense blueish sandy CLAY<br>WITTERING FORMATION       |
|                                                                                    |               | 9.00<br>9.00               | D<br>S | N=36 (4,4/7,8,10,11) |           |           |                                                                                    |                                                                                     |                                                                                      |                                                              |
|                                                                                    |               |                            |        |                      |           |           | Continued on Next Sheet                                                            |                                                                                     | 10                                                                                   |                                                              |

| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks |
|----------|-----------|----------------------|---------|-------------------|----------|---------|
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |
|          |           | 9.00                 | 7.91    |                   |          |         |

  
 Status  
 FINAL

|                                                                                                                                                     |  |                       |  |                            |  |                                             |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--|----------------------------|--|---------------------------------------------|--|
|  Unit 7, Danworth Farm<br>Hurstpierpoint<br>BN6 9GL<br>www.gesl.net |  | <h1>Borehole Log</h1> |  |                            |  | Borehole No.<br><b>BH03</b><br>Sheet 2 of 3 |  |
| Project Name: Holly Tree Farm                                                                                                                       |  | Project No. GE23094   |  | Co-ords: 451330E - 114127N |  | Hole Type CP                                |  |
| Location: Boorley Green                                                                                                                             |  |                       |  | Level: 21.10               |  | Scale 1:50                                  |  |
| Client: Bloor Homes Southern                                                                                                                        |  |                       |  | Dates: 12/08/2025          |  | Logged By                                   |  |

| Well                    | Water Strikes | Sample and In Situ Testing |        |                               | Depth (m) | Level (m) | Legend | Stratum Description                                    |    |
|-------------------------|---------------|----------------------------|--------|-------------------------------|-----------|-----------|--------|--------------------------------------------------------|----|
|                         |               | Depth (m)                  | Type   | Results                       |           |           |        |                                                        |    |
|                         |               | 10.50<br>10.50             | D<br>S | N=38 (4,7/7,9,10,12)          | 15.70     | 5.40      |        | Medium dense blueish sandy CLAY<br>WITTERING FORMATION | 11 |
|                         |               | 12.00<br>12.00             | D<br>S | N=35 (3,5/6,8,10,11)          |           |           |        | 12                                                     |    |
|                         |               | 13.00 - 13.50              | B      |                               |           |           |        | 13                                                     |    |
|                         |               | 13.50<br>13.50             | D<br>S | N=40 (3,6/8,10,11,11)         |           |           |        | 14                                                     |    |
|                         |               | 15.00<br>15.00             | D<br>S | N=40 (3,5/7,9,11,13)          |           |           |        | 15                                                     |    |
|                         |               | 16.00 - 16.50              | B      |                               |           |           |        | 16                                                     |    |
|                         |               | 16.50<br>16.50             | D<br>S | 50 (5,9/10,12,15,13 for 60mm) |           |           |        | 17                                                     |    |
|                         |               | 18.00<br>18.00             | D<br>S | 50 (5,7/9,13,16,12 for 55mm)  |           |           |        | 18                                                     |    |
|                         |               | 19.00 - 19.50              | B      |                               |           |           |        | 19                                                     |    |
|                         |               | 19.50<br>19.50             | D<br>S | 50 (5,8/10,15,18,7 for 20mm)  |           |           |        | 20                                                     |    |
| Continued on Next Sheet |               |                            |        |                               |           |           |        |                                                        |    |

|          |           |                      |         |                   |          |         |                                                                                                          |
|----------|-----------|----------------------|---------|-------------------|----------|---------|----------------------------------------------------------------------------------------------------------|
| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks | <br>Status<br>FINAL |
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |                                                                                                          |
|          |           | 9.00                 | 7.91    |                   |          |         |                                                                                                          |



Geo-Environmental www.gesl.net

Unit 7, Danworth Farm  
Hurstpierpoint  
BN6 9GL

# Borehole Log

Borehole No.

