

Ref: CS/C1255

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7th February 2019

Re: Copesfield, Eastergate Lane, Eastergate – Soakaway Testing – Infiltration Test Result Summary

Dear Michael

The following investigation was carried out at the above location in accordance with our quotation dated 29th January 2019.

1. Site Works

The purpose of the investigation was to supply soakaway test data in general accordance with BRE document 365 (Soakaway Design) at one location which would be the intended location for possible infiltration devices to serve a new single dwelling.

In addition to this a deeper excavation was undertaken to establish the groundwater level to identify if this would have a potential bearing in the design.

The appended drawing illustrates the position of the test pits. Two BRE365 trial pits were excavated to a depth of 1.5m in line with the approximate depth of the proposed soakaway.

A deeper borehole was constructed adjacent to SA1 which went to about 1.8m deep. The strata remained similar throughout and the borehole remained dry however it is recommended that where possible the soakaway is kept shallow should there be any fluctuations in groundwater.

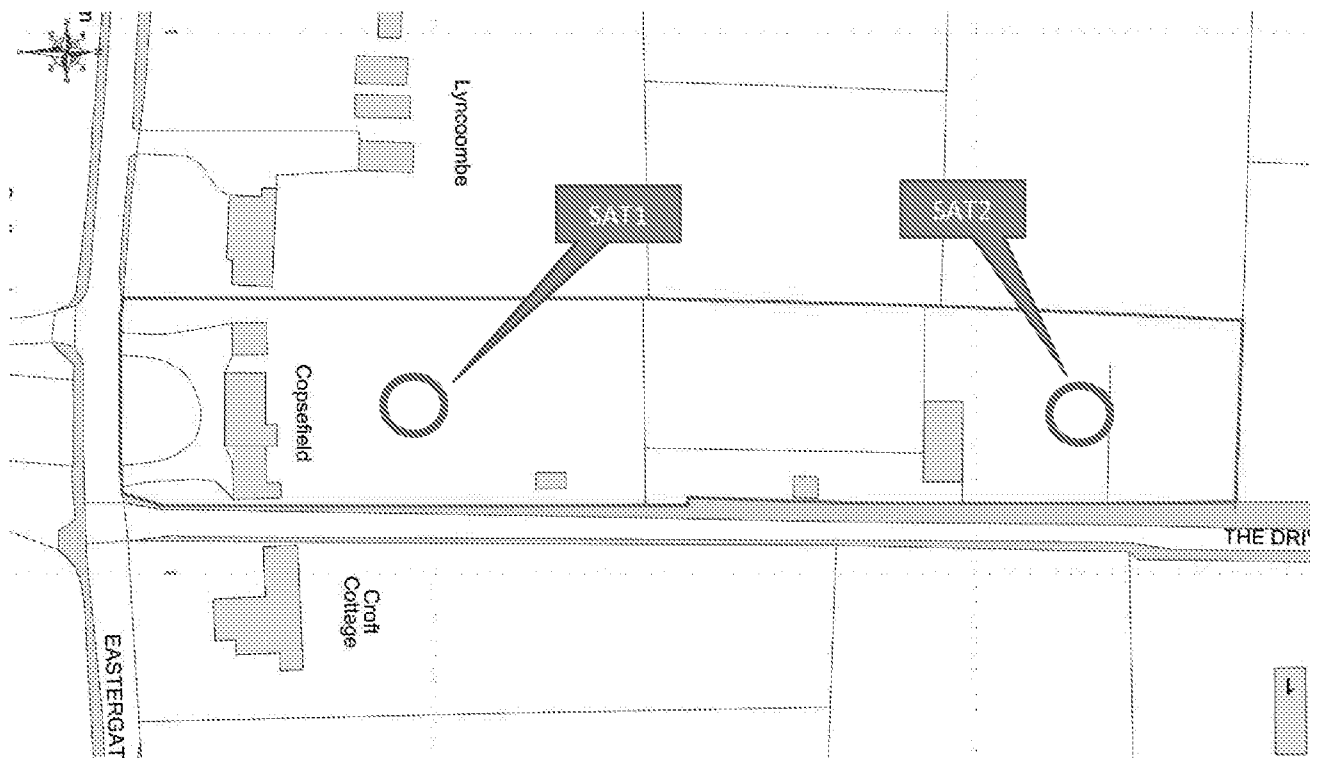
The testing commenced at 08:45 on 5th February 2019 with three tests being undertaken in accordance with BRE 365. Once testing was complete, the pits were backfilled and made good.

