



Date: 29th March 2019

Our Ref: 19.1088

Counterpoint Properties,
34 The Drive,
Bognor Regis,
West Sussex,
PO21 4DU

Dear Mr. Burrows

RE: Soakaway Testing and Soil Infiltration Rates at 34-44 Carlton Avenue

Introduction

I write further to the completion of soakaway and soil infiltration testing carried out at 34-44 Carlton Avenue, Bognor Regis, West Sussex, PO21 3LR (hereafter referred to as the “site”), as instructed by Counterpoint Properties (the Client) (EQ13383). This letter report provides copies of the test data and observations made during works.

The site is situated to the east of Carlton Avenue and comprises of five private gardens (the residential dwellings that the gardens belong to are adjacent west of the site), these are mostly grassed with some small areas of planted borders and garden sheds. Proposals include the construction of 8no. semi-detached properties with private gardens and roadway branching off of Carlton Avenue.

Constructive Evaluation Ltd (CE) have previously completed a Phase 1 Environmental Risk Assessment (ref: 18.9887, dated May 2018) and a Phase 2 Site Investigation Report (ref: 18.9887, dated May 2018) in relation to this site, which should be read in conjunction with this document.

Scope

The works were undertaken in respect of the scope outlined by yourself, as per the requirements of Arun District Council. The purpose of this investigation was to calculate infiltration rate values at depths of approximately 0.50-0.60mbgl (metres below ground level), in order to ascertain drainage characteristics of the underlying soils for soakaway design. Test design depths were predetermined upon review of maximum recorded winter groundwater level, and inspection of BRE365 Guidance.

Fieldworks

The following site works were completed over a single day operation on 28th March 2019, supervised by a Geo-Environmental Scientist from CE. The investigation was undertaken in relation to statutory guidance BS5930: 1999 *Code of Practice for Site Investigations (Amendment 3: 2015)*, and in accordance with BRE365; approved methods by ADC. A site plan with indicative locations of the tests is enclosed.

- 3no infiltration tests (SA1-3) were completed to provide information for soakaway design. Pits were excavated prior to CE's arrival to a maximum depth of ~0.55-0.65mbgl (metres below ground level), with dimensions approximately consistent from top to bottom (i.e. squaring of the pit sides).
- Pits were rapidly filled with potable water, and measurements were taken to monitor the drop in water level over time.
- All soil strata conditions were logged.

Ground Conditions

Surface cover in all test locations was found to be turfed, was grass overlying Topsoil of brown to dark blackish brown Clay or Clay/Silt with abundant rootlets, all containing anthropogenic material such as fine brick and locally slate gravels. Made Ground was identified to a maximum depth of 0.30mbgl, including the aforementioned Topsoil material. Non-topsoil Made Ground was described as firm brown slightly gravelly slightly sandy silty Clay, with the gravel portion identified as flint, mudstone and rarely brick.

Natural superficial soils, considered to be representative of River Terrace Deposits, were identified underneath the Made Ground soils above. These were observed to be relatively similar across all positions, and described as stiff consistency brown to orangish brown to orangish greyish brown locally slightly gravelly, slightly sandy to very sandy, silty to very silty Clay with areas of clayey Silt, with gravels comprising flint and mudstone/siltstone. This material was encountered to a maximum excavation depth of approximately 0.65mbgl.

Soil Infiltration Testing

Infiltration testing in accordance with BRE365 was conducted within three locations (SA1-3), the test comprised the excavation of the trial pits to a depth of ~0.55-0.65mbgl, the squaring of the excavation sides and the subsequent rapid filling of the pits using potable water. The subsequent fall in water level within each pit was monitored over a nominal period. The soil infiltration rate is calculated by the rate of outflow from 75% to 25% effective fill depth. The table below summarises the results.

Trial Hole ID	Test	Pit Depth (m)	Time at 75% (mins)	Time at 25% (mins)	Permeability Coefficient (m/s)	Drainage Conditions
SA1	1	0.55	18	175	8.80×10^{-6}	Good to Poor
	2		55	260	7.03×10^{-6}	Good to Poor
SA2	1	0.65	2	19	8.43×10^{-5}	Good
	2		4	24	6.73×10^{-5}	Good
	2		4	44	3.45×10^{-5}	Good
SA3	1	0.65	17	144	1.07×10^{-5}	Good

(Drainage Conditions Classifications 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)).

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Testing in SA2 indicated initial rates of 8.43×10^{-5} . During subsequent second and third tests (saturated conditions), rates of 6.73×10^{-5} and 3.45×10^{-5} are calculated, indicating a consistently Good drainage rate becoming slightly poorer with increased saturation. The single test in SA3 recorded Good infiltration rates of 1.07×10^{-5} .

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.

Kind regards,

Spencer Robinson BSc
Graduate Geo-Environmental Scientist

Constructive Evaluation Limited

Enclosed: Site Plan
 Test Results
 Stratigraphic Logs