



8th February 2017
Our Ref: 17.9377

BEFI Ltd
6A South Pallant,
Chichester,
West Sussex,
PO19 1SY

FAO: Bryan Fry

Soakage Testing and Groundwater Monitoring – Woodford Farm

Dear Bryan,

I write further to the completion of a soakage test and subsequent groundwater monitoring carried out at Woodford Farm, Westergate Street, Woodgate, Chichester, PO20 3SS (hereafter referred to as the “site”) as instructed by yourself (EQ11554, Dated: January 2017). This factual letter report provides copies of the soakage test results, soil logs and results of groundwater monitoring.

Site works

The following site works were completed over a single day on 20th January 2017 by a Project Engineer and Senior Technician from CE.

- Prior to any excavations taking place a Cable Avoidance Tool (CAT) was used to clear the position of any underlying electrical services.
- 1no. hand dug trial pit (TP1) was completed to a maximum depth of 1.00mbgl to allow for the completion of a bespoke soakage test, in general accordance with BRE 365.
- Prior to the soakage test, the sides of TP1 were squared off and the pit measured in as ~300mm wide and ~300mm long. Following this, the pit was rapidly filled with potable water and the fall in water level recorded at predetermined intervals against a datum bar.
- 1no. window sample borehole (WS1) was completed through the base of its respective starter trial pit to a maximum depth of 3.70mbgl. Upon completion, the borehole was installed with a 19mm diameter standpipe to enable future groundwater monitoring and, if needed, allow for a subsequent falling head test. This pipework comprised a slotted section in a filter pack surround, finished off at the surface by a plain section of pipe surrounded by a bentonite seal. The pipe was capped with a gas tap and protected by a cast iron stopcock cover. The response zone was from 0.50m to 3.40mbgl.

Groundwater monitoring of the installed well within WS1 was undertaken one week following site works, during the 27th of January 2017 and the 3rd of February 2017. The depth in water level was recorded using a dip-meter; no groundwater samples were taken.

A site layout plan indicating positions of the test locations is attached.

Soakage Test Results

Infiltration testing (SA1) was completed within TP1 in general accordance with BRE 365. The trial pit was hand excavated to desired depth and logged. Sides were squared off and the pit was rapidly filled with potable water. The fall in water level was recorded at predetermined intervals to aid in the calculation of an infiltration rate. Results are summarised in the table below:

Test	Pit depth	Water Depth at Start (m)	Time at 75% (mins)	Time at 25% (mins)	Infiltration	Drainage Conditions
SA1 – Test 1	1.00	0.66	40	N/A	+ 3.14x10 ⁻⁶	Poor

† - invalid test, infiltration rate inferred.

The infiltration value was determined using an extrapolation calculation, and as such should be used with a degree of caution. Drainage conditions are derived from Soil Mechanics in Engineering Practice by Karl Terzaghi, Ralph B. Peck and Gholamreza Mesri; Table 14.1 Permeability and drainage characteristics of soils (after Casagrande and Fadum 1940).

Groundwater Monitoring

Groundwater monitoring of the installed well within WS1 was undertaken on 27th January and 3rd February 2017, and is tabulated below:

Date	Groundwater level from surface (m)
27/01/2017	1.06m
03/02/2017	0.70m

During the site works of 20th January, groundwater was encountered at depths ranging 1.50m to 0.90mbgl. It should be noted that groundwater levels are dependent upon seasonal variations and levels may change after periods of heavy rainfall/precipitation or prolonged drought.

Decommissioning of Boreholes

The monitoring well installed on site will require decommissioning. This process should be completed in accordance with the EA's guidance document '*Decommissioning Redundant Boreholes and Wells*'.

Summary

Following the soakage test, the soils on site were found to be of poor drainage. Additionally, groundwater on site was found to be relatively shallow, ranging 0.70m-1.06mbgl during groundwater monitoring. As a result, consideration should be given to the aforementioned when designing the required soakaway.

I trust the above information is sufficient for your requirements in this matter, should you have any queries please do not hesitate to contact the undersigned.