**BH03**

Sheet 3 of 3

Project Name: Holly Tree Farm

Project No.  
GE23094

Co-ords: 451330E - 114127N

Hole Type  
CP

Location: Boorley Green

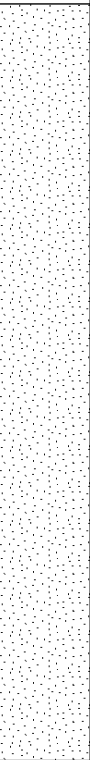
Level: 21.10

Scale  
1:50

Client: Bloor Homes Southern

Dates: 12/08/2025

Logged By

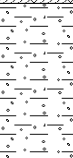
| Well                                                                               | Water Strikes | Sample and In Situ Testing |        |                              | Depth (m) | Level (m) | Legend                                                                             | Stratum Description                       |    |
|------------------------------------------------------------------------------------|---------------|----------------------------|--------|------------------------------|-----------|-----------|------------------------------------------------------------------------------------|-------------------------------------------|----|
|                                                                                    |               | Depth (m)                  | Type   | Results                      |           |           |                                                                                    |                                           |    |
|  |               | 21.00<br>21.00             | D<br>S | 50 (4,8/11,14,19,6 for 10mm) |           |           |  | Dense blueish SAND<br>WITTERING FORMATION | 21 |
|                                                                                    |               | 22.00 - 22.50              | B      |                              |           |           |                                                                                    |                                           | 22 |
|                                                                                    |               | 22.50                      | S      | 50 (5,8/11,16,20,3 for 5mm)  |           |           |                                                                                    |                                           | 23 |
|                                                                                    |               | 24.00 - 24.50              | B      |                              |           |           |                                                                                    |                                           | 24 |
|                                                                                    |               | 25.00<br>25.00             | D<br>S | N=50 (4,7/11,17,22,0)        | 25.00     | -3.90     |                                                                                    |                                           | 25 |
|                                                                                    |               |                            |        |                              |           |           |                                                                                    | End of Borehole at 25.00m                 | 26 |
|                                                                                    |               |                            |        |                              |           |           |                                                                                    |                                           | 27 |
|                                                                                    |               |                            |        |                              |           |           |                                                                                    |                                           | 28 |
|                                                                                    |               |                            |        |                              |           |           |                                                                                    |                                           | 29 |
|                                                                                    |               |                            |        |                              |           |           |                                                                                    |                                           | 30 |

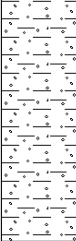
| Casing   |           | Water Strikes (mbgl) |         | Chiselling (mbgl) |          | Remarks |
|----------|-----------|----------------------|---------|-------------------|----------|---------|
| Diameter | Depth (m) | Depth Strike         | Rose to | Depth from        | Depth to |         |
|          |           | 9.00                 | 7.91    |                   |          |         |



