

BRE365 SOAKAGE TESTING AT 66a LADYDELL ROAD, WORTHING, WEST SUSSEX, BN11 2JT.

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Contents

Statement of Limitations	1
Executive Summary.....	3
1 Introduction	4
1.1 Project Details.....	4
2 BRE365 Testing.....	5
2.1 Test Methodology	5
3 Test Results	6
4 Summary	7
5 Figures.....	8
Figure 1 – Trial Pit Locations	9
Figure 2 - Site Photos	10
6 Appendices	11
Table 1 Test Pit Descriptions.....	5
Table 2 Test Pit Details.....	Error! Bookmark not defined.
Table 3 Analysis Results.....	6

Executive Summary

H2Ogeo Ltd was instructed to undertake infiltration (soakage) testing in accordance with *BRE Digest 365: Soakaway Design* at 66 aLadydell Road in Worthing West Sussex on the 12 June 2026.

The purpose of the investigation was to calculate the infiltration rates in the existing soakage crate.

One trial pit was excavated to 1.2mbgl (TP1) and logged with the soakage crate (SA1) tested in line with BRE365 Digest.

Water-level measurements were recorded at defined time intervals to determine infiltration performance, with analysis undertaken using the BRE365 infiltration formula based on the 75% and 25% effective storage interval and the internal surface area at 50% storage depth.

Data from SA1 was projected to resolve the BRE365 equation as the test carried out in the existing crate did not reach the 75% effective storage levels in the time allowed on site.

The infiltration rate for TP1 was 3.0×10^{-6} m/sec.

No groundwater was observed in TP1.

1 Introduction

H2Ogeo Ltd undertook infiltration (soakage) testing in accordance with *BRE Digest 365: Soakaway Design* at 66a Ladydell Road in Worthing, West Sussex.

The purpose of the investigation was to assess the suitability of the existing soakage feature for supporting infiltration-based Sustainable Drainage Systems (SuDS). The works were carried out in the existing soakage crate installed at the entrance to the site.

Testing was undertaken by H2Ogeo Ltd and its sub-contractors following the procedural requirements of BRE365, including controlled filling, measurement of water-level recession over defined time intervals and detailed observation of ground conditions encountered during excavation.

The data collected provide the basis for determining characteristic infiltration rates.

1.1 Project Details

Site Name: 66a Ladydell Road

Site Address: 66a Ladydell Road, Worthing, West Sussex, BN11 2JT

Client: Darren Howorth

Test Date: 12 June 2026

Weather Conditions: Dry with some cloud, 20°C and light westerly winds.

2 BRE365 Testing

2.1 Test Methodology

One pit was excavated (TP1) on site to log the soils encountered adjacent to the soakage crate (SA1) in accordance with *BRE Digest 365: Soakaway Design*.

The locations are presented in Figure 1.

The soil conditions encountered are described below, the hole remained dry and did not have any rootlets:

Table 1 Test Pit Descriptions

TP ID	From (mbgl)	To (mbgl)	Description
TP1	0.00	0.2	Grass over dark brown sandy clay with frequent fine to medium sub angular / sub rounded flint, brick and concrete (TOPSOIL/MADE GROUND)
	0.2	0.6	Brown silty firm CLAY with occasional fine to coarse sub angular sub rounded flint and brick gravel (MADE GROUND)
	0.6	1.2	Brown silty firm CLAY with occasional fine sub angular/sub rounded flint gravel

The soakage crate was located on site and reached via a hand-dug inspection pit. The top of the structure was at 0.65mbgl, the base of the crate was at 1.85mbgl and 2m³ of water was poured into the crate with level monitoring taking place from surface, accessed via the hand-dug inspection pit.

Photos presented in Figure 2 show the inspection pit along with a schematic of the testing procedures.

Recorded measurements represent the depth to water below ground level (bgl), increasing as the soakage crate pit drained, in accordance with BRE365 methodology.

3 Test Results

The records of each test are presented in Annex A and have been analysed using the following formulae, please note the final reading of 1.75mbgl at 6 hours is extrapolated based on the data¹:

$$\text{Soil Infiltration Rate } f = Vp(75-25) / (as50 \times tp(75-25))$$

Where:

- Vp75 – 25 effective storage volume of water in the soakage trial pit between 75% and 25% effective storage depth
- as50 internal surface area of the soakage trial pit up to 50% effective storage depth and including the base area
- tp75-25 time for water level to fall from 75% to 25% effective storage depth

The result of the analysis is shown in the table below.

Table 2 Analysis Results

ID	Test	m/sec	Average m/sec
SA1	1	3.00x10 ⁻⁰⁶	3.00x10 ⁻⁰⁶

TP1 remained dry throughout the excavation with no groundwater ingress.

