

Appendix 4

Geotechnical Test Results, PSL15/2608

Infiltration Test Results



LABORATORY REPORT



4043

Contract Number: PSL15/2608

Client's Reference:

Report Date: 03 June 2015

Client Name: Eastwood & Partners
St Andrews House
23 Kingfield Road
Sheffield
S11 9AS

For the attention of: Miltiadis Mellios

Contract Title: Blythe Street Wombwell

Date Received: 28/5/2015

Date Commenced: 28/5/2015

Date Completed: 3/6/2015

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

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Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	02/06/15				
BLYTHE STREET, WOMBWELL.				Contract No: PSL15/2608	
				Client Ref: 38506	

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m ³ Clause 7.2	Dry Density Mg/m ³ Clause 7.2	Particle Density Mg/m ³ Clause 8.2	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	% Passing .425mm	Remarks
TP1			2.45	15					NP			

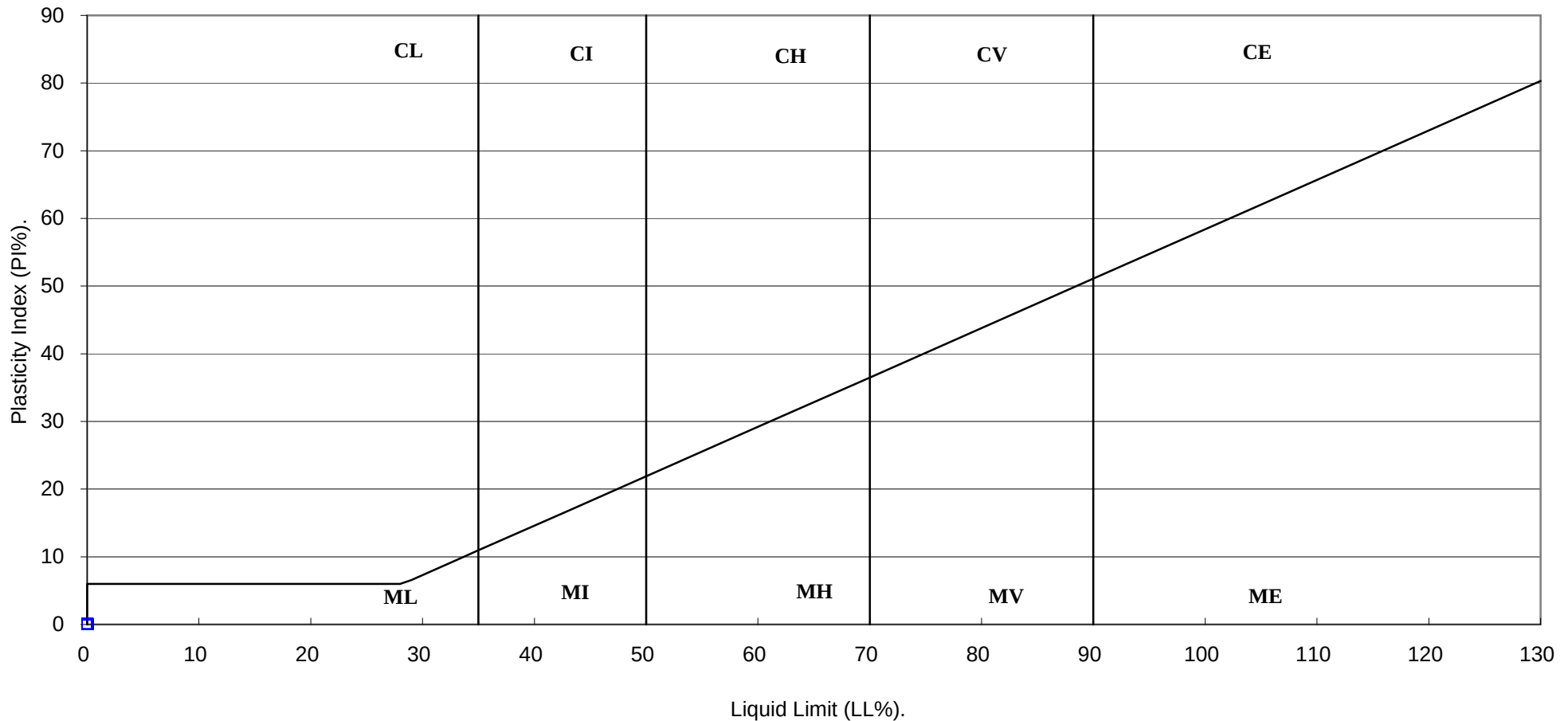
SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

	Compiled by	Date	Checked by	Date	Approved by	Date
		02/06/15				00/01/00
	BLYTHE STREET WOMBWELL.				Contract No:	PSL15/2608
					Client Ref:	38506

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL

Professional Soils Laboratory

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	02/06/15		00/01/00		00/01/00
BLYTHE STREET WOMBWELL.				Contract No:	PSL15/2608
				Client Ref:	38506

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked LEM

Test No. SA1 (TP1)

Test Pit Dimensions

Length = 1500 mm

Plan area = 0.9 m²

Width = 600 mm

Depth = 2950 mm (Total depth)

Approximate time to discharge water into the hole:

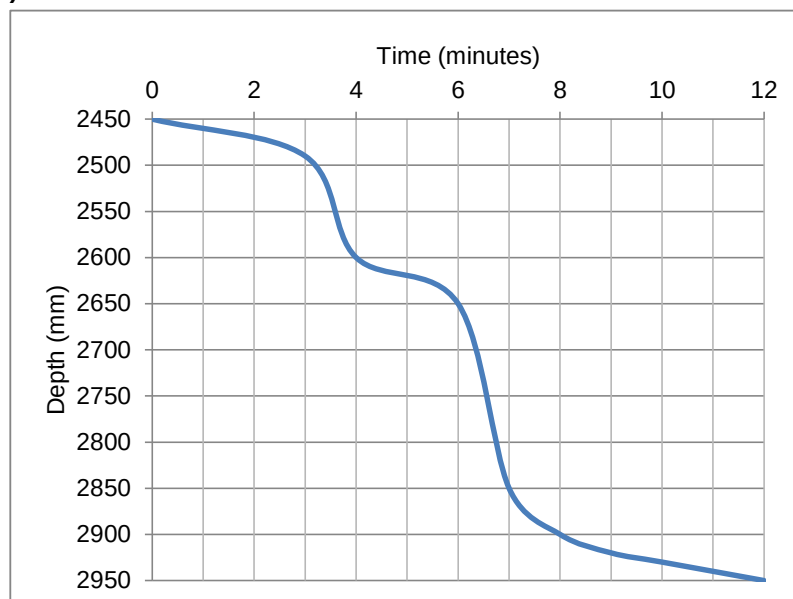
180 Seconds

Depth to water after completion of pumping:

2450 mm

Time (min) Depth (mm)

0	2450
3	2490
4	2600
6	2650
7	2850
8	2900
9	2920
10	2930
12	2950

**Test Pit Log****Depth (m) Description**

0-0.3	Dark brown sandy TOPSOIL with fragments of bricks
0.3-2.1	MADE GROUND : Brown fine to coarse gravelly sand. Concrete and brick.
2.1-2.5	Brown fine to coarse clayey gravelly SAND.
2.5-2.95	Moderately strong brown fine to coarse subangular clayey very sandy GRAVEL of sandstone with occasional cobbles

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
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Test No. SA1 (TP1)

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **2450** mm Average water depth: **250** mm

Start time = **0** min

Change in water depth: **500** mm

Final parameters

Depth to water = **2950** mm Time interval: **12** min

End time = **12** min

Effective Storage Volume of Water in the Trial Pit = **0.45** m³
 75% Effective Depth = **2575** mm from ground level
 25% Effective Depth = **2825** mm from ground level
 Time at 75% Effective Depth = **4** minutes
 Time at 25% Effective Depth = **6.88** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **1.95** m²

t_{p75-25} = **187** sec

f = **6.2E-04** m/sec

Average Soakaway Rate = **6.3E-04** m³/sec

Average soakaway area = **1.95** m² (sides + base)

BR365 Soil Infiltration Rate = 6.2E-04 m/sec

Average Infiltration Rate = 3.2E-04 m/sec

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Test No. SA2 test 1 (TP2)**Test Pit Dimensions**Length = **1500 mm**Plan area = **0.9 m²**Width = **600 mm**Depth = **1650 mm (Total depth)**