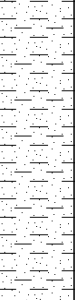
Status  
FINAL

|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------|---------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------|-------|----------|
| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                             |                           | Client:<br>Bloor Homes Southern |                                                                                                       |                                                                    | Trial Pit ID:<br><b>SA01</b> |       |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>07/08/2025 | Logged By:<br>FG          | Checked By:<br>GR               | Status:<br>FINAL                                                                                      | Sheet 1 of 1                                                       |                              |       |          |
|                                                                                                              | Easting:<br>451297.4              | Northing:<br>114050.5       | Ground Level:<br>15.60mOD | Plant Used:<br>JCB              | Date Printed:<br>16/10/2025                                                                           | Scale:<br>1:25                                                     |                              |       |          |
| Trial Pit Log                                                                                                |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
| Weather: Overcast, warm, dry                                                                                 |                                   |                             | Hole Termination:         |                                 |                                                                                                       | Stability: Sides stable                                            |                              |       |          |
| Samples & In Situ Testing                                                                                    |                                   |                             | Strata Details            |                                 |                                                                                                       |                                                                    |                              | Water | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                 | Reduced Level             | Depth (m) (Thickness)           | Legend                                                                                                | Strata Description                                                 |                              |       |          |
| 0.10                                                                                                         | ES1                               |                             | 15.45                     | 0.15                            |                      | Grass over dark brown sandy CLAY with frequent roots and rootlets  |                              | 0.5   |          |
|                                                                                                              |                                   |                             |                           | (0.45)                          |                      | TOPSOIL                                                            |                              |       |          |
| 0.50                                                                                                         | D1                                | PP=3kg/cm2                  |                           |                                 |                      | Firm to stiff brown and grey mottled CLAY with occasional rootlets |                              | 1.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                      | LONDON CLAY                                                        |                              |       |          |
|                                                                                                              |                                   | PP=2.1kg/cm2                | 15.00                     | 0.60                            |                      | Firm orange and grey mottled slightly sandy CLAY. Sand is fine     |                              | 1.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                      | LONDON CLAY                                                        |                              |       |          |
|                                                                                                              |                                   |                             |                           | (1.10)                          |                      | Clay land drain                                                    |                              | 2.0   |          |
| 1.50                                                                                                         | D2                                | PP=1.8kg/cm2                |                           |                                 |                      | Firm orange and grey mottled very sandy CLAY. Sand is fine         |                              |       |          |
|                                                                                                              |                                   |                             | 13.90                     | 1.70                            |                      | LONDON CLAY                                                        |                              | 2.5   |          |
|                                                                                                              |                                   |                             |                           | (0.30)                          |                      | LONDON CLAY                                                        |                              |       |          |
| 2.00                                                                                                         | D3                                | PP=2.4kg/cm2                | 13.60                     | 2.00                            |                                                                                                       | End of Trial Pit at 2.00m                                          |                              | 3.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              | 3.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
| Dimensions:                                                                                                  |                                   |                             |                           |                                 | Photo:                                                                                                |                                                                    |                              |       |          |
| Final Depth:                                                                                                 | 2.00m                             |                             |                           |                                 | <br>PhotoofPit    |                                                                    |                              |       |          |
| Final Width:                                                                                                 | 0.60m                             |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
| Final Length:                                                                                                | 2.00m                             |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
| Remarks                                                                                                      |                                   |                             |                           |                                 | <br>PhotoofSpoil |                                                                    |                              |       |          |
| Groundwater not encountered Soakage                                                                          |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
| Water Strikes (mbgl)                                                                                         |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |
| Depth Strike                                                                                                 | Rose to                           |                             | Time Elapsed (mins)       |                                 |                                                                                                       |                                                                    |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                    |                              |       |          |

