Dear Hilary

We attach the percolation test + report which were submitted previously, these may have crossed with the Flood Authority comments in terms of timing therefore please can you confirm that this is acceptable.

Kind regards,

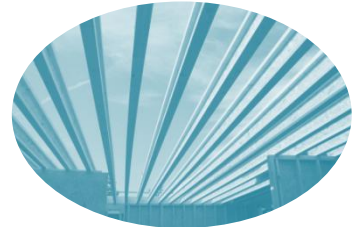David McCormack RIBA APMP
Director

NYMNPA

05/06/2019

Percolation Report

Hambleton Hotel

Studio Maps

19183

May 2019

Percolation testing was carried out on site on 20th May 2019 to establish if infiltration methods were going to be a suitable solution for draining the site.

1 Trial Hole was formed, and 3 tests were carried out, with the following dimensions;

Test Pit 1   1400mm x 600mm x 1000mm deep

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

For **Test 1** (Test Pit 1), water was filled to a depth of 600mm, the water level drop was 600mm over a period of a 2-hour period.

For **Test 2** (Test Pit 1), water was filled to a depth of 650mm, the water level drop was 650mm over a period of a 3-hour period.
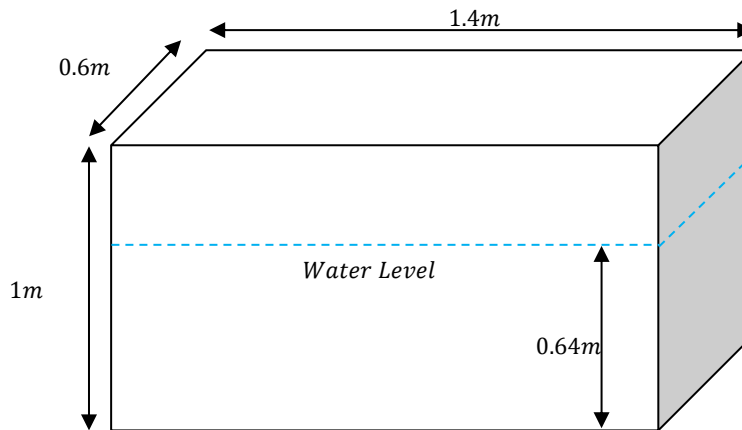
For **Test 3** (Test Pit 1), water was filled to a depth of 640mm, the water level drop was 640mm over a period of a 3-hour period.

During the testing period, the water levels did drop from 75% to 25% which does satisfy the requirements of BRE 365. The infiltration rate from the experiment, 2.05×10^{-5} m/s, is a sufficient value to drain via infiltration. It should be noted that the soakaway testing was done at the lowest point of the site an furthest away from any existing and proposed buildings.

Based on the above the water level did drop at the right rate. Therefore, it is viable to drain the site using infiltration methods on site when dealing with the surface water run-off from the site. The below test sheet shows the lowest rate out of all tests on site.

	Project		Job Ref.	
TOPPING ENGINEERS CONSULTING CIVIL & STRUCTURAL ENGINEERS	Hambleton Hotel		19183	
	Section		Sheet no./rev.	
	Test Pit 1		1	
01423 522293	Calc. by TA	Date 20/5/2019	Chk'd by	Date	App'd by	Date

Test 1,

Test Pit 1)

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

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 $75 - 25\%$

$V_{(p75-25)} = (1 \times 0.5) \times 1.4 \times 0.6 = 0.42 m^3$

$a_{(p50)} = 1.4 \times 0.6 + 2((1 \times 0.5) \times 1.4) + 2((1 \times 0.5) \times 0.6) = 2.84 m^2$

$t_{(p75-25)} = 7200s$

Soil Infiltration rate (m/s):

