

Ref: CS/C1340

Kieran Napthine  
Tyrone House  
Norton Lane  
Norton  
Chichester  
PO20 3NH

31<sup>st</sup> March 2020**Re: Tyrone House, Norton – Soakaway Testing – Infiltration Test Result Summary**

Dear Kieran

The following investigation was carried out at the above location.

**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 approximate intended location for a possible infiltration device to serve an extension to an existing dwelling.

The appended drawing illustrates the position of the test pit. The BRE365 pit was excavated to a depth of 0.9m in line with the approximate depth of the proposed soakaway.

In addition to the soakaway test, a deeper borehole was dug adjacent to the soakaway pit. It was noted that water seepage was present at 0.7mbgl which then rose and stabilised at 0.60mbgl. Based on this traditional soakaway will be ineffective and an alternative design will need to be sought.

Following on from the high groundwater it was decided to reduce the depth of the soakaway test from 0.9m deep to 0.50m deep should an alternative shallower system be pursued.

The testing commenced at 09:30 on 6<sup>th</sup> March with three tests being undertaken in accordance with BRE 365.

**2. BRE 365 Soakaway Test Findings**

Testing of the sub soils which was noted as clays produced a BRE 365 design infiltration rate of **9.65x10<sup>-5</sup>m/s** at a depth of 0.50m. This rate was the slowest taken from all three tests. This is considered a poor rate but will likely be suitable for shallow infiltration devices i.e. porous paving providing a large contact surface.