|                                                                                                              |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         |       |          |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------|---------------------------|---------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------|----------|
| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                             |                           | Client:<br>Bloor Homes Southern |                                                                                   |                                                                                                                                                                                           | Trial Pit ID:<br><br>SA02 |                         |       |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>07/08/2025 | Logged By:<br>FG          | Checked By:<br>GR               | Status:<br>FINAL                                                                  | Sheet 1 of 1                                                                                                                                                                              |                           |                         |       |          |
|                                                                                                              | Easting:<br>451367.6              | Northing:<br>114206.8       | Ground Level:<br>25.03mOD | Plant Used:<br>JCB              | Date Printed:<br>16/10/2025                                                       | Scale:<br>1:25                                                                                                                                                                            |                           |                         |       |          |
| Trial Pit Log                                                                                                |                                   |                             |                           | Weather: Overcast, dry          |                                                                                   | Hole Termination:                                                                                                                                                                         |                           | Stability: Sides stable |       |          |
| Samples & In Situ Testing                                                                                    |                                   |                             | Strata Details            |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         | Water | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                 | Reduced Level             | Depth (m) (Thickness)           | Legend                                                                            | Strata Description                                                                                                                                                                        |                           |                         |       |          |
| 0.20                                                                                                         | ES1                               | PP=4kg/cm2                  | 24.78                     | 0.25                            |  | Grass over dark brown gravelly CLAY with frequent roots and rootlets<br>TOPSOIL                                                                                                           |                           |                         | 0.5   |          |
| 0.50                                                                                                         | D1                                |                             |                           | (0.55)                          |  | Stiff orange and grey mottled slightly gravelly CLAY with occasional rootlets possibly desiccated. Gravel is fine to medium sub angular to sub rounded of flint<br>RIVER TERRACE DEPOSITS |                           |                         |       |          |
| 1.00                                                                                                         | D2                                | PP=3.5kg/cm2                | 24.23                     | 0.80                            |  | Stiff orange and grey mottled CLAY with rare flint gravel<br>LONDON CLAY                                                                                                                  |                           |                         |       |          |
|                                                                                                              |                                   |                             | 24.03                     | 1.00                            |                                                                                   | End of Trial Pit at 1.00m                                                                                                                                                                 |                           |                         | 1.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         | 2.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         | 2.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         | 3.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         | 3.5   |          |
| Dimensions:                                                                                                  |                                   |                             |                           |                                 |                                                                                   | Photo:                                                                                                                                                                                    |                           |                         |       |          |
| Final Depth:                                                                                                 | 1.00m                             |                             |                           |                                 |                                                                                   | <br>PhotoofPit                                                                                        |                           |                         |       |          |
| Final Width:                                                                                                 | 0.60m                             |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         |       |          |
| Final Length:                                                                                                | 1.80m                             |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         |       |          |
| Remarks                                                                                                      |                                   |                             |                           |                                 |                                                                                   | <br>PhotoofSpoil                                                                                     |                           |                         |       |          |
| Groundwater not encountered Soakage                                                                          |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         |       |          |
| Water Strikes (mbgl)                                                                                         |                                   |                             |                           |                                 |                                                                                   |                                                                                                                                                                                           |                           |                         |       |          |
| Depth Strike                                                                                                 |                                   | Rose to                     |                           | Time Elapsed (mins)             |                                                                                   |                                                                                                                                                                                           |                           |                         |       |          |

|                                                                                                              |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         |       |          |
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| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                             |                           | Client:<br>Bloor Homes Southern |                                                                                                                                                                        |                                                                                                                                                                                            | Trial Pit ID:<br><b>SA03</b> |                         |       |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>07/08/2025 | Logged By:<br>FG          | Checked By:<br>GR               | Status:<br>FINAL                                                                                                                                                       | Sheet 1 of 1                                                                                                                                                                               |                              |                         |       |          |
|                                                                                                              | Easting:<br>451427.8              | Northing:<br>114139.3       | Ground Level:<br>21.32mOD | Plant Used:<br>JCB              | Date Printed:<br>16/10/2025                                                                                                                                            | Scale:<br>1:25                                                                                                                                                                             |                              |                         |       |          |
| Trial Pit Log                                                                                                |                                   |                             |                           | Weather: Overcast, dry, warm    |                                                                                                                                                                        | Hole Termination:                                                                                                                                                                          |                              | Stability: Sides stable |       |          |
| Samples & In Situ Testing                                                                                    |                                   |                             | Strata Details            |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         | Water | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                 | Reduced Level             | Depth (m)<br>(Thickness)        | Legend                                                                                                                                                                 | Strata Description                                                                                                                                                                         |                              |                         |       |          |
| 0.40<br>0.50                                                                                                 | ES1<br>D1                         | PP=3.5kg/cm2                | 21.12                     | 0.20<br><br>(0.80)              | <br> | Grass over dark brown gravelly CLAY with frequent roots and rootlets<br>TOPSOIL<br>Stiff orange and grey mottled slightly gravelly CLAY with occasional rootlets<br>RIVER TERRACE DEPOSITS |                              |                         | 0.5   |          |
| 1.00                                                                                                         | D2                                | PP=3kg/cm2                  | 20.32                     | 1.00                            |                                                                                                                                                                        | End of Trial Pit at 1.00m                                                                                                                                                                  |                              |                         | 1.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         | 1.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         | 2.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         | 2.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         | 3.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         | 3.5   |          |
| Dimensions:                                                                                                  |                                   |                             |                           |                                 | Photo:                                                                                                                                                                 |                                                                                                                                                                                            |                              |                         |       |          |
| Final Depth:                                                                                                 | 1.00m                             |                             |                           |                                 | <br>PhotoofPit                                                                     |                                                                                                                                                                                            |                              |                         |       |          |
| Final Width:                                                                                                 | 0.60m                             |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         |       |          |
| Final Length:                                                                                                | 1.95m                             |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         |       |          |
| Remarks                                                                                                      |                                   |                             |                           |                                 | <br>PhotoofSpoil                                                                  |                                                                                                                                                                                            |                              |                         |       |          |
| Groundwater not encountered. Soakage                                                                         |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         |       |          |
| Water Strikes (mbgl)                                                                                         |                                   |                             |                           |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         |       |          |
| Depth Strike                                                                                                 | Rose to                           |                             | Time Elapsed (mins)       |                                 |                                                                                                                                                                        |                                                                                                                                                                                            |                              |                         |       |          |