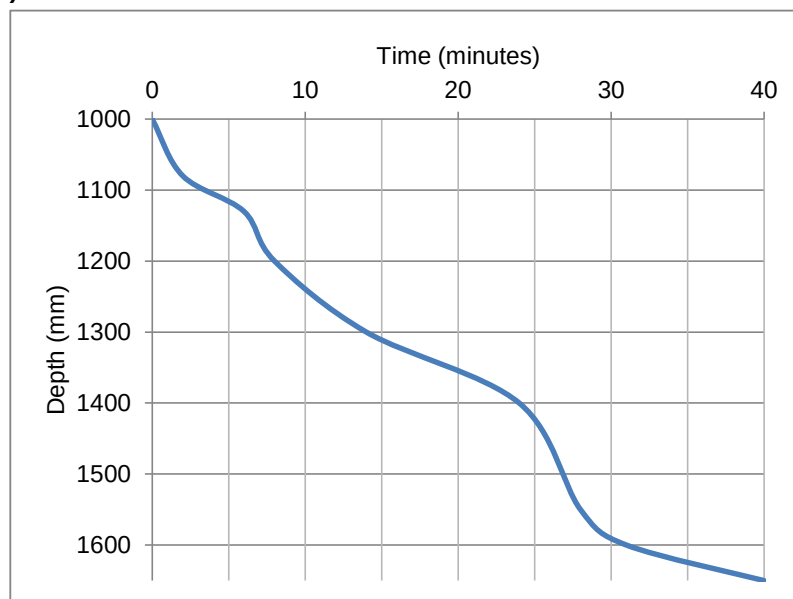
Approximate time to discharge water into the hole:

180 Seconds

Depth to water after completion of pumping:

1000 mm**Time (min) Depth (mm)**

0	1000
2	1080
6	1130
8	1200
14	1300
24	1400
28	1550
31	1600
40	1650

**Test Pit Log**

Depth (m)	Description
0-0.35	Dark brown sandy TOPSOIL
0.35-1.65	Moderately strong brown fine to coarse subangular clayey very sandy GRAVEL of sandstone with occasional cobbles

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
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Test No. SA2 test 1 (TP2)

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1000** mm Average water depth: **325** mm

Start time = **0** min

Change in water depth: **650** mm

Final parameters

Depth to water = **1650** mm Time interval: **40** min

End time = **40** min

Effective Storage Volume of Water in the Trial Pit = **0.585** m³
 75% Effective Depth = **1163** mm from ground level
 25% Effective Depth = **1488** mm from ground level
 Time at 75% Effective Depth = **7** minutes
 Time at 25% Effective Depth = **26.3** minutes

V_{p75-25} = **0.29** m³

a_{p50} = **2.27** m²

t_{p75-25} = **1162** sec

f = **1.1E-04** m/sec

Average Soakaway Rate = **2.4E-04** m³/sec

Average soakaway area = **2.27** m² (sides + base)

BR365 Soil Infiltration Rate = 1.1E-04 m/sec

Average Infiltration Rate = 1.1E-04 m/sec

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked LEM

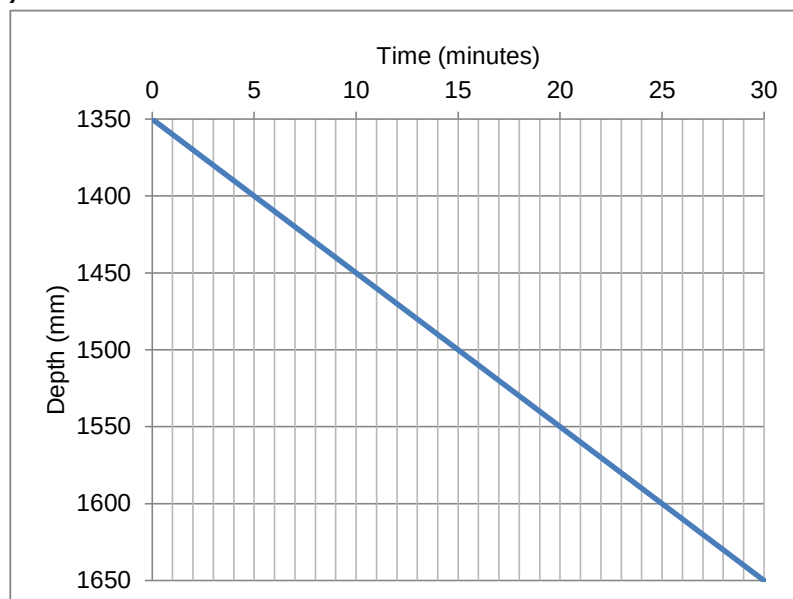
Test No. SA2 test 2 (TP2)**Test Pit Dimensions**

Length = **1500** mm Plan area = **0.9** m²
 Width = **600** mm
 Depth = **1650** mm (Total depth)

Approximate time to discharge water into the hole: **150** Seconds
 Depth to water after completion of pumping: **1350** mm

Time (min) Depth (mm)

0	1350
3	1380
5	1400
11	1460
20	1550
30	1650

**Test Pit Log**

Depth (m)	Description
0-0.35	Dark brown sandy TOPSOIL
0.35-1.65	Moderately strong brown fine to coarse subangular slightly clayey sandy GRAVEL and cobbles of sandstone

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SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked LEM

Test No. SA2 test 2 (TP2)

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1350** mm Average water depth: **150** mm

Start time = **0** min

Change in water depth: **300** mm

Final parameters

Depth to water = **1650** mm Time interval: **30** min

End time = **30** min

Effective Storage Volume of Water in the Trial Pit = **0.27** m³
 75% Effective Depth = **1425** mm from ground level
 25% Effective Depth = **1575** mm from ground level
 Time at 75% Effective Depth = **8** minutes
 Time at 25% Effective Depth = **22.5** minutes

V_{p75-25} = **0.14** m³

a_{p50} = **1.53** m²

t_{p75-25} = **900** sec

f = **9.8E-05** m/sec

Average Soakaway Rate = **1.5E-04** m³/sec

Average soakaway area = **1.53** m² (sides + base)

BR365 Soil Infiltration Rate = 9.8E-05 m/sec

Average Infiltration Rate = 9.8E-05 m/sec

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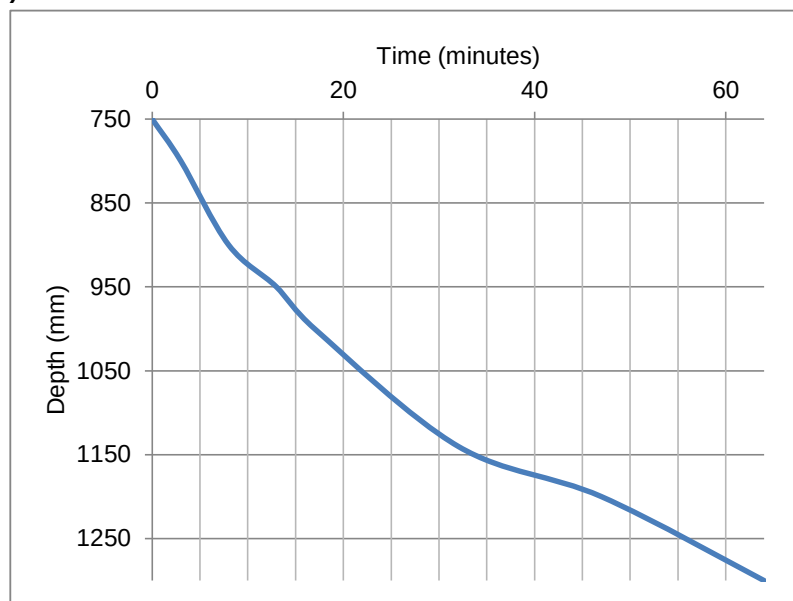
PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked LEM

Test No. SA3 (TP3)**Test Pit Dimensions**

Length = **1500** mm Plan area = **0.9** m²
 Width = **600** mm
 Depth = **1300** mm (Total depth)

Approximate time to discharge water into the hole: **180** SecondsDepth to water after completion of pumping: **750** mm**Time (min) Depth (mm)**

0	750
3	800
8	900
13	950
17	1000
32	1140
47	1200
64	1300

**Test Pit Log**

Depth (m)	Description
0-0.75	MADE GROUND : Brown fine to coarse subangular gravel of mixed lithologies with bricks, concrete, metal and plastic fragments.
0.75-1.3	Moderately strong to strong brown fine to coarse subangular sandy GRAVEL and COBBLES of sandstone

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Test No. SA3 (TP3)

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **750** mm Average water depth: **275** mm

Start time = **0** min

Change in water depth: **550** mm

Final parameters

Depth to water = **1300** mm Time interval: **64** min

End time = **64** min

Effective Storage Volume of Water in the Trial Pit = **0.495** m³
 75% Effective Depth = **888** mm from ground level
 25% Effective Depth = **1163** mm from ground level
 Time at 75% Effective Depth = **7** minutes
 Time at 25% Effective Depth = **37.75** minutes

V_{p75-25} = **0.25** m³

a_{p50} = **2.06** m²

t_{p75-25} = **1821** sec

f = **6.6E-05** m/sec

Average Soakaway Rate = **1.3E-04** m³/sec

Average soakaway area = **2.06** m² (sides + base)

