

PERCOLATION REPORT

LOCATION:

Storthes Hall, Kickburton

CLIENT:

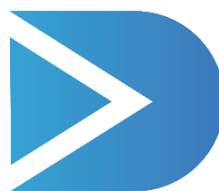
South Street Asset Management

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

TESTING REPORT

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 trial 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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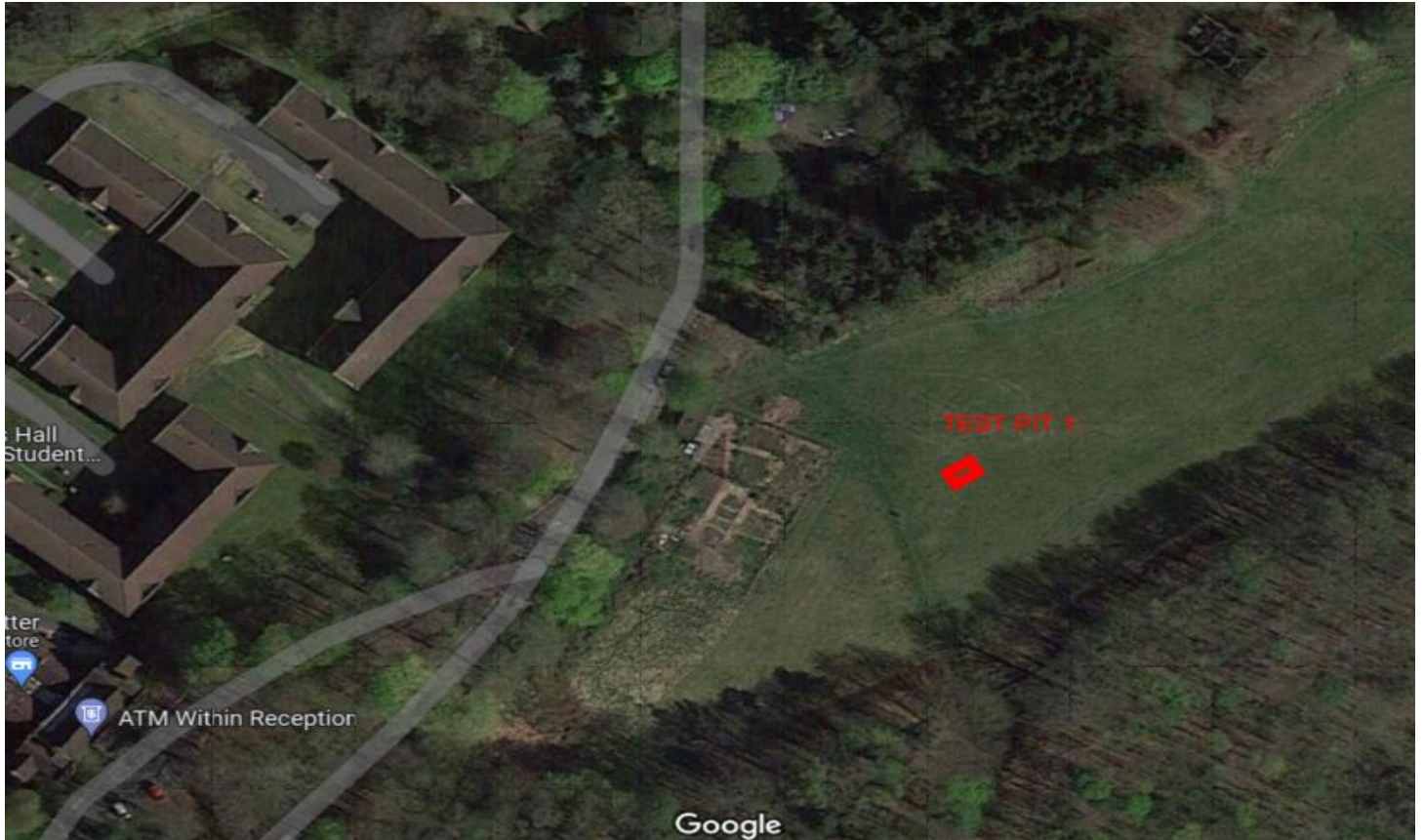
TEST PIT 1:



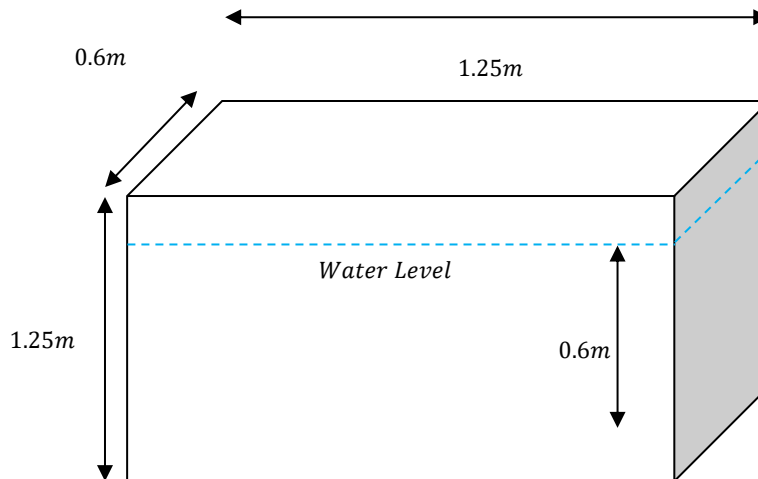


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TEST PIT LOCATION:



Test 3, Test Pit 1)



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

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):

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