|                                                                                                              |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         |       |          |
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| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                             |                              | Client:<br>Bloor Homes Southern |                                                                                   |                                                                                                                          | Trial Pit ID:<br><b>SA04</b> |  |                         |       |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>07/08/2025 | Logged By:<br>FG             | Checked By:<br>GR               | Status:<br>FINAL                                                                  | Sheet 1 of 1                                                                                                             |                              |  |                         |       |          |
|                                                                                                              | Easting:<br>451538.6              | Northing:<br>114277.3       | Ground Level:<br>16.58mOD    | Plant Used:<br>JCB              | Date Printed:<br>16/10/2025                                                       | Scale:<br>1:25                                                                                                           |                              |  |                         |       |          |
| Trial Pit Log                                                                                                |                                   |                             | Weather: Overcast, dry, warm |                                 |                                                                                   | Hole Termination:                                                                                                        |                              |  | Stability: Sides stable |       |          |
| Samples & In Situ Testing                                                                                    |                                   |                             |                              | Strata Details                  |                                                                                   |                                                                                                                          |                              |  |                         | Water | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                 | Reduced Level                | Depth (m) (Thickness)           | Legend                                                                            | Strata Description                                                                                                       |                              |  |                         |       |          |
| 0.10                                                                                                         | ES1                               |                             | 16.43                        | 0.15                            |  | Crop stubble over dark brown slightly silty slightly gravelly CLAY with occasional roots and rootlets                    |                              |  |                         |       |          |
|                                                                                                              |                                   |                             |                              |                                 |  | TOPSOIL                                                                                                                  |                              |  |                         |       |          |
| 0.50                                                                                                         | D1                                | PP=4kg/cm2                  |                              | (0.55)                          |  | Very stiff orange brown CLAY with occasional rootlets and rare flint gravel possible desiccated WITTERING FORMATION      |                              |  |                         | 0.5   |          |
|                                                                                                              |                                   |                             | 15.88                        | 0.70                            |  | Very stiff orange brown slightly sandy slightly gravelly CLAY with rare rootlets possibly desiccated WITTERING FORMATION |                              |  |                         |       |          |
| 1.00                                                                                                         | D2                                | PP=3.8kg/cm2                | 15.58                        | 1.00                            |  | End of Trial Pit at 1.00m                                                                                                |                              |  |                         | 1.0   |          |
|                                                                                                              |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         | 1.5   |          |
|                                                                                                              |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         | 2.0   |          |
|                                                                                                              |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         | 2.5   |          |
|                                                                                                              |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         | 3.0   |          |
|                                                                                                              |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         | 3.5   |          |
| Dimensions:                                                                                                  |                                   |                             |                              |                                 |                                                                                   | Photo:                                                                                                                   |                              |  |                         |       |          |
| Final Depth:                                                                                                 | 1.00m                             |                             |                              |                                 |                                                                                   | <br>PhotoofPit                       |                              |  |                         |       |          |
| Final Width:                                                                                                 | 0.60m                             |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         |       |          |
| Final Length:                                                                                                | 1.90m                             |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         |       |          |
| Remarks                                                                                                      |                                   |                             |                              |                                 |                                                                                   | <br>PhotoofSpoil                    |                              |  |                         |       |          |
| Groundwater not encountered. Soakage                                                                         |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         |       |          |
| Water Strikes (mbgl)                                                                                         |                                   |                             |                              |                                 |                                                                                   |                                                                                                                          |                              |  |                         |       |          |
| Depth Strike                                                                                                 |                                   | Rose to                     |                              | Time Elapsed (mins)             |                                                                                   |                                                                                                                          |                              |  |                         |       |          |