BR365 Soil Infiltration Rate = 6.6E-05 m/sec

Average Infiltration Rate = 6.3E-05 m/sec

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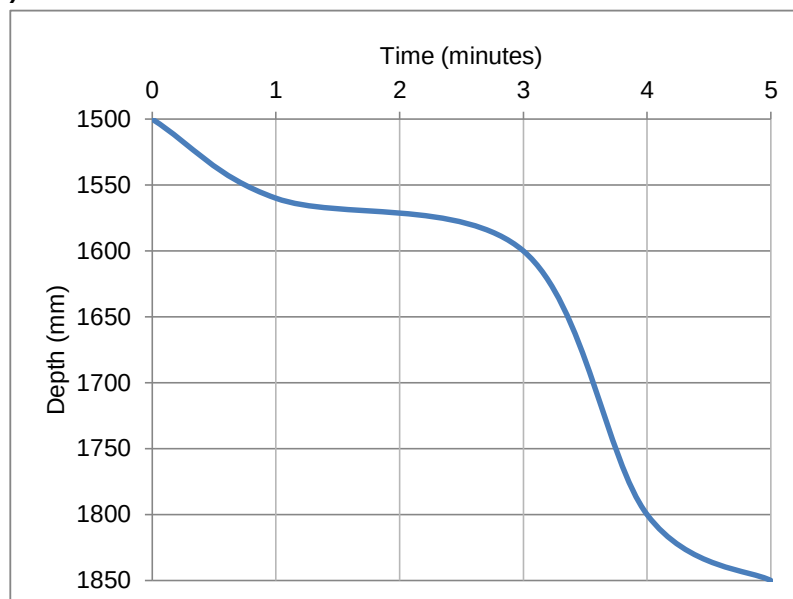
PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked LEM

Test No. SA4 (TP4)**Test Pit Dimensions**Length = **1500 mm**Plan area = **0.9 m²**Width = **600 mm**Depth = **1850 mm (Total depth)**

Approximate time to discharge water into the hole:

200 Seconds

Depth to water after completion of pumping:

1500 mm**Time (min) Depth (mm)**0 **1500**1 **1560**3 **1600**4 **1800**5 **1850****Test Pit Log****Depth (m)****Description**

0-0.55 Dark brown sandy TOPSOIL. Whole brick and concrete cobble.

0.55-1.6 Brown fine to coarse clayey gravelly SAND.

Gravel is fine to coarse subangular of sandstone.

1.6-1.85 Moderately strong brown fine to coarse subangular clayey very sandy GRAVEL
of sandstone with occasional cobbles

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 26.15.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked LEM

Test No. SA4 (TP4)

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1500** mm Average water depth: **175** mm

Start time = **0** min

Change in water depth: **350** mm

Final parameters

Depth to water = **1850** mm Time interval: **5** min

End time = **5** min

Effective Storage Volume of Water in the Trial Pit = **0.315** m³
 75% Effective Depth = **1588** mm from ground level
 25% Effective Depth = **1763** mm from ground level
 Time at 75% Effective Depth = **2** minutes
 Time at 25% Effective Depth = **3.81** minutes

V_{p75-25} = **0.16** m³

a_{p50} = **1.64** m²

t_{p75-25} = **85** sec

f = **1.1E-03** m/sec

Average Soakaway Rate = **1.1E-03** m³/sec

Average soakaway area = **1.64** m² (sides + base)

BR365 Soil Infiltration Rate = 1.1E-03 m/sec

Average Infiltration Rate = 6.4E-04 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

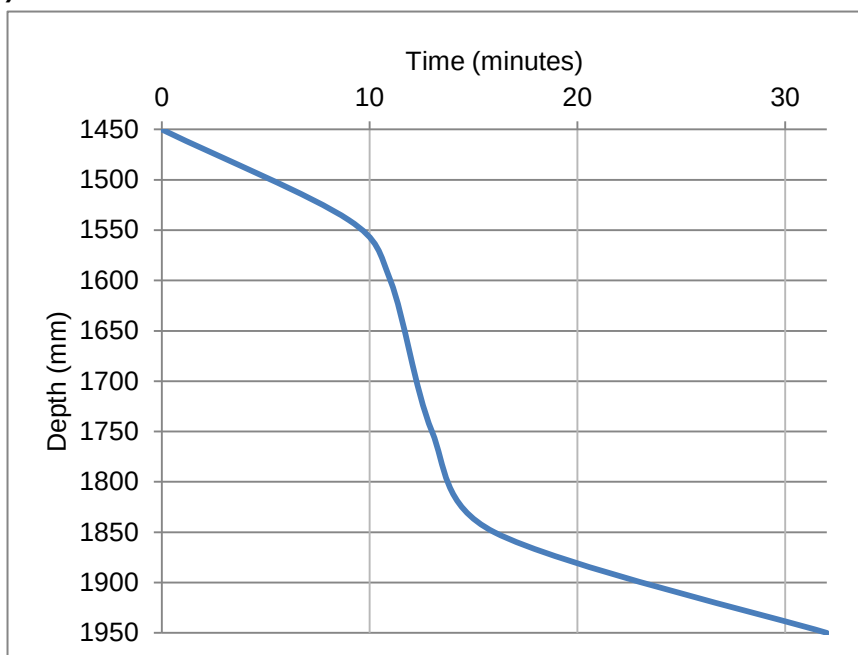
Test No. SA5T1

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **1950** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
 Depth to water after completion of pumping: **1450** mm

Time (min)	Depth (mm)
0	1450
9	1540
11	1600
13	1750
16	1850
32	1950



Test Pit Log

Depth (m)	Description
0-0.7	MADE GROUND: Brown fine to coarse subangular gravel of mixed lithologies with brick, concrete and metal fragments.
0.7-1.4	Brown fine to coarse slightly clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
1.4-1.95	Moderately strong brown grey SANDSTONE recovered as subangular gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA5T1

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1450** mm Average water depth: **250** mm
Start time = **0** min Change in water depth: **500** mm

Final parameters

Depth to water = **1950** mm Time interval: **32** min
End time = **32** min

Effective Storage Volume of Water in the Trial Pit = **0.51** m³
75% Effective Depth = **1575** mm from ground level
25% Effective Depth = **1825** mm from ground level
Time at 75% Effective Depth = **10** minutes
Time at 25% Effective Depth = **15** minutes

V_{p75-25} = **0.26** m³

a_{p50} = **2.17** m²

t_{p75-25} = **305** sec

f = **3.8E-04** m/sec

Average Soakaway Rate = **2.7E-04** m³/sec
Average soakaway area = **2.17** m² (sides + base)

BR365 Soil Infiltration Rate = 3.8E-04 m/sec
Average Infiltration Rate = 1.2E-04 m/sec

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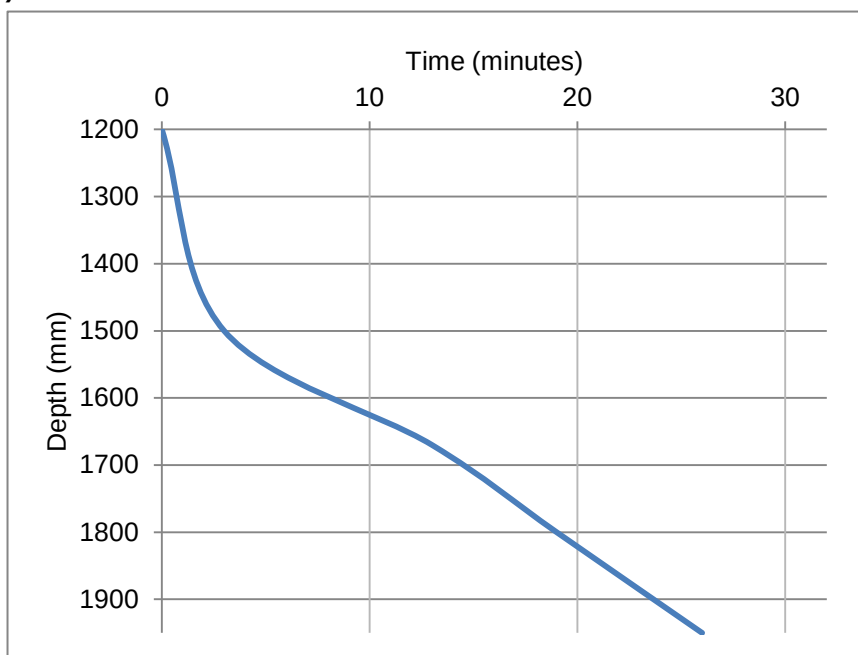
Test No. SA5T2

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **1950** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1200** mm

