



Bigdale Drive, Kirkby

TECHNICAL NOTE



27th May 2025

Infiltration Testing Requirements

AJP Ref: 223-080

PREPARED BY John Marshall



Infiltration Testing Requirements

Bigdale Drive, Kirkby -Tyson

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Introduction

This document shall outline the requirements for infiltration testing in accordance with the requirements of BRE 365, for the development at Bigdale Drive, to determine the capacity of local geology to discharge of Surface water flows to ground.

1. General Requirements

To understand the infiltration capacity your chosen location, it is necessary to dig an infiltration testing pit. This pit shall be rectangular in plan, excavated to a depth 1m-1.5m below your soakaway design level and within a likely band of infiltrating strata.

The pit sides shall be vertical, as much as is possible while maintaining the stability of the infiltration pit. This is to ensure a reasonable calculation of the volume of water infiltrating can be utilised. If an infiltration pit cannot be stabilised then an alternative option for testing is to fill any excavated infiltration testing pit with Type 3 MOT stone, with an observation tube for determining water levels. The infiltration pit shall be appropriately cordoned off and appropriate PPE utilised during the testing period.

With the infiltration testing pit is established, it shall be filled to a maximum 300mm below ground level with water to establish its effective depth. The effective depth can be specified by the engineer prior to testing, to suit the site strata. This water level shall be monitored with regular measurements being taken at time intervals to determine the drop in water level from its starting position. The water level must drain down to 25% of its effective depth within 24 hours for a test to be considered successful.

If the first infiltration test is successful, it must be repeated to allow for three complete tests and their recorded water levels. These three tests must be completed within 24 hours and within the same infiltration pit.

On completion of the testing the infiltration pit must be infilled and appropriately compacted to prevent risk to site works and end users.

The records of the water levels must then be provided to the engineer for assessment and to compute the infiltration rate of the strata for the soakaway design.

Key Points;

- ◆ Infiltration testing pit must be in the locale of any proposed soakaway system
- ◆ Infiltration testing pit invert level should be set at proposed soakaway invert level
- ◆ Infiltration testing pit is to be filled with water three separate times for a complete testing regime.

- Monitoring of water levels must be recorded in accordance with the requirements as set out in figure 1.1

1.1 Example

Infiltration Testing Log - project Ref:223-080	
Time (mins)	Depth to Water Lvl (m)
0	0.0
0.5	0
1	2
5	5
10	10
15	20
30	30
60	82
120	130
240	195
1440 (max)	25% of effective depth (min finish point)
Pit Dimensions Effective Depth: 1620	2.0(m) x 0.9(m) x 1.5(m)
Date of Testing: 30-5-25 Pit Number:	Start time of Testing: 9.30 End time of Testing: 4pm.

TEST also Taken at 4pm = 255mm.

2. Site Specific Testing Requirements

For the development at Bigdale, there has been preliminary intrusive investigation to determine the ground conditions and understand the optimal position for any proposed soakaways. Following trial holes dug it was confirmed that the site strata was a narrow band of Made ground, underlain by sands at 1.0m - 1.5m below ground level.

Based on this the infiltration testing pits should be dug to 1.5m depths and utilising pit dimensions of 2m x 0.9m x 1.5m, with an effective depth of water 1m.

Due the proposed drainage system, it is recommended that one infiltration pit is dug and tested, in the location of the proposed attenuation tank; to the dimensions as mentioned above.

Key Infiltration Pit criteria:

- ◆ Length 2m x width 0.9m
- ◆ Pit depth 1.5m below ground level
- ◆ Effective depth of water 1m
- ◆ Number of infiltration testing pits - 1
- ◆ Number of tests per pit - 3

	Project Bigdale Drive, Kirkby			Job Number 223-080													
	Part of structure Infiltraiton Rate			Calculation Number 0001													
	Drawing ref N/A	Calc by JCM	Date 03.06.2025	Check by KOB	Date Jun-25												
Ref	Infiltraiton Testing - Supplemental			Calc sheet no 1 / 1 Rev A													
$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$ f = Infiltraiton rate m/s V(p75-25) = Effective Storage Volume in Water between 75% & 25% effective depth a(p50) = Internal Surface Area of trial Pit upto 50% effective depth (including base area) t(p75-25) = time from water level to fall from 75% to 25% effective depth <u>Infiltraiton Testing Pit Information</u> Length = 2 m Location E 342314.472 N 407427.088 Width = 0.9 m Depth = 1.62 m Effective Depth of Water 1.2 m <table border="0" style="width: 100%;"> <tr> <td style="width: 33%; text-align: center;"><u>Test 1</u></td> <td style="width: 33%; text-align: center;"><u>Test</u></td> <td style="width: 33%; text-align: center;"><u>Test 3</u></td> </tr> <tr> <td>Time to 75% N/A mins</td> <td>Time to 75% N/A mins</td> <td>Time to 75% N/A mins</td> </tr> <tr> <td>Time to 25% N/A mins</td> <td>Time to 25% N/A mins</td> <td>Time to 25% N/A mins</td> </tr> </table> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%;"> Infiltration Rate = #VALUE! m/s </td> <td style="width: 33%;"> Infiltration Rate = #VALUE! m/s </td> <td style="width: 33%;"> Infiltration Rate = #VALUE! m/s </td> </tr> </table> <u>Design infiltration rate f =</u> #VALUE! m/s						<u>Test 1</u>	<u>Test</u>	<u>Test 3</u>	Time to 75% N/A mins	Time to 75% N/A mins	Time to 75% N/A mins	Time to 25% N/A mins	Time to 25% N/A mins	Time to 25% N/A mins	Infiltration Rate = #VALUE! m/s	Infiltration Rate = #VALUE! m/s	Infiltration Rate = #VALUE! m/s
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Infiltration Rate = #VALUE! m/s	Infiltration Rate = #VALUE! m/s	Infiltration Rate = #VALUE! m/s															

John Marshall

From: Scott Eastwood <Scott@tysonconstruction.co.uk>
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Regards

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For and on behalf of

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