

RDM Environmental and Geotechnical Engineering Ltd

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Our ref: RDM1210

27th May 2025

Mr Duncan Vercoe,
Talbot Construction Ltd,
Unit 3a, Manor Business Park,
Grants Hill Way, Woodford Halse,
Northamptonshire.
NN11 3UB.

Dear Duncan,

Report on a series of BRE 365 infiltration tests undertaken at a proposed residential development site at Sperberry Hill, Stevenage Road, St Ippolyts, Hertfordshire SG4 7NZ.

Introduction

RDM Environmental and Geotechnical Engineering Ltd was commissioned by Mr Duncan Vercoe of Talbot Homes Ltd to undertake a series of infiltration tests, conducted under BRE 365 criteria, to assess the suitability of soakaway drainage for surface water dissipation for the proposed development. The location of the proposed residential development is on land adjacent to Sperberry Hill, Stevenage Road, St Ippolyts, Hertfordshire SG4 7NZ, hereafter known as “the site”.

Prior to testing, reference was made to a site investigation undertaken by Paddock Geo Engineering (PGE) in February 2019. The PGE report includes a summary of a series of trial pits, advanced on the site in January 2019, and the soils encountered. Groundwater was not noted to be present in any of the trial pits.

The scope of the report is confined to the infiltration properties of the soils on the site and excludes an assessment of potentially harmful soils or contaminants from an anthropogenic or naturally occurring perspective. This report also excludes the identification of injurious and invasive weeds. If identified, then specialist advice needs to be sought, as the presence of these plants on site may have considerable effects on the cost and timescale of development.

Geology

The superficial geology underlying the site is a layer of glacio-fluvial sand and gravels deposited during the Cromerian Stage of the mid-Pleistocene Epoch, around four-hundred and eighty to eight-hundred thousand years ago. The Cromerian Stage is known as mainly a temperate interglacial period, though several periods of major glaciation are evident.

Underlying the sands and gravels is the bedrock of the Holywell Nodular and New Pit chalk formations, deposited in a marine environment of the Cretaceous Period, ninety-three to one-hundred million years ago.

Site Investigation Methodology

Prior to testing, on Wednesday December 4th and Thursday December 5th 2024, a series of eight trial pits were excavated on the site, with each located to provide a thorough overall coverage of the potential for infiltration on the site. A site map showing each location is appended.

Each pit was excavated to approximately 1.00m³ below the topsoil covering on the site, so that the outcome of the test would be based on the properties of the sand and gravel deposits, and not influenced by more permeable overlying layers.

A water supply, provided by a 10x10³ litre capacity tanker with 100m of hosing, enabled each pit to be filled with water with 2x10³ litres held in reserve. However, with some pits having been excavated to greater dimensions than requested, the reserve volume of water was quickly used as some pits required greater volumes in order for the test to be conducted.

In accordance with BRE 365 criteria, each pit was tested twice with confirmation of completion being confirmed on Friday 6th December. Results were mixed, however, with some pits failing whilst others demonstrated a capacity to rapidly dissipate water. This is due to the clay matrix, in which the sands and gravels are held, varying in density or material content.

Summary of BRE 365 testing

Table 1 below summarises the results of the site data following completion of BRE 365 testing over two days.

Pit No.	Test outcome Day 1	Test outcome Day 2	Completed within 24 hours?	Infiltration rate (m/s) taken as an average over both tests where possible	Comments
S1	Failed	Failed	No	n/a	Pit failed to empty from day1
S2	Failed	Failed	No	n/a	Pit failed to empty from day 1
S3	n/a	Complete	Yes	1.54x10 ⁻⁵	Completed successfully but missed on day 1 due to lack of water
S4	Complete	Complete	Yes	3.97x10 ⁻⁵	Completed successfully over both test days
S5	Complete	n/a	Yes	4.14x10 ⁻⁵	Completed successfully but missed on day 2 due to lack of water
S6	Complete	n/a	Yes	2.41x10 ⁻⁵	Completed successfully but missed on day 2 due to lack of water
S7	n/a	Complete	Yes	3.05x10 ⁻⁵	Completed successfully but missed on day 1 due to lack of water
S8	n/a	Complete	Yes	2.24x10 ⁻⁵	Completed successfully but missed on day 1 due to lack of water