Time (min)	Depth (mm)
0	1200
3	1500
13	1670
19	1800
26	1950



Test Pit Log

Depth (m)	Description
0-0.7	MADE GROUND: Brown fine to coarse subangular gravel of mixed lithologies with brick, concrete and metal fragments.
0.7-1.4	Brown fine to coarse slightly clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
1.4-1.95	Moderately strong brown grey SANDSTONE recovered as subangular gravel. and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
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Test No. SA5T2

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1200** mm Average water depth: **375** mm
Start time = **0** min Change in water depth: **750** mm

Final parameters

Depth to water = **1950** mm Time interval: **26** min
End time = **26** min

Effective Storage Volume of Water in the Trial Pit = **0.765** m³
75% Effective Depth = **1388** mm from ground level
25% Effective Depth = **1763** mm from ground level
Time at 75% Effective Depth = **2** minutes
Time at 25% Effective Depth = **17** minutes

V_{p75-25} = **0.38** m³

a_{p50} = **2.75** m²

t_{p75-25} = **925** sec

f = **1.5E-04** m/sec

Average Soakaway Rate = **4.9E-04** m³/sec
Average soakaway area = **2.75** m² (sides + base)

BR365 Soil Infiltration Rate = 1.5E-04 m/sec
Average Infiltration Rate = 1.8E-04 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

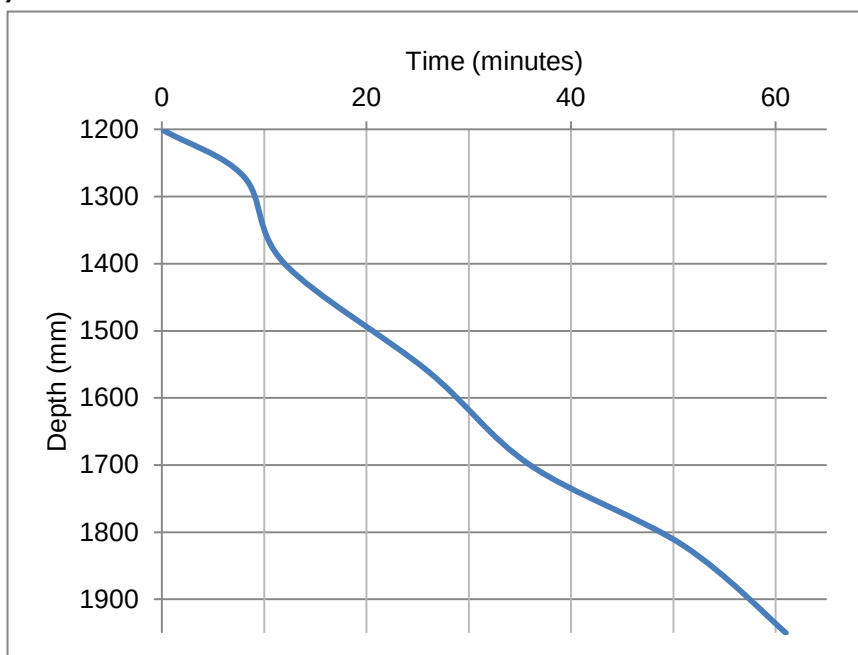
Test No. SA5t3

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **1950** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1200** mm

Time (min)	Depth (mm)
0	1200
8	1270
12	1400
26	1560
36	1700
51	1820
61	1950



Test Pit Log

Depth (m)	Description
0-0.7	MADE GROUND: Brown fine to coarse subangular gravel of mixed lithologies with brick, concrete and metal fragments.
0.7-1.4	Brown fine to coarse slightly clayey gravelly SAND. Gravel is fine to coarse subangular of sandstone.
1.4-1.95	Moderately strong brown grey SANDSTONE recovered as subangular gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA5t3

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1200** mm Average water depth: **375** mm
Start time = **0** min Change in water depth: **750** mm

Final parameters

Depth to water = **1950** mm Time interval: **61** min
End time = **61** min

Effective Storage Volume of Water in the Trial Pit = **0.765** m³
75% Effective Depth = **1388** mm from ground level
25% Effective Depth = **1763** mm from ground level
Time at 75% Effective Depth = **12** minutes
Time at 25% Effective Depth = **44** minutes

V_{p75-25} = **0.38** m³

a_{p50} = **2.75** m²

t_{p75-25} = **1934** sec

f = **7.2E-05** m/sec

Average Soakaway Rate = **2.1E-04** m³/sec
Average soakaway area = **2.75** m² (sides + base)

BR365 Soil Infiltration Rate = 7.2E-05 m/sec
Average Infiltration Rate = 7.6E-05 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

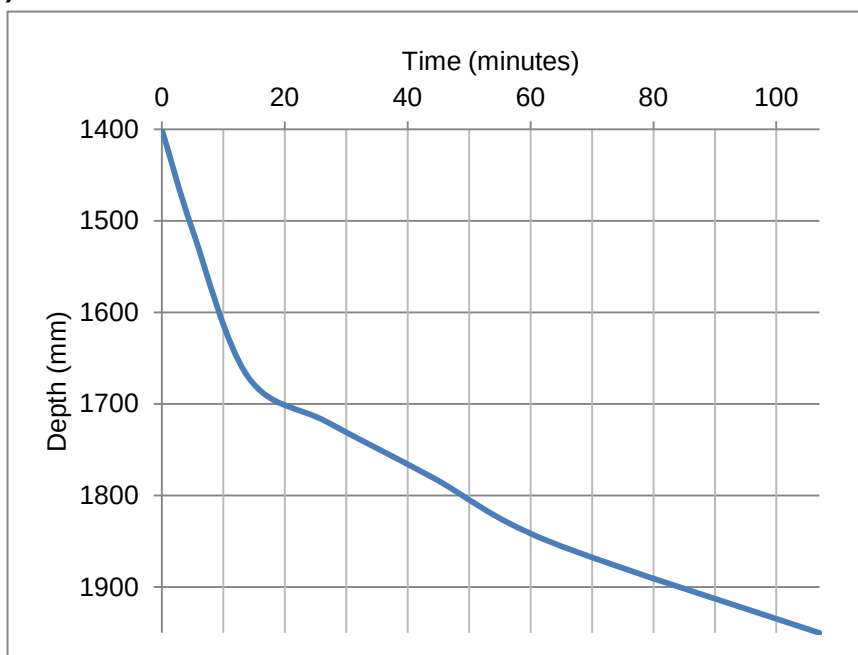
Test No. SA6T1

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **1950** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1400** mm

Time (min)	Depth (mm)
0	1400
5	1510
14	1670
27	1720
44	1780
63	1850
107	1950



Test Pit Log

Depth (m)	Description
0-1.4	MADE GROUND: Brown fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.
1.4-1.95	Moderately strong brown grey SANDSTONE recovered as subangular very sandy gravel and, occasionally, cobbles

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA6T1

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1400** mm Average water depth: **275** mm
Start time = **0** min Change in water depth: **550** mm

Final parameters

Depth to water = **1950** mm Time interval: **107** min
End time = **107** min

Effective Storage Volume of Water in the Trial Pit = **0.561** m³
75% Effective Depth = **1538** mm from ground level
25% Effective Depth = **1813** mm from ground level
Time at 75% Effective Depth = **7** minutes
Time at 25% Effective Depth = **53** minutes

V_{p75-25} = **0.28** m³

a_{p50} = **2.29** m²

t_{p75-25} = **2783** sec

f = **4.4E-05** m/sec

Average Soakaway Rate = **8.7E-05** m³/sec
Average soakaway area = **2.29** m² (sides + base)

BR365 Soil Infiltration Rate = 4.4E-05 m/sec
Average Infiltration Rate = 3.8E-05 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

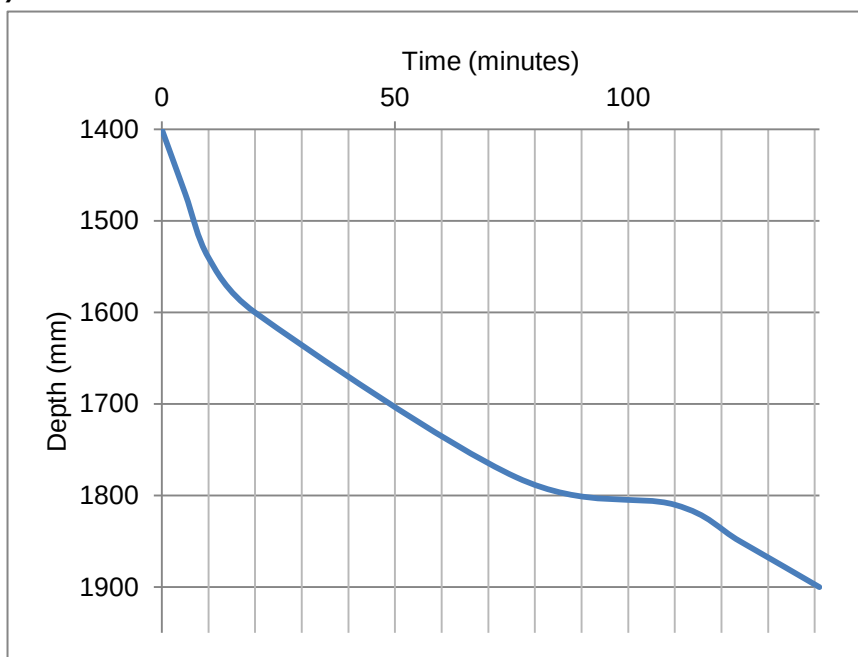
Test No. SA6T2

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **1900** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1400** mm