|                                                                                                              |                                   |                             |                                                                                                       |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
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| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                             | Client:<br>Bloor Homes Southern                                                                       |                       |                                                                                                                                                                        | Trial Pit ID:<br><b>SA05</b>                                                                                                                                                               |                           |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>07/08/2025 | Logged By:<br>FG                                                                                      | Checked By:<br>GR     | Status:<br>FINAL                                                                                                                                                       | Sheet 1 of 1                                                                                                                                                                               |                           |          |
| <b>Trial Pit Log</b>                                                                                         | Easting:<br>451612.1              | Northing:<br>114230.0       | Ground Level:<br>15.18mOD                                                                             | Plant Used:<br>JCB    | Date Printed:<br>16/10/2025                                                                                                                                            | Scale:<br>1:25                                                                                                                                                                             |                           |          |
| Weather: Overcast, dry, warm                                                                                 |                                   | Hole Termination:           |                                                                                                       |                       | Stability: Sides stable                                                                                                                                                |                                                                                                                                                                                            |                           |          |
| Samples & In Situ Testing                                                                                    |                                   |                             | Strata Details                                                                                        |                       |                                                                                                                                                                        |                                                                                                                                                                                            | Water                     | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                 | Reduced Level                                                                                         | Depth (m) (Thickness) | Legend                                                                                                                                                                 | Strata Description                                                                                                                                                                         |                           |          |
| 0.40<br>0.50                                                                                                 | ES1<br>D1                         | PP=2.9kg/cm2                | 15.03                                                                                                 | 0.15<br><br>(1.05)    | <br> | Grass over dark brown slightly silty sandy CLAY with frequent roots and rootlets<br>TOPSOIL<br>Firm brown very sandy CLAY with occasional rootlets. Sand is fine<br>RIVER TERRACE DEPOSITS | 0.5<br><br>1.0            |          |
| 1.00                                                                                                         | D2                                | PP=1.5kg/cm2                | 13.98                                                                                                 | 1.20                  |                                                                                       | Firm orange brown very sandy CLAY. Sand is fine<br>RIVER TERRACE DEPOSITS                                                                                                                  | 1.5<br><br>2.0            |          |
| 1.40                                                                                                         | D3                                |                             | 13.78                                                                                                 | 1.40                  |                                                                                                                                                                        | End of Trial Pit at 1.40m                                                                                                                                                                  | 2.5<br><br>3.0<br><br>3.5 |          |
| Dimensions:                                                                                                  |                                   |                             | Photo:                                                                                                |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Final Depth:                                                                                                 | 1.40m                             |                             | <br>PhotoofPit    |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Final Width:                                                                                                 | 0.60m                             |                             |                                                                                                       |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Final Length:                                                                                                | 1.90m                             |                             |                                                                                                       |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Remarks                                                                                                      |                                   |                             | <br>PhotoofSpoil |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Groundwater not encountered. Soakage                                                                         |                                   |                             |                                                                                                       |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Water Strikes (mbgl)                                                                                         |                                   |                             |                                                                                                       |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |
| Depth Strike                                                                                                 | Rose to                           |                             | Time Elapsed (mins)                                                                                   |                       |                                                                                                                                                                        |                                                                                                                                                                                            |                           |          |

