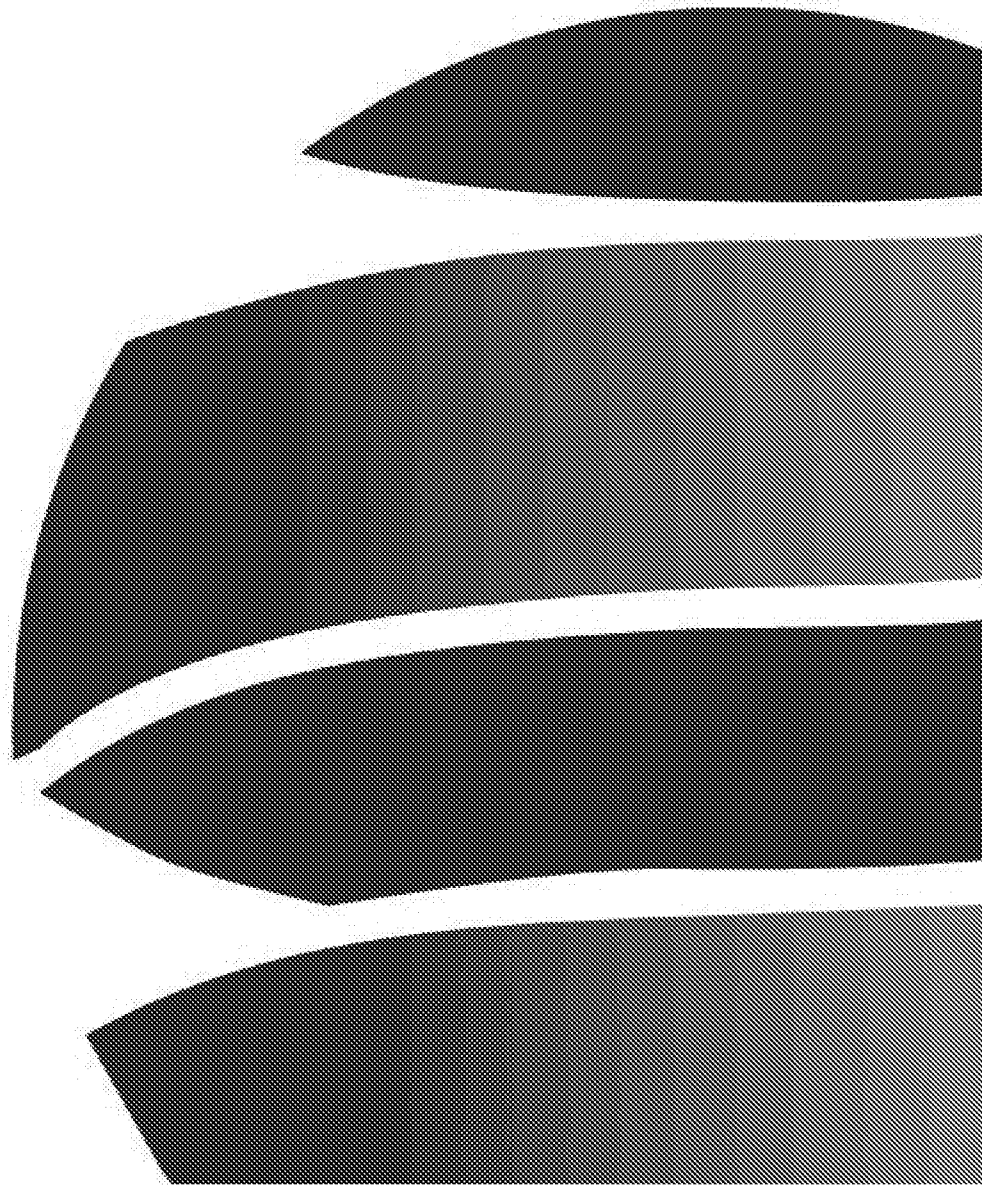


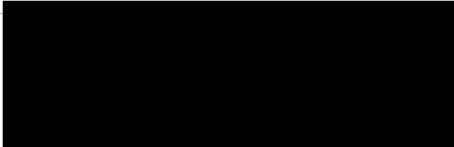


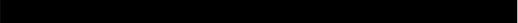
Geo-Environmental

WATER QUALITY MANAGEMENT PLAN
for the site at
CORNFIELD CLOSE, LITTLEHAMPTON
WEST SUSSEX, BN17 6LD
on behalf of
THAKEHAM CLIENT LIMITED





Report:	WATER QUALITY MANAGEMENT PLAN
Site:	CORNFIELD CLOSE, LITTLEHAMPTON, WEST SUSSEX, BN17 6LD
Client:	THAKEHAM CLIENT LIMITED
Date:	15/11/19
Reference:	GE18103-WQMP-NOV19
Version:	1.0
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AMENDMENT RECORD