Time (min)	Depth (mm)
0	1400
5	1470
10	1540
20	1600
76	1780
110	1810
124	1850
141	1900



Test Pit Log

Depth (m)	Description
0-1.4	MADE GROUND: Brown fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.
1.4-1.9	Moderately strong brown grey SANDSTONE recovered as subangular very sandy gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA6T2

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1400** mm Average water depth: **250** mm
Start time = **0** min Change in water depth: **500** mm

Final parameters

Depth to water = **1900** mm Time interval: **141** min
End time = **141** min

Effective Storage Volume of Water in the Trial Pit = **0.51** m³
75% Effective Depth = **1525** mm from ground level
25% Effective Depth = **1775** mm from ground level
Time at 75% Effective Depth = **9** minutes
Time at 25% Effective Depth = **74** minutes

V_{p75-25} = **0.26** m³

a_{p50} = **2.17** m²

t_{p75-25} = **3929** sec

f = **3.0E-05** m/sec

Average Soakaway Rate = **6.0E-05** m³/sec
Average soakaway area = **2.17** m² (sides + base)

BR365 Soil Infiltration Rate = 3.0E-05 m/sec
Average Infiltration Rate = 2.8E-05 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

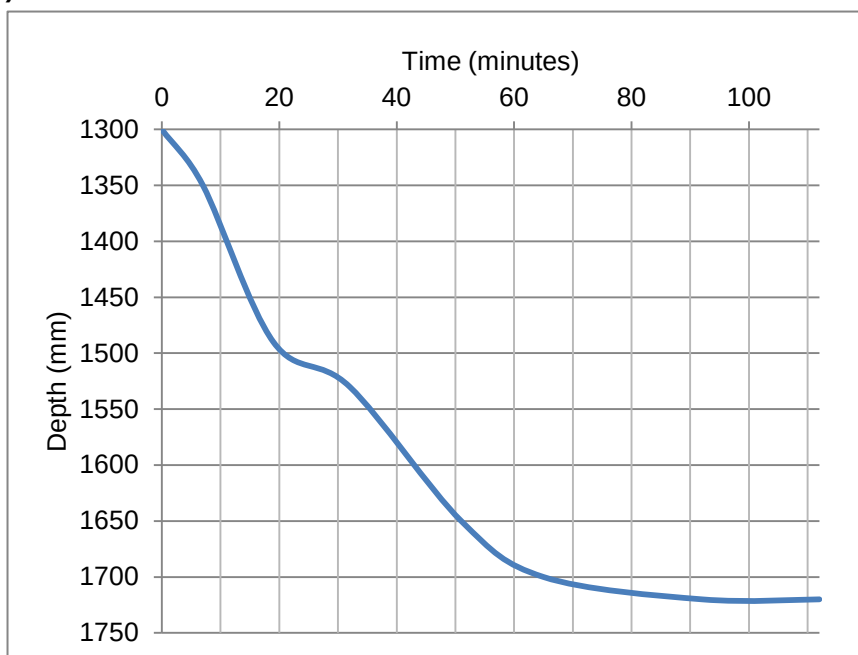
Test No. SA6T3

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **1900** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1300** mm

Time (min)	Depth (mm)
0	1300
7	1350
19	1490
32	1530
51	1650
65	1700
92	1720
112	1720



Test Pit Log

Depth (m)	Description
0-1.4	MADE GROUND: Brown fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.
1.4-1.9	Moderately strong brown grey SANDSTONE recovered as subangular very sandy gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA6T3

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1300** mm Average water depth: **390** mm
Start time = **0** min Change in water depth: **420** mm

Final parameters

Depth to water = **1720** mm Time interval: **112** min
End time = **112** min

Effective Storage Volume of Water in the Trial Pit = **0.612** m³
75% Effective Depth = **1450** mm from ground level
25% Effective Depth = **1750** mm from ground level
Time at 75% Effective Depth = **16** minutes
Time at 25% Effective Depth = **n/a** minutes

V_{p75-25} = **0.31** m³

a_{p50} = **2.40** m²

t_{p75-25} = **-934** sec

f = **-1.4E-04** m/sec

Average Soakaway Rate = **6.4E-05** m³/sec
Average soakaway area = **2.81** m² (sides + base)

BR365 Soil Infiltration Rate = n/a m/sec
Average Infiltration Rate = 2.3E-05 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

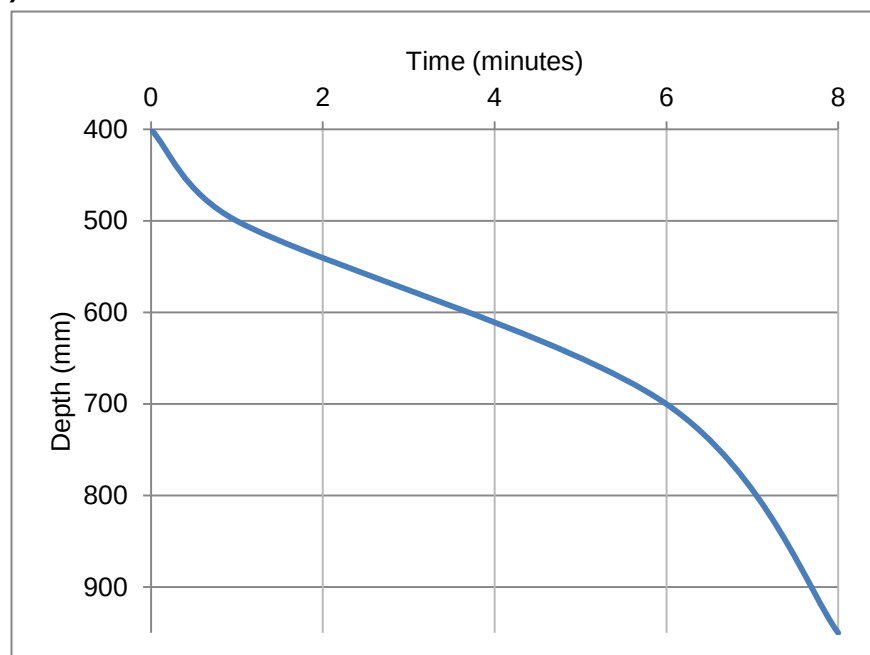
Test No. SA7T1

Test Pit Dimensions

Length = **1600** mm Plan area = **0.96** m²
 Width = **600** mm
 Depth = **950** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
 Depth to water after completion of pumping: **400** mm

Time (min)	Depth (mm)
0	400
1	500
6	700
8	950



Test Pit Log

Depth (m)	Description
0-0.6	Dark brown TOPSOIL with occasional brick.
0.6-0.95	Strong brown grey SANDSTONE recovered as subangular sandy gravel and cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA7T1

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **400 mm** Average water depth: **275 mm**
Start time = **0 min** Change in water depth: **550 mm**

Final parameters

Depth to water = **950 mm** Time interval: **8 min**
End time = **8 min**

Effective Storage Volume of Water in the Trial Pit = **0.528 m³**
75% Effective Depth = **538 mm** from ground level
25% Effective Depth = **813 mm** from ground level
Time at 75% Effective Depth = **2 minutes**
Time at 25% Effective Depth = **6.9 minutes**

V_{p75-25} = **0.26 m³**

a_{p50} = **2.17 m²**

t_{p75-25} = **297 sec**

f = **4.1E-04 m/sec**

Average Soakaway Rate = **1.1E-03 m³/sec**
Average soakaway area = **2.17 m²** (sides + base)

BR365 Soil Infiltration Rate = 4.1E-04 m/sec
Average Infiltration Rate = 5.1E-04 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