|                                                                                                              |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
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| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                              |                           | Client:<br>Bloor Homes Southern |                                                                                       |                                                                                                                                                                    | Trial Pit ID:<br><b>SA06</b> |       |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>07/08/2025  | Logged By:<br>FG          | Checked By:<br>GR               | Status:<br>FINAL                                                                      | Sheet 1 of 1                                                                                                                                                       |                              |       |          |
|                                                                                                              | Easting:<br>451638.6              | Northing:<br>114204.5        | Ground Level:<br>14.60mOD | Plant Used:<br>JCB              | Date Printed:<br>16/10/2025                                                           | Scale:<br>1:25                                                                                                                                                     |                              |       |          |
| Trial Pit Log                                                                                                |                                   | Weather: Overcast, dry, warm |                           | Hole Termination:               |                                                                                       | Stability: Sides stable                                                                                                                                            |                              |       |          |
| Samples & In Situ Testing                                                                                    |                                   |                              | Strata Details            |                                 |                                                                                       |                                                                                                                                                                    |                              | Water | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                  | Reduced Level             | Depth (m)<br>(Thickness)        | Legend                                                                                | Strata Description                                                                                                                                                 |                              |       |          |
| 0.20                                                                                                         | ES1                               | PP=2.5kg/cm2                 | 14.45                     | 0.15                            |      | Dark brown sandy CLAY with occasional roots and rootlets<br>TOPSOIL                                                                                                |                              | 0.5   |          |
| 0.50                                                                                                         | D1                                |                              |                           | (0.65)                          |                                                                                       | Firm orange brown sandy CLAY with occasional rootlets<br>RIVER TERRACE DEPOSITS                                                                                    |                              |       |          |
| 1.00                                                                                                         | D2                                | PP=1.6kg/cm2                 | 13.80                     | 0.80                            |      | Firm orange brown sandy CLAY<br>RIVER TERRACE DEPOSITS                                                                                                             |                              | 1.0   |          |
| 1.50                                                                                                         | D3                                |                              |                           | (0.50)                          |                                                                                       | Firm orange brown very gravelly CLAY. Gravel is fine to coarse<br>sub angular to sub rounded of flint<br>RIVER TERRACE DEPOSITS                                    |                              |       |          |
| 1.80                                                                                                         | D4                                |                              | 13.30                     | 1.30                            |      | Firm orange brown very gravelly slightly sandy CLAY. Gravel is<br>fine to medium sub angular to sub rounded of flint and sand is<br>fine<br>RIVER TERRACE DEPOSITS |                              | 1.5   |          |
|                                                                                                              |                                   |                              |                           | 13.00                           | 1.60                                                                                  |                                                                                   | End of Trial Pit at 1.80m    |       |          |
|                                                                                                              |                                   |                              | 12.80                     | 1.80                            |                                                                                       |                                                                                                                                                                    |                              | 2.5   |          |
|                                                                                                              |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              | 3.0   |          |
|                                                                                                              |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              | 3.5   |          |
| Dimensions:                                                                                                  |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Final Depth:                                                                                                 |                                   | 1.80m                        |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Final Width:                                                                                                 |                                   | 0.60m                        |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Final Length:                                                                                                |                                   | 1.80m                        |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Remarks                                                                                                      |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Groundwater not encountered Soakage                                                                          |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Water Strikes (mbgl)                                                                                         |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Depth Strike                                                                                                 |                                   | Rose to                      |                           |                                 | Time Elapsed (mins)                                                                   |                                                                                                                                                                    |                              |       |          |
|                                                                                                              |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
| Photo:                                                                                                       |                                   |                              |                           |                                 |                                                                                       |                                                                                                                                                                    |                              |       |          |
|                          |                                   |                              |                           |                                 |  |                                                                                                                                                                    |                              |       |          |
| PhotofPit                                                                                                    |                                   |                              |                           |                                 | PhotofSpoil                                                                           |                                                                                                                                                                    |                              |       |          |