Table 1: Summary of BRE 365 testing over two days with infiltration rate

Conclusion

BRE 365 infiltration assessment at the site at St Ippolyts aimed to undertake eight infiltration tests over two days following BRE 365 criteria, so that an overall surface water dissipation strategy could be devised for the proposed residential developments.

In practice, a limiting factor for the investigation was seen to be the excavations made for the tests. Some were made to the size requested, but others were significantly larger and required more water than the planned reserve could accommodate. Consequently, the test program was limited in the amount of data generated.

However, with the exception of tests S1 and S2, which remained undrained over the test period, the remaining test locations were monitored with data being successfully recorded, and an infiltration rate calculated.

With the proviso that a concession is made for limited test data, where some tests were not run twice due to lack of water, the site is deemed suitable for soakaway drainage, with results comparable to empirical data for soils comprising sands and gravels held in a clay matrix.



Richard Gray BSc (Hons) FGS

RDM Environmental and Geotechnical Engineering Ltd

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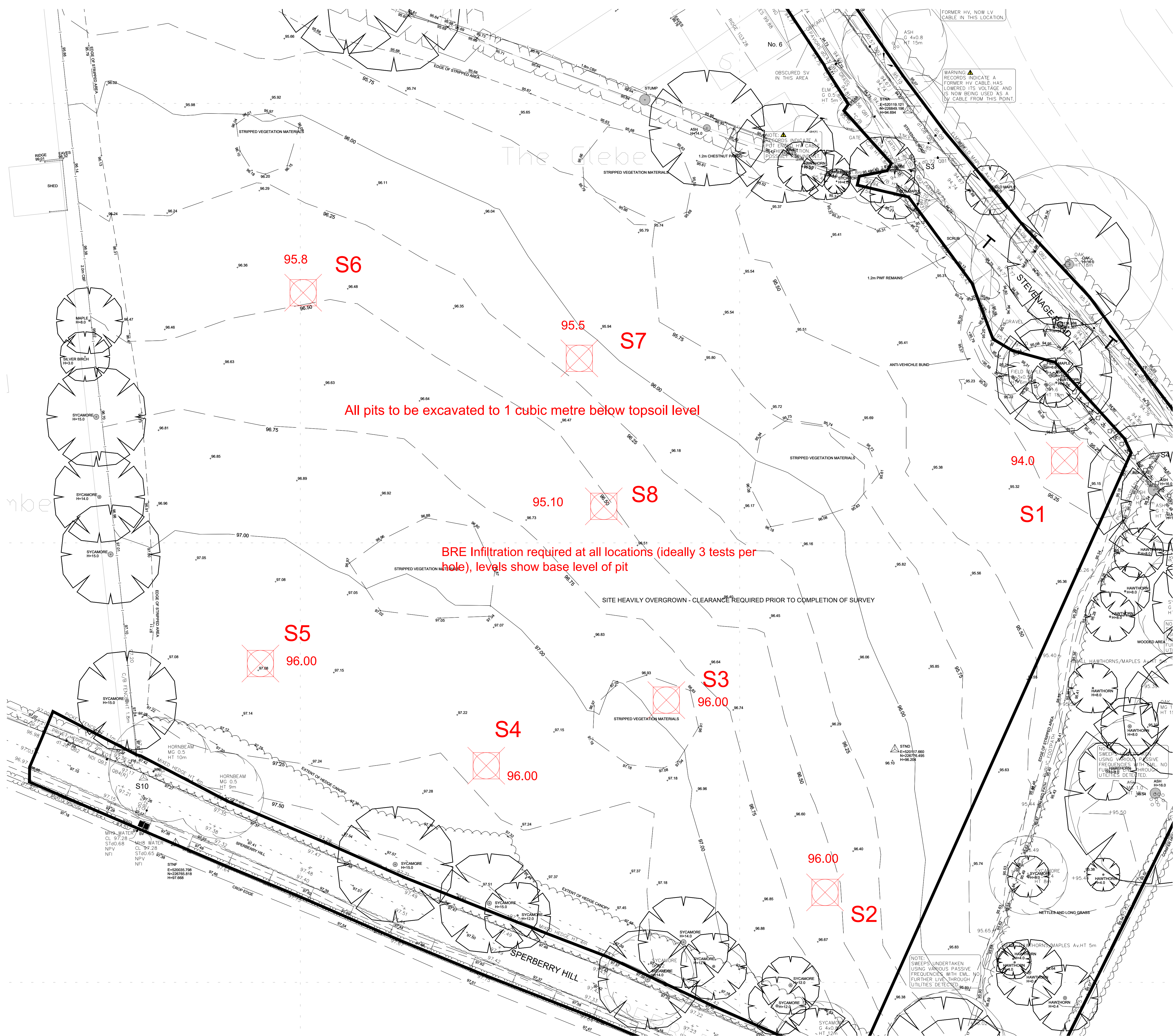
Location map

