PERCOLATION REPORT

LOCATION:
Storthes Hall, Kickburton

CLIENT:
South Street Asset Management

DOCUMENT REF:
23146-PR-001

DATE:
23rd February 2024

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Revision	Description	Date	Author	Checked
A	First Issue	February 2024	E Craig	A Dyson

1.0 TESTING REPORT

The Percolation Testing was carried out on site on 23rd February 2024 to establish if infiltration methods were going to be a suitable solution for draining the site.

1 Trial Hole was formed with the following dimensions and location shown below;

Test Pit 1 1250mm x 600mm x 1250mm

The water level drop was monitored and recorded (see test sheets attached).

TEST PIT 1:

For Test 1 (Test Pit 1), water was filled to a depth of 600mm, the water level dropped 600mm after 4 minutes of testing.

For Test 2 (Test Pit 1), water was filled to a depth of 600mm, the water level dropped 600mm after 8 minutes of testing.

For Test 3 (Test Pit 1), water was filled to a depth of 600mm, the water level dropped 600mm after 10 minutes of testing.

Calculation sheet 1 shows that the infiltration rates are high enough and do satisfy BRE 365 requirements. Therefore, Infiltration methods of drainage will be viable for this site and strategy.

Test 3 is the worst case result so will be used to calculate the required infiltration rate.

APPENDICES

Appendix A – Percolation Test Sheet

METHOD (from BRE Digest 365)

- Excavate a soakage trail pit to the required depth (typically 1.0m - 2.0m deep) using minimum width (0.3m) and length (1.0m). Carefully trim sides and bottom.
- Carefully measure size of pit and note sizes below.
- Fill soakage hole briskly with water (from bowser) to at least three quarters full. Being careful not to wash away the sides. (Note: a 0.3m wide, 1m long, 1.5m deep trench needs at least 350 litres (80 gallons) of water)
- Place straight edge over top of soakage pit and measure (dip) to the top of the water.
- Record time versus dips in table below. Dip every 5 minutes for the first hour and every hour until pit is one quarter full. Repeat test 3 times in total on the same or consecutive days.

DETAILS

Site Location	**Storthes Hall, Kickburton**
Date of Test	**23/02/24**
Weather Conditions	**Mixed - Winter**
Engineer Name	**Ed Craig**

SIZE OF PIT 1

Length	Width	Depth
1.25m	0.6m	1.25m

Test 1
RESULTS

Time (mins)	Dip (mm)
0	600
4	0

Test 2
RESULTS

Time (mins)	Dip (mm)
0	600
5	180
8	0

Appendix A

Percolation Test Sheet Pit 1

Test 3
RESULTS

Time (mins)	Dip (mm)
0	600
5	210
10	0

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TEST PIT 1:



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TEST PIT LOCATION:

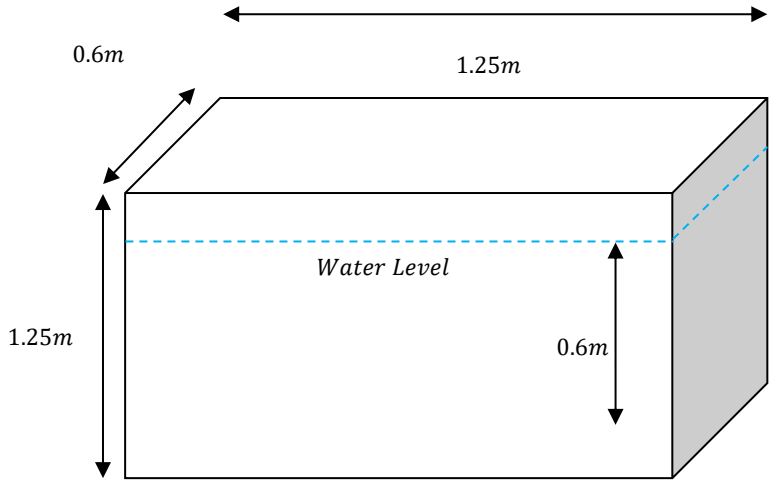


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Project				Job Ref.	
Storthes Hall, Kirkburton				23146	
Section				Sheet no./rev.	
Calc. by	Date	Chk'd by	Date	App'd by	Date
EC	FEB 24	RT	FEB 24		

Test 3,

Test Pit 1)



Soil Infiltration rate(ms^{-1}): $\frac{V_{(P75-25)}}{t_{(P75-25)} \times a_{(P50)}}$

V = Effective storage volume between $75-25\%$

$a_{(P50)}$ = Surface area of the pit (50% effective depth) + box area

$t_{(P75-25)}$ = Time for water to fall from $75-25\%$

$V_{(p75-25)} = (0.6 \times 0.5) \times 1.25 \times 0.6 = 0.225m^3$

$a_{(p50)} = 1.25 \times 0.6 + 2((0.6 \times 0.5) \times 1.25) + 2((0.6 \times 0.5) \times 0.6) = 1.86m^2$

$t_{(p75-25)} = 600s$

Soil Infiltration rate (m/s):

$$\frac{0.225}{600 \times 1.86} = 2.02 \times 10^{-4} m/s$$

Soil Infiltration rate (m/hr):

$$2.02 \times 10^{-4} \times 3600 = 0.726\, m/hr$$