|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
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| <br><b>Geo-Environmental</b> | Contract Name:<br>Holly Tree Farm |                             |                           | Client:<br>Bloor Homes Southern |                                                                                                       |                                                                                                                                           | Trial Pit ID:<br><b>TP01</b> |       |          |
|                                                                                                              | Contract Number:<br>GE23094       | Date Started:<br>12/08/2025 | Logged By:<br>FG          | Checked By:<br>GR               | Status:<br>FINAL                                                                                      | Sheet 1 of 1                                                                                                                              |                              |       |          |
|                                                                                                              | Easting:<br>451482.4              | Northing:<br>114269.0       | Ground Level:<br>19.79mOD | Plant Used:<br>JCB              | Date Printed:<br>16/10/2025                                                                           | Scale:<br>1:25                                                                                                                            |                              |       |          |
| Trial Pit Log                                                                                                |                                   | Weather: Hot, sunny, dry    |                           | Hole Termination:               |                                                                                                       | Stability: Sides stable                                                                                                                   |                              |       |          |
| Samples & In Situ Testing                                                                                    |                                   |                             | Strata Details            |                                 |                                                                                                       |                                                                                                                                           |                              | Water | Backfill |
| Depths                                                                                                       | Sample ID                         | Test Result                 | Reduced Level             | Depth (m) (Thickness)           | Legend                                                                                                | Strata Description                                                                                                                        |                              |       |          |
| 0.10                                                                                                         | ES1                               |                             | 19.64                     | 0.15                            |                      | Crop stubble over dark brown slightly sandy slightly gravelly CLAY with frequent roots and rootlets                                       |                              | 0.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | TOPSOIL                                                                                                                                   |                              |       |          |
| 0.50                                                                                                         | D1                                | PP=4.5kg/cm2                | 19.19                     | 0.60                            |                      | Firm orange brown slightly sandy silty CLAY with occasional rootlets                                                                      |                              | 1.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | WITTERING FORMATION                                                                                                                       |                              |       |          |
| 1.00                                                                                                         | D2                                | PP=3kg/cm2                  | 18.59                     | 1.20                            |                      | Very stiff orange and grey mottled slightly gravelly CLAY with occasional rootlets possibly desiccated                                    |                              | 1.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | WITTERING FORMATION                                                                                                                       |                              |       |          |
| 1.50                                                                                                         | D3                                | PP=2.5kg/cm2                | 17.99                     | 1.80                            |                      | Stiff orange and grey mottled slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub angular to sub rounded and sand is fine |                              | 2.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | WITTERING FORMATION                                                                                                                       |                              |       |          |
| 2.00                                                                                                         | D4                                |                             | 17.59                     | 2.20                            |                      | Firm orange brown silty CLAY                                                                                                              |                              | 2.5   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | WITTERING FORMATION                                                                                                                       |                              |       |          |
| 2.50                                                                                                         | D5                                |                             | 17.19                     | 2.60                            |                      | Firm orange brown silty sandy CLAY. Sand is fine                                                                                          |                              | 3.0   |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | WITTERING FORMATION                                                                                                                       |                              |       |          |
| 3.00                                                                                                         | D6                                |                             | 16.79                     | 3.00                            |                      | Orange brown clayey fine SAND                                                                                                             |                              | 3.5   |          |
|                                                                                                              |                                   |                             |                           |                                 | WITTERING FORMATION                                                                                   |                                                                                                                                           |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       | End of Trial Pit at 3.00m                                                                                                                 |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
| Dimensions:                                                                                                  |                                   |                             |                           |                                 | Photo:                                                                                                |                                                                                                                                           |                              |       |          |
| Final Depth:                                                                                                 | 3.00m                             |                             |                           |                                 | <br>PhotoofPit    |                                                                                                                                           |                              |       |          |
| Final Width:                                                                                                 | 0.60m                             |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
| Final Length:                                                                                                | 1.80m                             |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
| Remarks                                                                                                      |                                   |                             |                           |                                 | <br>PhotoofSpoil |                                                                                                                                           |                              |       |          |
| Groundwater not encountered                                                                                  |                                   |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
| Water Strikes (mbgl)                                                                                         |                                   |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
| Depth Strike                                                                                                 | Rose to                           |                             | Time Elapsed (mins)       |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |
|                                                                                                              |                                   |                             |                           |                                 |                                                                                                       |                                                                                                                                           |                              |       |          |