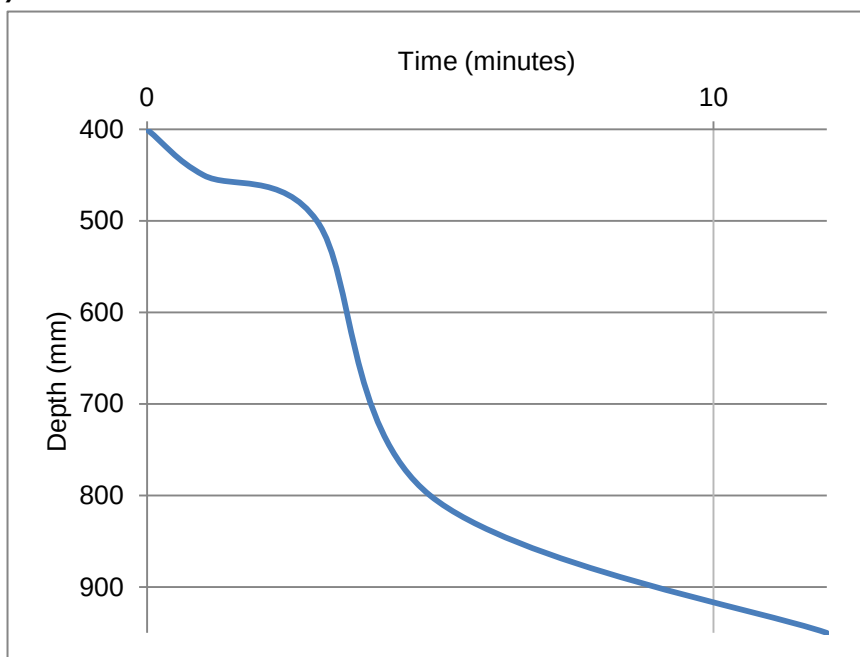
Test No. SA7T2

Test Pit Dimensions

Length = **1600** mm Plan area = **0.96** m²
 Width = **600** mm
 Depth = **950** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
 Depth to water after completion of pumping: **400** mm

Time (min)	Depth (mm)
0	400
1	450
3	500
5	800
12	950



Test Pit Log

Depth (m)	Description
0-0.6	Dark brown TOPSOIL with occasional brick.
0.6-0.95	Strong brown grey SANDSTONE recovered as subangular sandy gravel and cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA7T2

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **400** mm Average water depth: **275** mm
Start time = **0** min

Change in water depth: **550** mm

Final parameters

Depth to water = **950** mm Time interval: **12** min
End time = **12** min

Effective Storage Volume of Water in the Trial Pit = **0.528** m³
75% Effective Depth = **538** mm from ground level
25% Effective Depth = **813** mm from ground level
Time at 75% Effective Depth = **3** minutes
Time at 25% Effective Depth = **5.6** minutes

V_{p75-25} = **0.26** m³

a_{p50} = **2.17** m²

t_{p75-25} = **141** sec

f = **8.6E-04** m/sec

Average Soakaway Rate = **7.3E-04** m³/sec
Average soakaway area = **2.17** m² (sides + base)

BR365 Soil Infiltration Rate = 8.6E-04 m/sec
Average Infiltration Rate = 3.4E-04 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

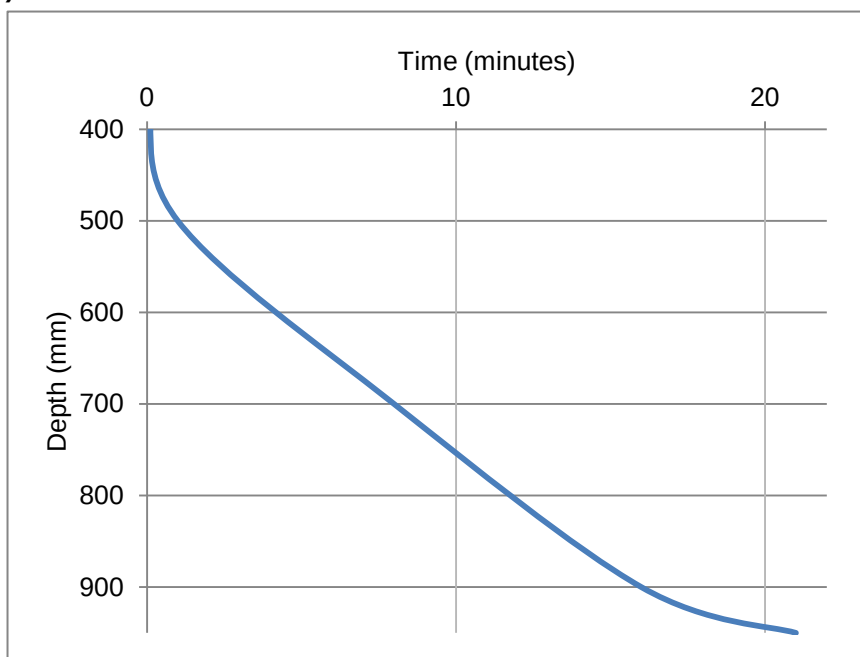
Test No. SA7T3

Test Pit Dimensions

Length = **1600** mm Plan area = **0.96** m²
 Width = **600** mm
 Depth = **950** mm (Total depth)

Approximate time to discharge water into the hole: **30** Seconds
 Depth to water after completion of pumping: **350** mm

Time (min)	Depth (mm)
0	350
1	500
8	700
16	900
21	950



Test Pit Log

Depth (m)	Description
0-0.6	Dark brown TOPSOIL with occasional brick.
0.6-0.95	Strong brown grey SANDSTONE recovered as subangular sandy gravel and cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA7T3

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **350** mm Average water depth: **300** mm
Start time = **0** min Change in water depth: **600** mm

Final parameters

Depth to water = **950** mm Time interval: **21** min
End time = **21** min

Effective Storage Volume of Water in the Trial Pit = **0.576** m³
75% Effective Depth = **500** mm from ground level
25% Effective Depth = **800** mm from ground level
Time at 75% Effective Depth = **1** minutes
Time at 25% Effective Depth = **12** minutes

V_{p75-25} = **0.29** m³

a_{p50} = **2.28** m²

t_{p75-25} = **660** sec

f = **1.9E-04** m/sec

Average Soakaway Rate = **4.6E-04** m³/sec
Average soakaway area = **2.28** m² (sides + base)

BR365 Soil Infiltration Rate = 1.9E-04 m/sec
Average Infiltration Rate = 2.0E-04 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

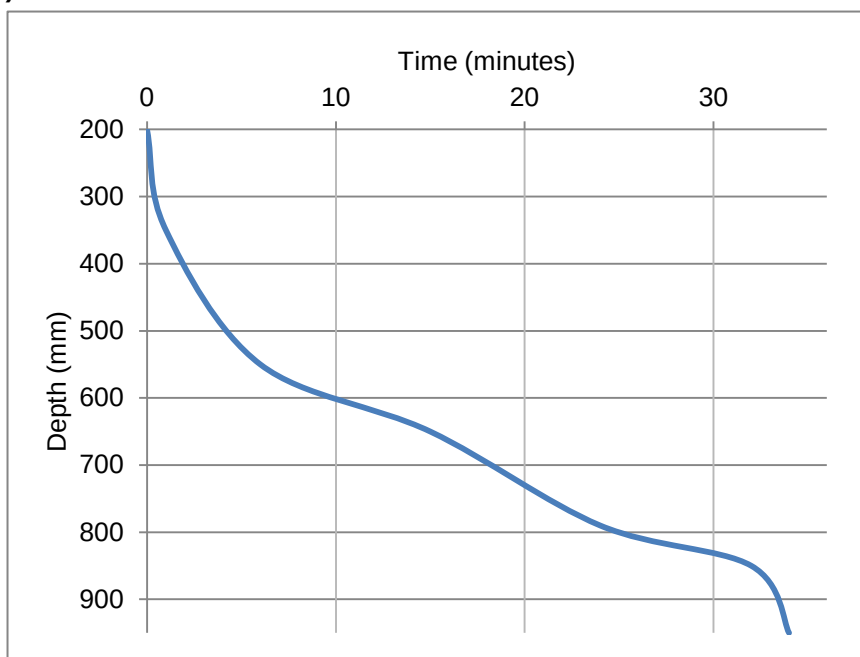
Test No. SA7T4

Test Pit Dimensions

Length = **1600** mm Plan area = **0.96** m²
 Width = **600** mm
 Depth = **950** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **200** mm

Time (min)	Depth (mm)
0	200
1	350
6	550
15	650
24	790
32	850
34	950



Test Pit Log

Depth (m)	Description
0-0.6	Dark brown TOPSOIL with occasional brick.
0.6-0.95	Strong brown grey SANDSTONE recovered as subangular sandy gravel and cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA7T4

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **200** mm Average water depth: **375** mm
Start time = **0** min Change in water depth: **750** mm

Final parameters

Depth to water = **950** mm Time interval: **34** min
End time = **34** min

Effective Storage Volume of Water in the Trial Pit = **0.72** m³
75% Effective Depth = **388** mm from ground level
25% Effective Depth = **763** mm from ground level
Time at 75% Effective Depth = **2** minutes
Time at 25% Effective Depth = **22** minutes

V_{p75-25} = **0.36** m³

a_{p50} = **2.61** m²

t_{p75-25} = **1219** sec

f = **1.1E-04** m/sec

Average Soakaway Rate = **3.5E-04** m³/sec
Average soakaway area = **2.61** m² (sides + base)