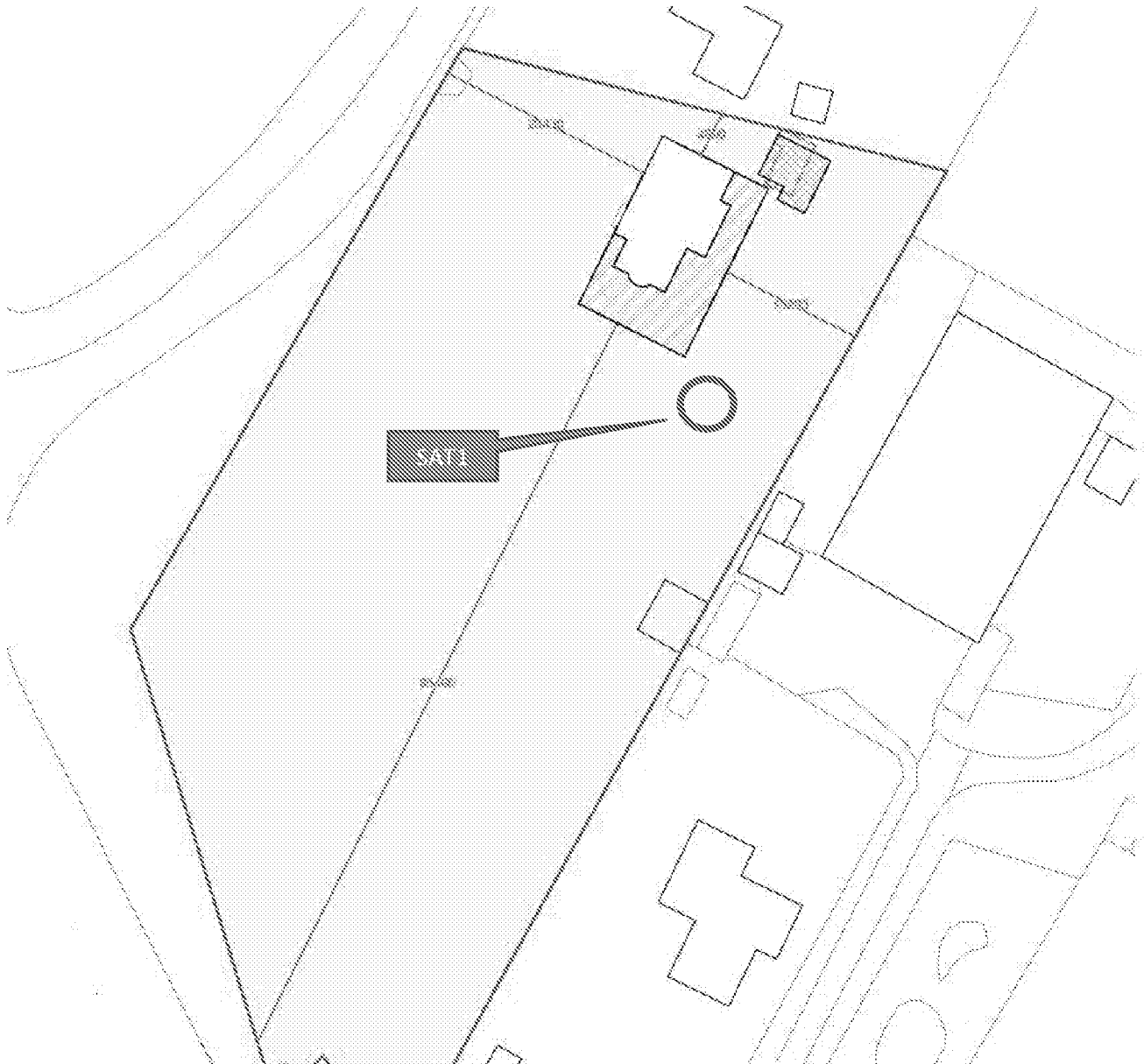
**3. BRE 365 Soakaway Test Results**

| Test Pit No | Infiltration Rate<br>(1-3 Tests) |                           |                                | Depth of<br>Test | Soil Type |
|-------------|----------------------------------|---------------------------|--------------------------------|------------------|-----------|
| SAT1        | 1.42x10 <sup>-5</sup> m/s        | 1.13x10 <sup>-5</sup> m/s | <b>9.65x10<sup>-6</sup>m/s</b> | 0.50m            | Clay      |

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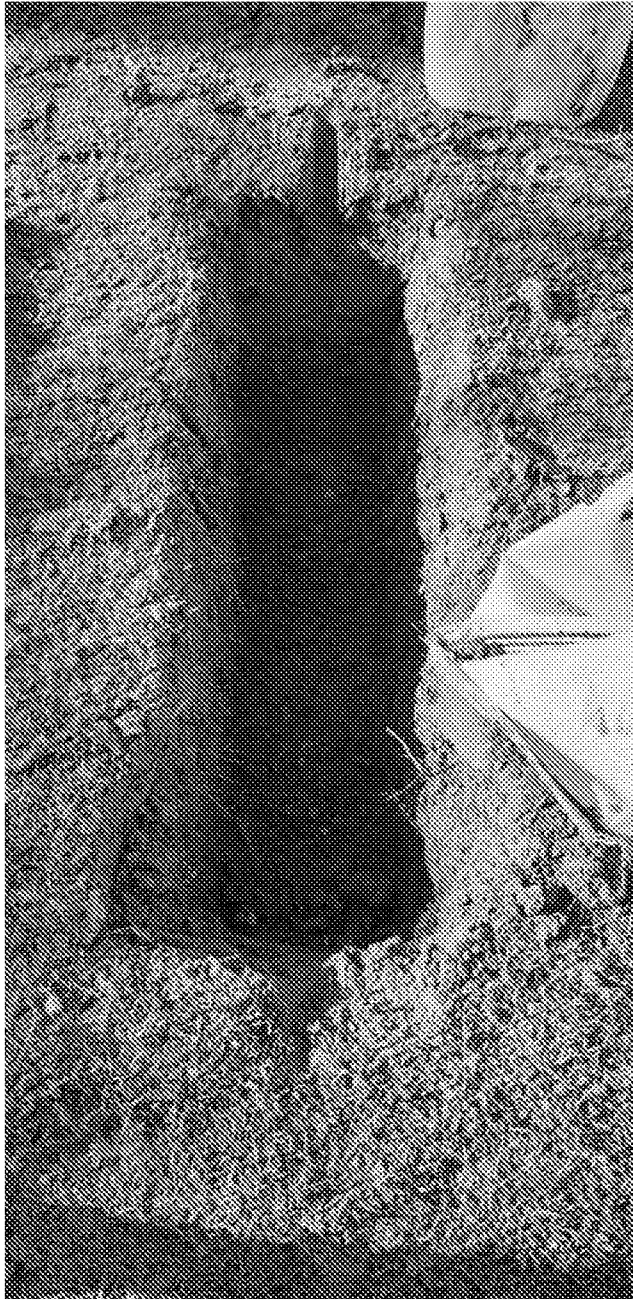
## Appendix A – Soakaway Test Location Plan



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## Appendix B – Site Photographs





Consulting Civil Engineers

## **Appendix C – Soakaway Test Results**

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Job: Tyrone House, Norton - 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  | = | <table border="1"><tr><td>0.3</td></tr></table> | 0.3 |
| 0.3              |   |                                                 |     |
| Trial pit depth  | = | <table border="1"><tr><td>0.5</td></tr></table> | 0.5 |
| 0.5              |   |                                                 |     |
| Trial pit length | = | <table border="1"><tr><td>1</td></tr></table>   | 1   |
| 1                |   |                                                 |     |

$a_{p50}$  = 0.8 m/squared

$t_{p75-25}$  = 6600 seconds

$V_{p75-25}$  = 0.075 m/cubed

**F** = 

|                                                      |          |
|------------------------------------------------------|----------|
| <table border="1"><tr><td>1.42E-05</td></tr></table> | 1.42E-05 |
| 1.42E-05                                             |          |

Job: Tyrone House, Norton - 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  | = | 0.5 |
| Trial pit length | = | 1   |

$a_{p50}$  = 0.8 m/squared

$t_{p75-25}$  = 8280 seconds

$V_{p75-25}$  = 0.075 m/cubed

**F** = 1.13E-05

Job: Tyrone House, Norton - 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  | = | 0.5 |
| Trial pit length | = | 1   |

$a_{p50}$  = 0.8 m/squared

$t_{p75-25}$  = 9720 seconds

$V_{p75-25}$  = 0.075 m/cubed

**F** = 9.65E-06