Ryan Gunn BSc
Geo-Environmental Scientist



Constructive Evaluation Limited

Enclosed: Site plan
 Soakaway/Soakage Test Results
 Stratigraphic Logs



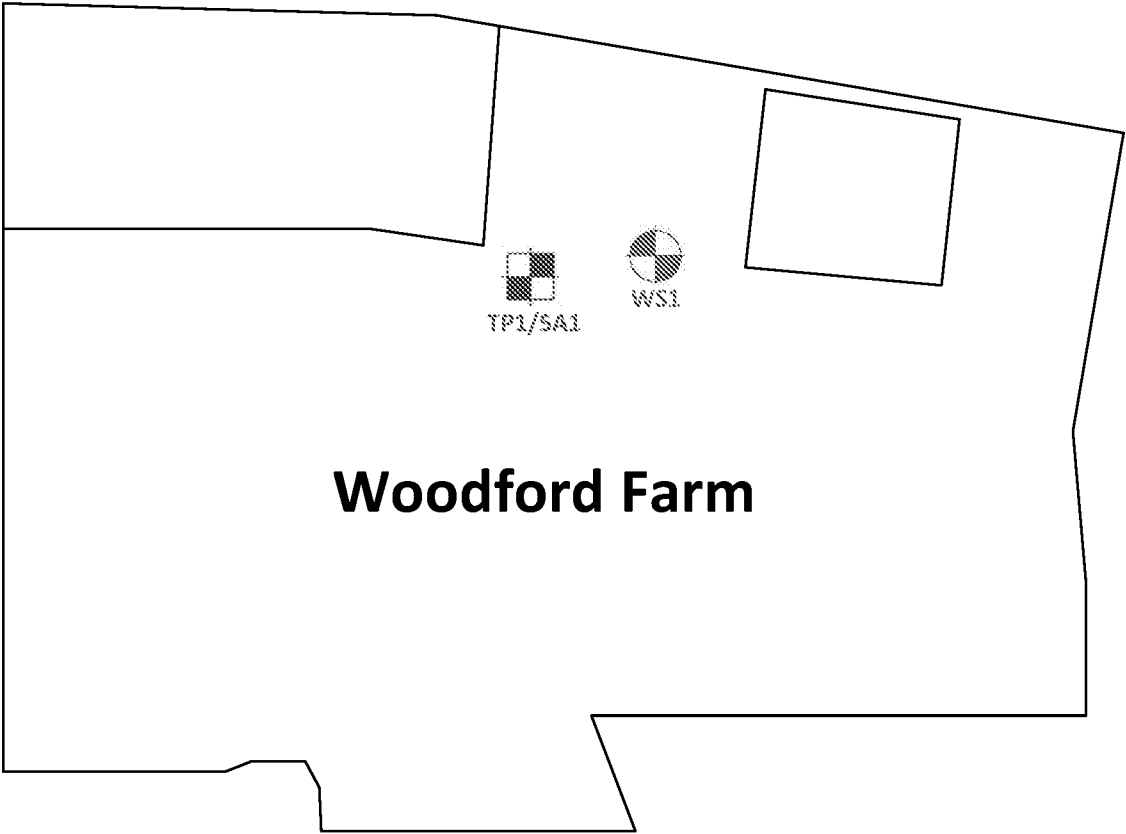
Constructive Evaluation

CONSTRUCTIVE EVALUATION LTD REG NO. 2715555



constructive evaluation
a specialist construction company

Hook Lane



- NOTES
1. Do not scale from this drawing
except for planning purposes.
Use layout dimensions only.
 2. All dimensions must be checked on site
prior to commencement of work.
 3. Where applicable this drawing is to be
read in conjunction with other
consultant drawings.
 4. This drawing is the copyright of
Constructive Evaluation Ltd.



rev	date	amendment	check
-----	------	-----------	-------

constructiveevaluation
Building & Material Test Consultants
Tel: 01249 623488 Fax: 01249 631070
email: info@ceconstructivegroup.com

Client:	BEFI LTD
---------	----------

Project:	WOODFORD FARM
----------	---------------

Drawing:	HOLE LOCATION PLAN	Scale:	A3
----------	-----------------------	--------	----

date:	drawn:	checked:
drawing number:		revision:

Soakaway Test Results & Soil Infiltration Rate

Site: Woodford Farm

Job No: 17.9377



constructiveevaluation
soil investigation & building pathology

Trial Hole: SA1

Test 1

Time in minutes	Depth in metres to water surface	Depth in metres of water	Percentage of water depth at start
0.00	0.340	0.66	100.0%
1.00	0.355	0.65	97.7%
2.00	0.365	0.64	96.2%
3.00	0.370	0.63	95.5%
4.00	0.385	0.62	93.2%
5.00	0.390	0.61	92.4%
6.00	0.395	0.61	91.7%
7.00	0.410	0.59	89.4%
8.00	0.410	0.59	89.4%
9.00	0.415	0.59	88.6%
10.00	0.420	0.58	87.9%
12.00	0.430	0.57	86.4%
14.00	0.440	0.56	84.8%
16.00	0.445	0.56	84.1%
18.00	0.450	0.55	83.3%
20.00	0.460	0.54	81.8%
25.00	0.480	0.52	78.8%
30.00	0.485	0.52	78.0%
35.00	0.495	0.51	76.5%
40.00	0.500	0.50	75.8%
50.00	0.525	0.48	72.0%
68.00	0.545	0.46	68.9%
79.00	0.550	0.45	68.2%
95.00	0.570	0.43	65.2%
155.00	0.620	0.38	57.6%
179.00	0.635	0.37	55.3%
215.00	0.650	0.35	53.0%
230.00	0.655	0.35	52.3%
245.00	0.660	0.34	51.5%
260.00	0.665	0.34	50.8%
280.00	0.665	0.34	50.8%