¹ Sensitivity Testing – T=450 minutes infiltration = 6.64x10⁻⁰⁶m/sec (50% increase in T = 3x10⁻⁰⁶m/sec)

4 Summary

Infiltration rates on site were tested with one test carried out in the existing soakage crate.

The infiltration coefficient for SA1 was $3.0 \times 10^{-6} \text{m/sec}$.

The test pit remained dry throughout the duration of the excavation with no groundwater observed.

5 Figures

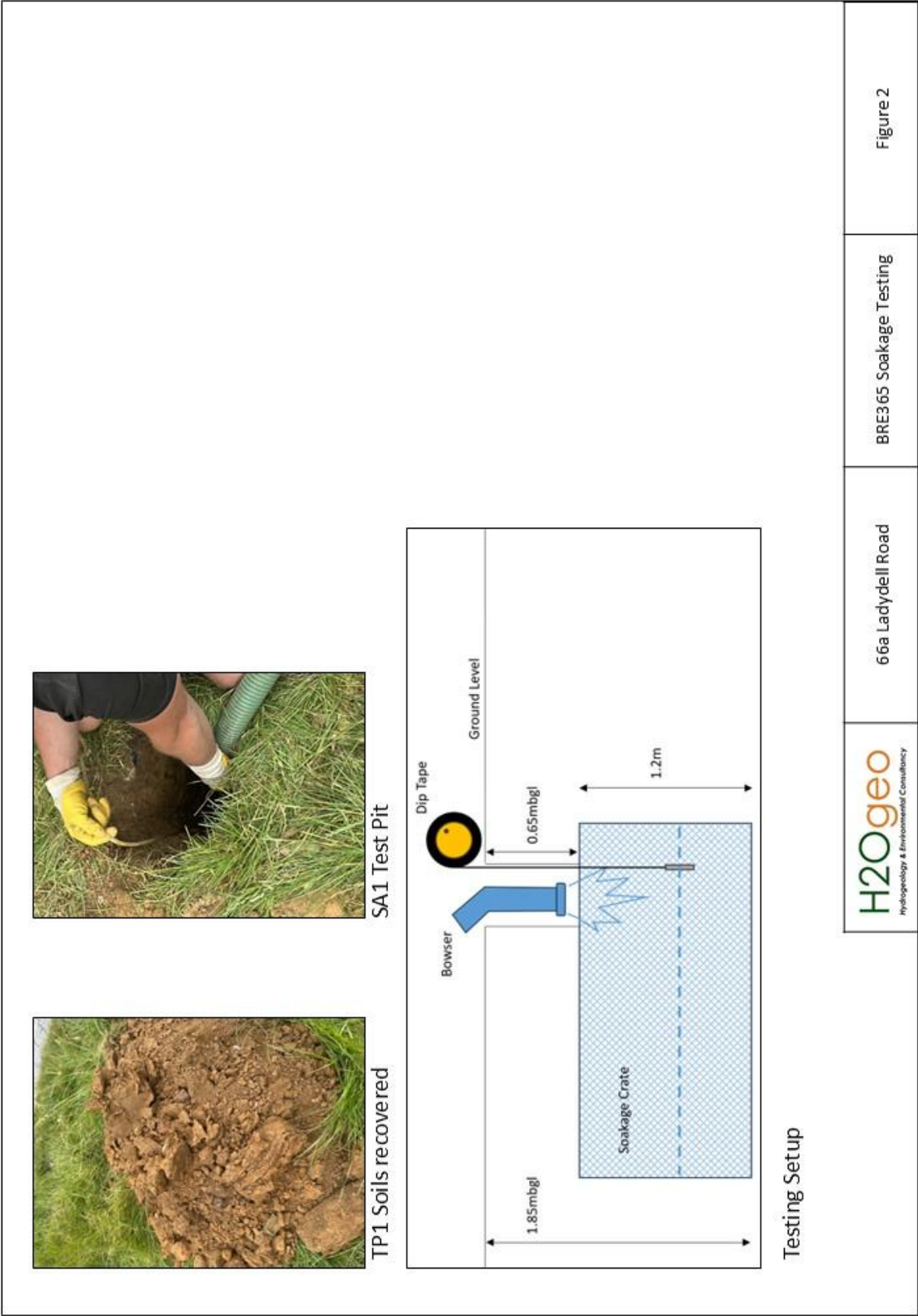
Figure 1 – Trial Pit Locations

Figure 2 - Site Photos

Figure 1 – Trial Pit Locations



Figure 2 - Site Photos



6 Appendices

Appendix A – Results