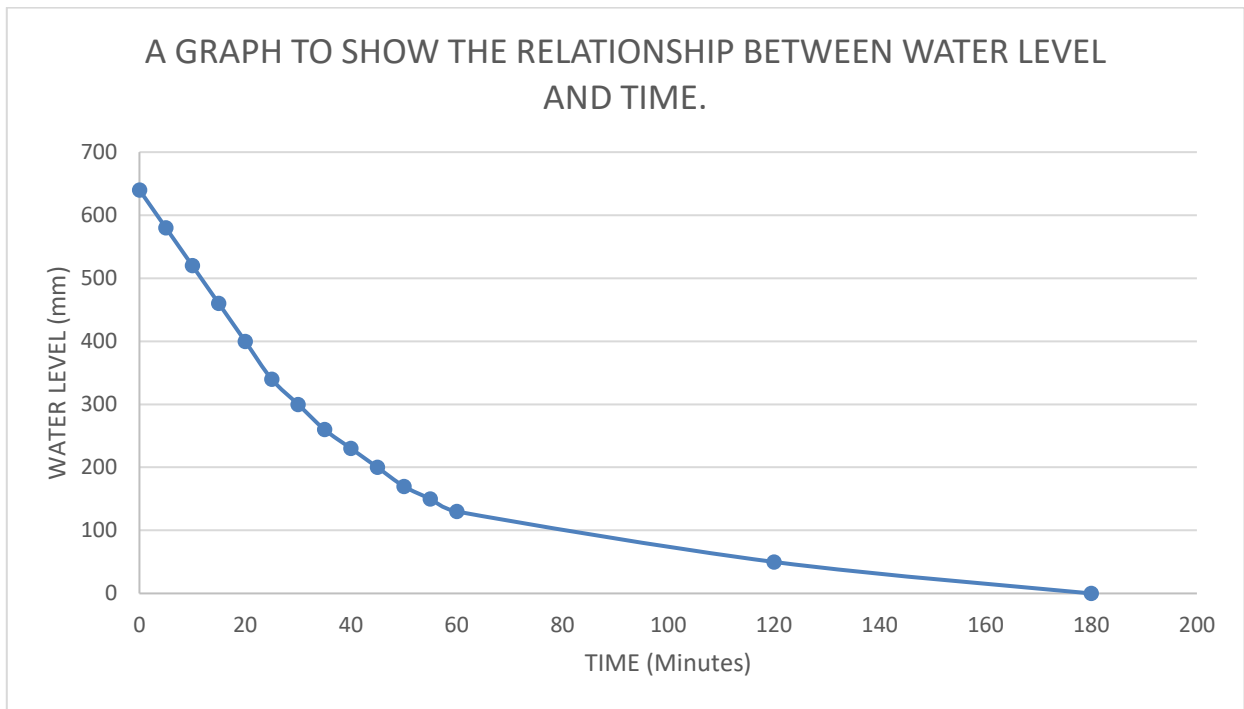$$\frac{0.42}{7200 \times 2.84} = 2.05 \times 10^{-5} m/s$$

Soil Infiltration rate (m/hr):

$$2.05 \times 10^{-5} \times 3600 = 7.39 \times 10^{-2} \ m/hr$$

	Project				Job Ref.	
TOPPING ENGINEERS CONSULTING CIVIL & STRUCTURAL ENGINEERS	**Hambleton Hotel**				**19183**	
	Section				Sheet no./rev.	
	Test Pit 1				1	
01423 522293	Calc. by **TA**	Date **20/5/2019**	Chk'd by	Date	App'd by	Date

A GRAPH TO SHOW THE RELATIONSHIP BETWEEN WATER LEVEL AND TIME.

PERCOLATION TEST SHEET

METHOD from BRE DIGEST 365

- Excavate a soakage trial pit to the required depth (typically 1.0-2.0 m deep) using minimum width (0.3m) and length (1m). 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 sides. Note: a 300mm wide, 1 metre long, 1.5 metre deep trench needs at least 350 litres (80 gallons) of water.
- Place straight edge over top of soakage pit and measure (dip) to top of water.
- Record time versus dips in table below. Dip every 5 minutes for first hour then every hour until pit is one quarter full.
- Repeat test 3 times in total on the same or consecutive days.

DETAILS

SITE LOCATION Hambleton Hotel

DATE OF TEST 20-5-19

WEATHER CONDITIONS Dry

SIZE OF PIT

LENGTH	WIDTH	DEPTH
1.4m	0.6m	1.0m

test 1		test 2		test 3	
TIME	**DIP**	**TIME**	**DIP**	**TIME**	**DIP**
0	400	0	350	0	360
5	450	5	400	5	420
10	500	10	450	10	480
15	550	15	500	15	540
20	600	20	540	20	600
25	640	25	580	25	660
30	680	30	620	30	700
35	720	35	660	35	740
40	760	40	700	40	770
45	790	45	730	45	800
50	820	50	760	50	820
55	850	55	790	55	850
60	890	60	830	60	870
120	1000	120	970	120	950
		180	1000	180	1000