2. BRE 365 Soakaway Test Findings

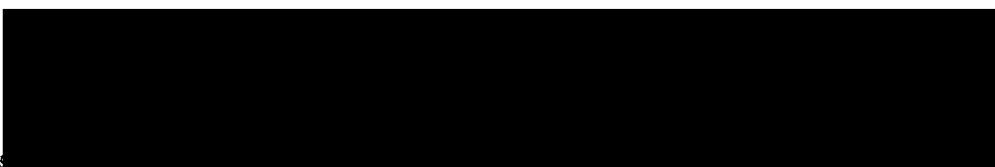
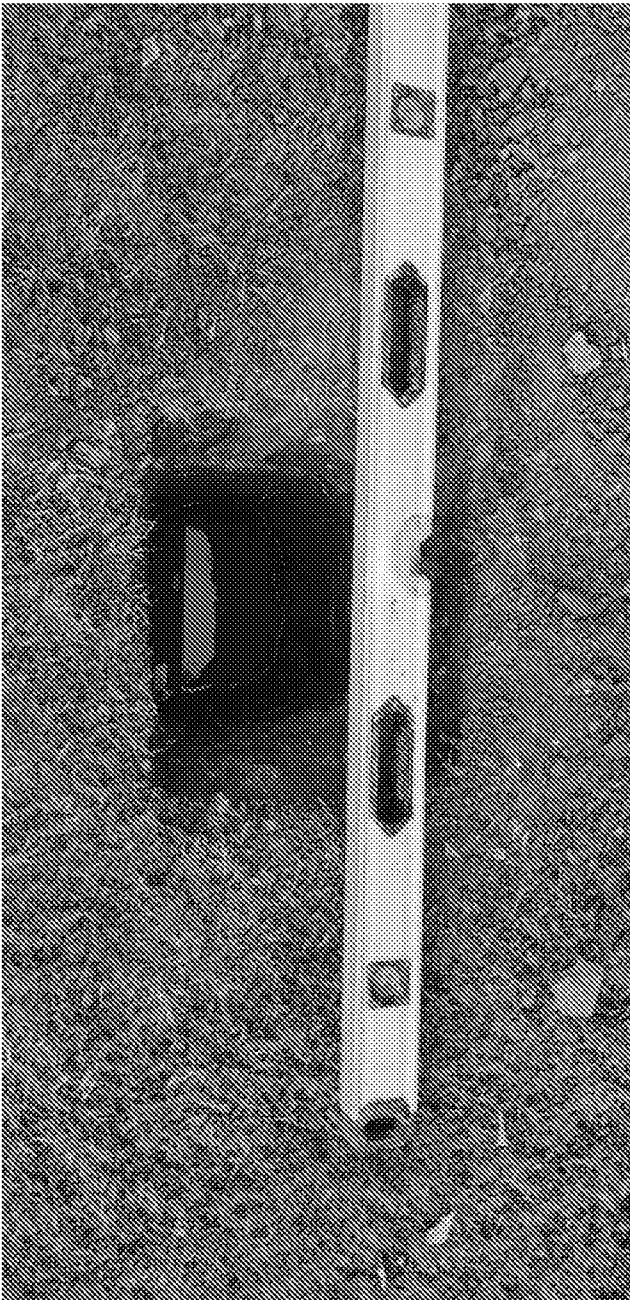
Testing of the sub soils which was sand produced a BRE 365 design infiltration rate of $1.31 \times 10^{-5} \text{m/s}$ and $1.24 \times 10^{-5} \text{m/s}$ at a depth of 1.5m. These rates were the slowest taken from all three tests. These are considered fair rates and suitable for infiltration for all forms of infiltration devices.