BR365 Soil Infiltration Rate = 1.1E-04 m/sec
Average Infiltration Rate = 1.4E-04 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

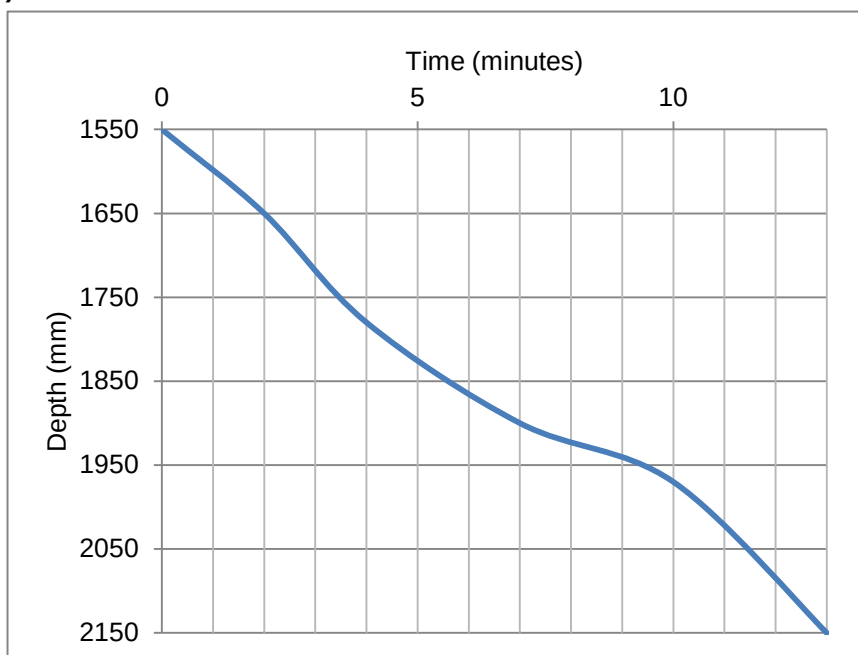
Test No. SA8T1

Test Pit Dimensions

Length = **1700** mm Plan area = **1.02** m²
 Width = **600** mm
 Depth = **2150** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1550** mm

Time (min)	Depth (mm)
0	1550
2	1650
4	1780
7	1900
10	1970
13	2150



Test Pit Log

Depth (m)	Description
0-0.25	TOPSOIL
0.25-1.4	MADE GROUND: Brown blackish fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.
1.4-2.15	Moderately strong brown grey SANDSTONE recovered as subangular very sandy gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA8T1

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1550** mm Average water depth: **300** mm
Start time = **0** min Change in water depth: **600** mm

Final parameters

Depth to water = **2150** mm Time interval: **13** min
End time = **13** min

Effective Storage Volume of Water in the Trial Pit = **0.612** m³
75% Effective Depth = **1700** mm from ground level
25% Effective Depth = **2000** mm from ground level
Time at 75% Effective Depth = **3** minutes
Time at 25% Effective Depth = **10.5** minutes

V_{p75-25} = **0.31** m³

a_{p50} = **2.40** m²

t_{p75-25} = **464** sec

f = **2.7E-04** m/sec

Average Soakaway Rate = **7.8E-04** m³/sec
Average soakaway area = **2.40** m² (sides + base)

BR365 Soil Infiltration Rate = 2.7E-04 m/sec
Average Infiltration Rate = 3.3E-04 m/sec

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA8T2

Test Pit Dimensions

Length = 1700 mm

Plan area = 1.02 m²

Width = 600 mm

Depth = 2100 mm (Total depth)

Approximate time to discharge water into the hole:

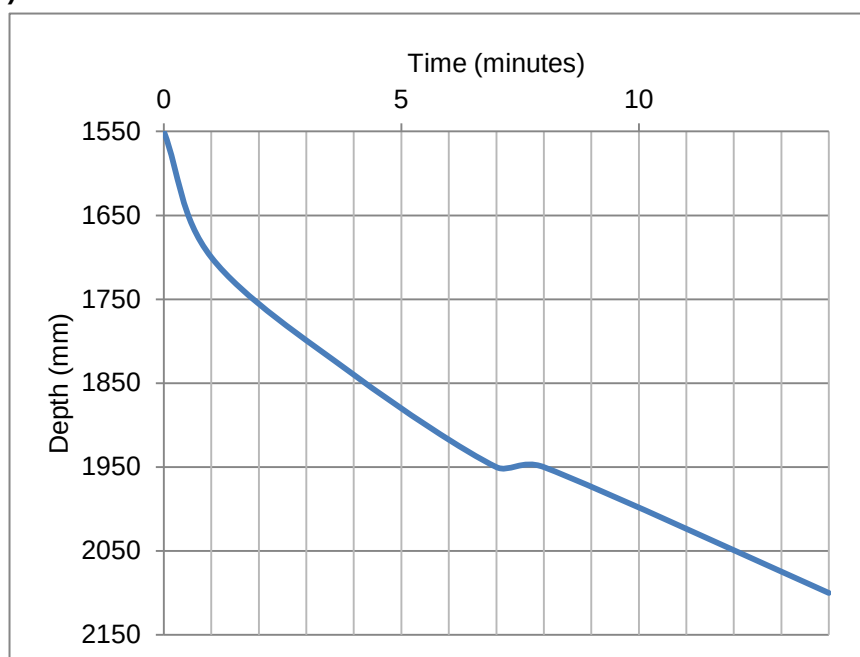
35 Seconds

Depth to water after completion of pumping:

1550 mm

Time (min) Depth (mm)

0	1550
1	1700
4	1840
7	1950
8	1950
14	2100

**Test Pit Log****Depth (m)****Description**

0-0.25

TOPSOIL

0.25-1.4

MADE GROUND: Brown blackish fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.

1.4-2.15

Moderately strong brown grey SANDSTONE recovered as subangular very sandy gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA8T2

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1550** mm Average water depth: **275** mm
Start time = **0** min Change in water depth: **550** mm

Final parameters

Depth to water = **2100** mm Time interval: **14** min
End time = **14** min

Effective Storage Volume of Water in the Trial Pit = **0.561** m³
75% Effective Depth = **1688** mm from ground level
25% Effective Depth = **1963** mm from ground level
Time at 75% Effective Depth = **1** minutes
Time at 25% Effective Depth = **8.5** minutes

V_{p75-25} = **0.28** m³

a_{p50} = **2.29** m²

t_{p75-25} = **456** sec

f = **2.7E-04** m/sec

Average Soakaway Rate = **6.7E-04** m³/sec
Average soakaway area = **2.29** m² (sides + base)

BR365 Soil Infiltration Rate = 2.7E-04 m/sec
Average Infiltration Rate = 2.9E-04 m/sec

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA8T3

Test Pit Dimensions

Length = 1700 mm

Plan area = 1.02 m²

Width = 600 mm

Depth = 2300 mm (Total depth)

Approximate time to discharge water into the hole:

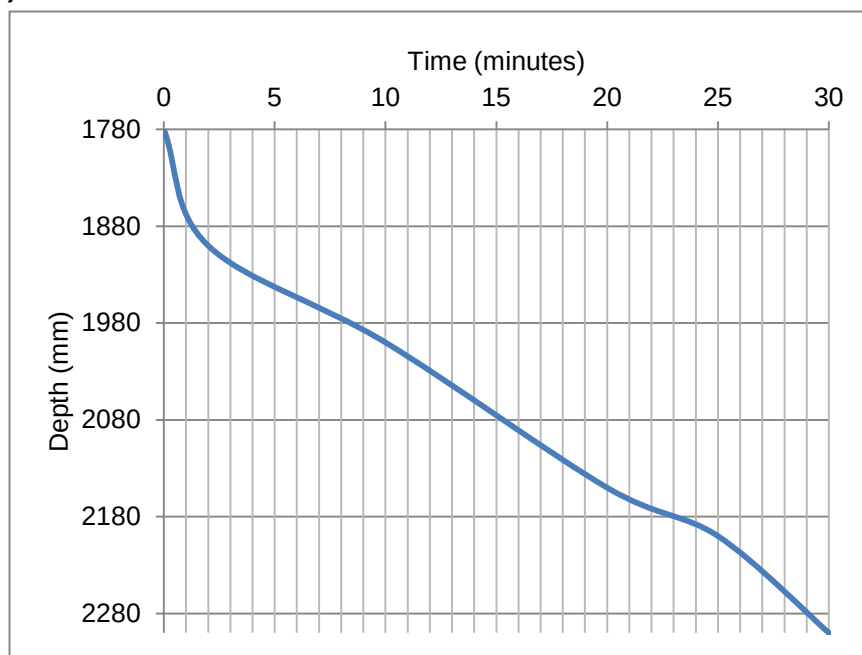
35 Seconds

Depth to water after completion of pumping:

1780 mm

Time (min) Depth (mm)

0	1780
2	1900
10	2000
20	2150
25	2200
30	2300

**Test Pit Log****Depth (m)****Description**

0-0.25

TOPSOIL

0.25-1.4

MADE GROUND: Brown blackish fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.