Annotated site map to show locations of BRE 365 trial pits

Limitations to investigation



Site location for land-off Sperberry Hill, Stevenage Road, St Ippolyts



Limitations to the Investigation

1. This report has been prepared and written specifically for the Client named in the introduction and is exclusively for his/her/their benefit. No reliance may be placed in the contents of this report by any third party except with the express agreement of the original Client and the written agreement of RDM. Such written agreement may require the payment of an additional fee.
2. Where applicable, the Executive Summary and Recommendations sections of this report only provide an overview of the guidance and should not be specifically relied upon in their own right but should be considered in relation to the whole report and the development described in this report.
3. This report has been prepared and written in the context of the proposals for the development of the Site as stated by the Client and will not be valid in a differing context. Furthermore, new information, improved practices, or legislation may necessitate alterations to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of this report, it should be referred to us for re-assessment.
4. The assessment and interpretation of contamination and associated risks are based upon the scope of the work described in the fee proposal and agreed with the client, the report may not be sufficient to fully address the contamination or allow a detailed remediation scheme to proceed without further investigation or analysis.
5. Any assessments made in this report are based on the ground conditions and as revealed by the test pits and boreholes together with the results of any field or laboratory testing undertaken and where appropriate other relevant data which may have been obtained for the Site. The sources of such information are detailed in this report and while RDM use only such sources as are believed to be reliable, RDM will not be liable for the authenticity or reliability of information obtained from others.
6. Notwithstanding that factual reports from third parties concerning asbestos or mould of any kind may have been included for information purposes in this report, RDM will have no liability whatsoever for any claim or claims arising related to asbestos or mould of any kind.
7. There may also be special conditions appertaining to the Site which were not revealed by the investigation and which will not, therefore, have been taken into account in this report. Any assessments may be subject to amendment in the light of additional information becoming available.
8. Whilst an opinion may be expressed or implied in this report on possible configurations of strata between or beyond test pit or borehole locations, or on the possible presence of features based on either visual, verbal or published evidence, this is for guidance only and no liability can be accepted for the accuracy of such opinions.
9. Comments on groundwater conditions will have been based on observations made only at the time of the investigation unless otherwise stated. It should be noted, however, that groundwater levels vary due to seasonal and other effects.
10. This report is not a site categorisation, and hazards could occur which have not been detected.
11. Where data has been provided or is made available to RDM and this has been used in the report, it has been assumed that the information is correct. No responsibility can be accepted by RDM for inaccuracies within the data supplied.
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13. This report has been prepared solely for the client's purposes in obtaining planning permission and discharge of the planning conditions related to the proposed development indicated in the report. The discharge of these conditions does not constitute that the Site could be determined under Part IIA of the Environmental Protection Act 1990.