3. BRE 365 Soakaway Test Results					
Test Pit No	Infiltration Rate (1-3 Tests)			Depth of Test	Soil Type
SAT1	$1.65 \times 10^{-5} \text{m/s}$	$1.38 \times 10^{-5} \text{m/s}$	$1.31 \times 10^{-5} \text{m/s}$	1.5m	Sandy Clays
SAT2	$1.42 \times 10^{-5} \text{m/s}$	$1.34 \times 10^{-5} \text{m/s}$	$1.24 \times 10^{-5} \text{m/s}$	1.5m	Sandy Clays

Appendix A – Soakaway Test Location Plan



Appendix B – Site Photographs



Appendix C – Infiltration Calculator for Copesfield (South)

Job: Copesfiled, Eastergate - BRE 365 Test 3

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	1.5
Trial pit length	=	0.3

a_{p50} = 0.945 m/squared

t_{p75-25} = 5460 seconds

V_{p75-25} = 0.0675 m/cubed

F = 1.31E-05

Job: Copesfiled, Eastergate - BRE 365 Test 2

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	1.5
Trial pit length	=	0.3

a_{p50} = 0.945 m/squared

t_{p75-25} = 5160 seconds

V_{p75-25} = 0.0675 m/cubed

F = 1.38E-05

Job: Copesfiled, Eastergate - BRE 365 Test 1

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	1.5
Trial pit length	=	0.3

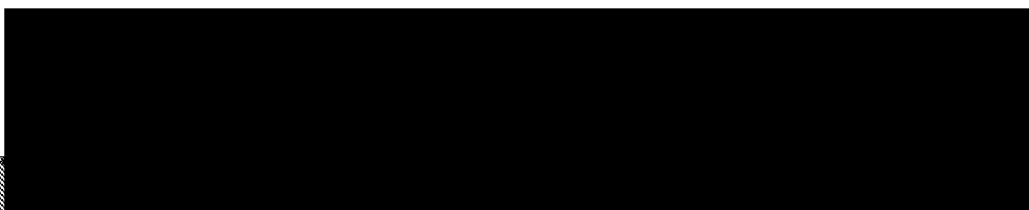
a_{p50} = 0.945 m/squared

t_{p75-25} = 4320 seconds

V_{p75-25} = 0.0675 m/cubed

F = 1.65E-05

Appendix D – Infiltration Calculator for Copesfield Lodge (North)





Job: Copesfield Lodge, Eastergate - BRE 365 Test 3

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	1.5
Trial pit length	=	0.3

a_{p50} =

0.945

 m/squared

t_{p75-25} =

5760

 seconds

V_{p75-25} =

0.0675

 m/cubed

F =

1.24E-05



Job: Copesfield Lodge, Eastergate - BRE 365 Test 2

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	1.5
Trial pit length	=	0.3

a_{p50} =

0.945 m/squared

t_{p75-25} =

5340 seconds

V_{p75-25} =

0.0675 m/cubed

F =

1.34E-05



Job: Copesfield Lodge, Eastergate - BRE 365 Test 1

Infiltration Calculator

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} = Effective storage volume between 75% and 25% effective depth

a_{p50} = Internal surface area of the trial pit up to 50% effective depth and including the base area

t_{p75-25} = The time for the water level to fall from 75% to 25% effective depth

f = Infiltration rate

Trial pit width	=	0.3
Trial pit depth	=	1.5
Trial pit length	=	0.3

a_{p50} =

0.945

 m/squared

t_{p75-25} =

5040

 seconds

V_{p75-25} =

0.0675

 m/cubed

F =

1.42E-05