1.4-2.3

Moderately strong brown grey SANDSTONE recovered as subangular very sandy gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA8T3

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1780** mm Average water depth: **260** mm
Start time = **0** min
Change in water depth: **520** mm

Final parameters

Depth to water = **2300** mm Time interval: **30** min
End time = **30** min

Effective Storage Volume of Water in the Trial Pit = **0.5304** m³
75% Effective Depth = **1910** mm from ground level
25% Effective Depth = **2170** mm from ground level
Time at 75% Effective Depth = **3** minutes
Time at 25% Effective Depth = **22** minutes

V_{p75-25} = **0.27** m³

a_{p50} = **2.22** m²

t_{p75-25} = **1152** sec

f = **1.0E-04** m/sec

Average Soakaway Rate = **2.9E-04** m³/sec
Average soakaway area = **2.22** m² (sides + base)

BR365 Soil Infiltration Rate = 1.0E-04 m/sec
Average Infiltration Rate = 1.3E-04 m/sec

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PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA9T1

Test Pit DimensionsLength = **1800** mm Plan area = **1.17** m²Width = **650** mmDepth = **2300** mm (Total depth)

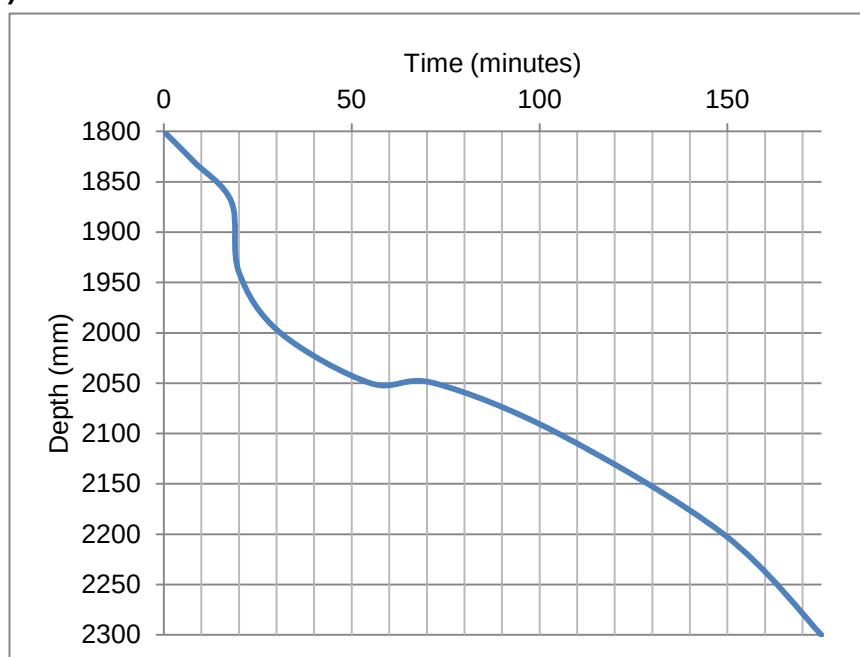
Approximate time to discharge water into the hole:

35 Seconds

Depth to water after completion of pumping:

1800 mm**Time (min) Depth (mm)**

0	1800
8	1830
18	1870
20	1940
31	2000
55	2050
72	2050
105	2100
149	2200
175	2300

**Test Pit Log**

Depth (m)	Description
0-0.3	TOPSOIL
0.3-1.4	MADE GROUND: Brown blackish fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.
1.4-1.7	MADE GROUND: Firm brown reworked very sandy gravelly clay.
1.7-2.3	Moderately strong brown grey SANDSTONE recovered as subangular sandy clayey gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA9T1

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1800** mm Average water depth: **250** mm
Start time = **0** min Change in water depth: **500** mm

Final parameters

Depth to water = **2300** mm Time interval: **175** min
End time = **175** min

Effective Storage Volume of Water in the Trial Pit = **0.585** m³
75% Effective Depth = **1925** mm from ground level
25% Effective Depth = **2175** mm from ground level
Time at 75% Effective Depth = **20** minutes
Time at 25% Effective Depth = **138** minutes

V_{p75-25} = **0.29** m³

a_{p50} = **2.40** m²

t_{p75-25} = **7104** sec

f = **1.7E-05** m/sec

Average Soakaway Rate = **5.6E-05** m³/sec
Average soakaway area = **2.40** m² (sides + base)

BR365 Soil Infiltration Rate = 1.7E-05 m/sec
Average Infiltration Rate = 2.3E-05 m/sec

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

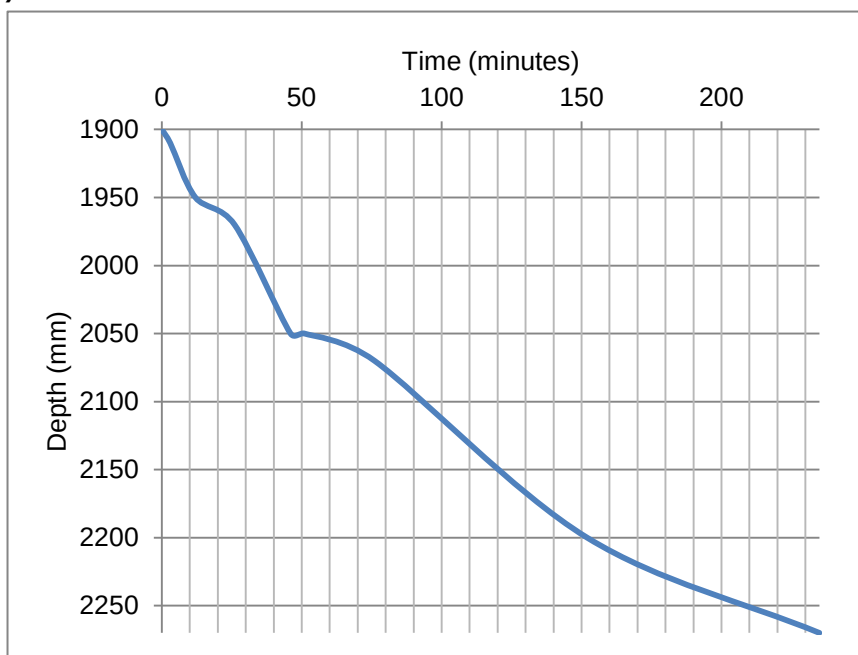
Test No. SA9T2

Test Pit Dimensions

Length = **1800** mm Plan area = **1.17** m²
 Width = **650** mm
 Depth = **2300** mm (Total depth)

Approximate time to discharge water into the hole: **35** Seconds
 Depth to water after completion of pumping: **1900** mm

Time (min)	Depth (mm)
0	1900
3	1910
12	1950
26	1970
46	2050
51	2050
76	2070
152	2200
235	2270



Test Pit Log

Depth (m)	Description
0-0.3	TOPSOIL
0.3-1.4	MADE GROUND: Brown blackish fine to coarse subangular gravel of sandstone and sand with brick, concrete and metal fragments.
1.4-1.7	MADE GROUND: Firm brown reworked very sandy gravelly clay.
1.7-2.3	Moderately strong brown grey SANDSTONE recovered as subangular sandy clayey gravel and, occasionally, cobbles.

PROJECT:	Blythe Street, Wombwell	Job No. 38506	Date 20-21.08.15
SUBJECT:	Infiltration Test Results and Calculation of Infiltration Rates	Prepared MM	Checked CAT

Test No. SA9T2

Soil Infiltration Rate in Accordance with BR365

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

Where: V_{p75-25} is the effective storage volume of water in the trial pit between 75% and 25% effective depth;

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

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

Initial parameters

Depth to water = **1900** mm Average water depth: **215** mm
Start time = **0** min Change in water depth: **370** mm

Final parameters

Depth to water = **2270** mm Time interval: **235** min
End time = **235** min

Effective Storage Volume of Water in the Trial Pit = **0.468** m³
75% Effective Depth = **2000** mm from ground level
25% Effective Depth = **2200** mm from ground level
Time at 75% Effective Depth = **34** minutes
Time at 25% Effective Depth = **152** minutes

V_{p75-25} = **0.23** m³

a_{p50} = **2.15** m²

t_{p75-25} = **7110** sec

f = **1.5E-05** m/sec

Average Soakaway Rate = **3.1E-05** m³/sec
Average soakaway area = **2.22** m² (sides + base)

BR365 Soil Infiltration Rate = 1.5E-05 m/sec
Average Infiltration Rate = 1.4E-05 m/sec