WARNING DOES NOT FALL TO 25% OF START DEPTH-Refer to graph sheet for calculation

DIMENSIONS	
Length	0.30
Width	0.30
Depth	1.00

Time in mins

40 75%

25%

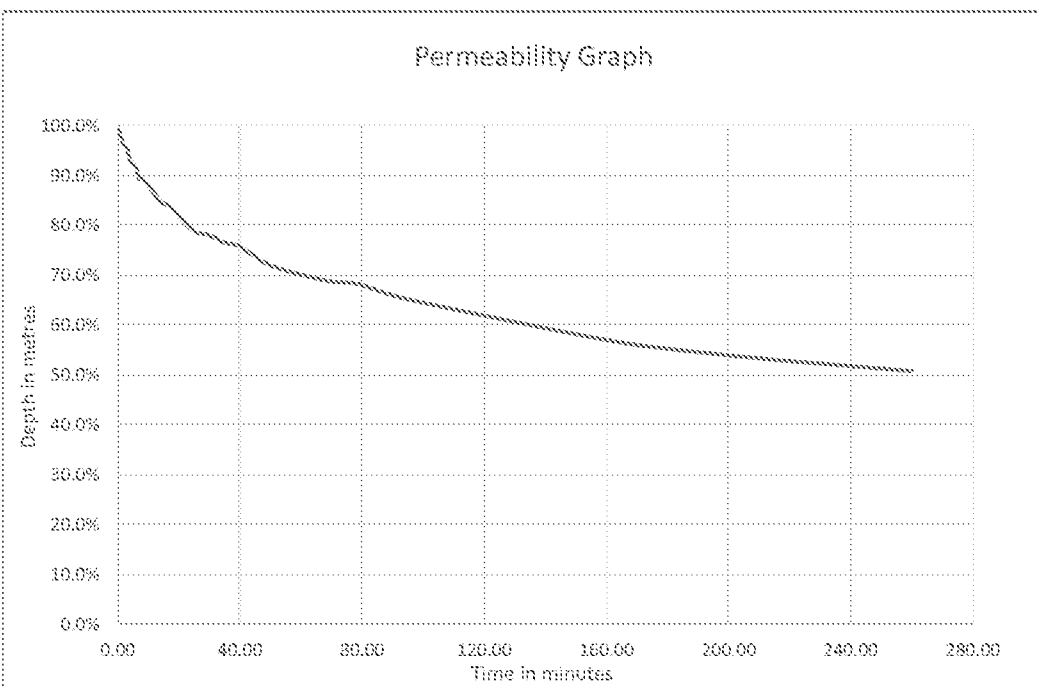
invalid 25% and/or 75% times

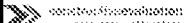
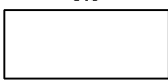
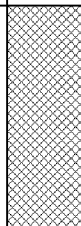
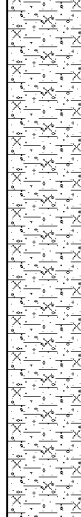
Infiltration Rate

from 75%-25%

not valid

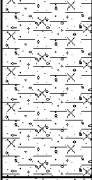
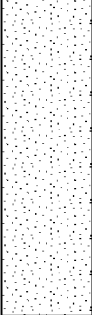
Permeability Graph



				Trial Pit Log			Trialpit No TP1 Sheet 1 of 1		
Project Name: Woodford Farm				Project No. 17.9377		Co-ords: - Level:		Date 20/01/2017	
Location: Westergate				Dimensions (m):		0.3		Scale 1:10	
Client: Bryan Fry				Depth 1.00				Logged RG	
Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.30			MADE GROUND; Turfed grass over loose to medium dense brown speckled red, white clayey, silty, sandy Gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine and medium flint, brick and chalk.		
				1.00			Medium dense brown slightly silty sandy gravelly CLAY. Sand is fine and medium. Gravel is sub-angular and sub-rounded fine and medium flint.		
							End of pit at 1.00 m		
Remarks: CAT scanned prior to excavation. Hand excavated using hand digging tools. Groundwater seepage at 0.99mbgl. Pit terminated at 1.00mbgl.									
Stability:									



 constructiveevaluation site investigation • building pathology				Borehole Log			Borehole No. WS1 Sheet 1 of 1	
Project Name: Woodford Farm				Project No. 17.9377		Co-ords:		Hole Type WS
Location: Westergate				Level:		Scale 1:50		
Client: Bryan Fry				Dates: 20/01/2017		Logged By RG		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m AOD)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30		 MADE GROUND; Turfed grass over loose to medium dense brown speckled red, white clayey, silty, sandy Gravel. Sand is fine to coarse. Gravel is sub-angular to rounded fine and medium flint, brick and chalk.	1	
					1.50		 Medium dense brown slightly silty sandy gravelly CLAY. Sand is fine and medium. Gravel is sub-angular and sub-rounded fine and medium flint.	2	
					3.60		 Medium dense light brown fine and medium SAND.	3	
					3.70		 Firm dark grey slightly silty CLAY. (London Clay). End of Borehole at 3.700m	4	
								5	
								6	
								7	
								8	
								9	
								10	

Remarks CAT scanned prior to excavation. Hand excavated to 1.20mbgl using hand digging tools. Groundwater initially encountered at 1.50mbgl. Groundwater recorded at 0.90mbgl after 180 minutes.								
---	--	--	--	--	--	--	--	---