Revision ref.	Date	Reasons for amendment	Author	Reviewed By	Authorised By
1.0	15/11/2019	First issue	VB & LL	KB	GE



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APPENDICES

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1.0 Introduction

1.1 General

Following several phases of intrusive investigation works undertaken on the site by Geo-Environmental Services Limited ('Geo-Environmental') and detailed within reports listed below, Geo-Environmental was appointed by Thakeham Client Limited (here in referred to as 'the Client') to prepare a Water Quality Management Plan (WQMP) including a an assessment of current background groundwater quality beneath the site, in order to inform and support the Remediation Strategy and Verification plan for the site produced in November 2018 (Ref:GE17106-RSVP-GE-NOV18) and to develop a monitoring plan for the proposed residential development for the former Daisyfields Caravan Park, Cornfield Close, Littlehampton, West Sussex, BN17 6LD (herein referred to as 'the site'). Figure 1 presents the groundwater monitoring well locations on the site from which data has been gathered to support this assessment.

It is understood that these works are being undertaken to support planning conditions applied to the proposed residential development on the site, details of which are provided in Section 2.1. An update was also required in relation to the RSVP to clarify the capping system require for proposed areas of public/communal open space as part of the site development which is presented in Appendix E.

1.2 Previous Investigations

Geo-Environmental Services Limited has completed previous environmental assessments of the land at Cornfield Close, Littlehampton, West Sussex, BN17 6LD as summarised in the following reports:

- Phase 1 desk study (ref: GE16903-DSR-DEC17) dated December 2017;
- Baseline ground investigation (ref: GE16903BGIR-JAN18) dated January 2018;
- Preliminary soakage testing letter report (ref: GE17106/AP01/180413) dated April 2018;
- Phase 2 ground investigation report (ref: GE17106-GAR/AP01/231018) dated November 2018;
- Remedial Strategy and Verification Plan (ref: GE17106-RSVP-GE-NOV18) dated November 2018;
- Earthworks Appraisal Report for the proposed pavement construction (ref: GE18102-GAR-MAR-19) dated March 2019;
- Further winter soakage testing letter report (ref: GE18021/GE01/180319) dated March 2019;
- Qualitative Piling Risk Assessment (ref: GE18103/QPRA/JUL19), dated July 2019.

For further details on the works undertaken reference should be made to the completed reports.

2.0 Objectives

The aim of these works was to detail the further frequency of groundwater monitoring to be undertaken from groundwater monitoring wells installed on the site as part during the proposed development work and to present a baseline assessment of groundwater quality as part of a qualitative risk assessment for the site and to detail the phasing of the validation works to be undertaken at the site in line with best practice and the planning conditions applied to the site.

A qualitative risk assessment was to be undertaken based on analyses of the current groundwater quality of the site to form a baseline. A groundwater monitoring programme is then proposed to be undertaken as part of the site development works in order to monitor the underlying groundwater quality and any variation in results during the intrusive development works. The aim of the further assessment is to demonstrate that the works have not resulted in a detrimental impact to the underlying aquifer as a result of the proposed development. Should the monitoring identify any detrimental impact as part of the works this would be further risk assessed and proposed remediation/mitigation measure/extended monitoring discussed with the Council to address any issues to their satisfaction in line with the planning conditions in place for the site to be protective of groundwater beneath the



site and any potential subsequent impact and risk on controlled waters in the vicinity of the site.

It is noted that no active remediation is proposed for groundwater in relation to development works on the site and the aim of the works is to provide an overall betterment by reducing areas of infiltration through the waste etc.

2.1 Planning Permission

The following planning conditions relating to contamination, or which could impact on requirement for remediation and remediation proposals for the site, have been imposed on the planning permission which is currently undecided (ref. LU/330/18/PL) for the site:

Condition 8

The development shall proceed in accordance with the submitted Flood Risk Assessment from Glanville Issue 4: 9 November 2018 Ref: CV8171223/SMcN/023 and the Ground Investigation Report dated 5th November 2018 ref: 17106 -GAR/AP01/231018 and the Remediation Strategy and & Verification Plan dated 06.12.2018 (Ref: GE17106-RSVP-GE-NOV18 Version 1.1.

Reason: To ensure that the site does not pose any further risk to human health or the water environment in accordance with Arun Local Plan policies QE SP1 and QE DM4.

Condition 9

Within 3 months of the start of the development, the Developer shall agree a timetable for submission of periodic verification reports to demonstrate the completion of works set out in the approved remediation strategy and the effectiveness of the remediation. The reports shall include a maintenance plan in respect of contamination, including a timetable of monitoring and shall be submitted to, and approved in writing, by the local planning authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. The development shall proceed in accordance with approved details.

Reason: To ensure that the site does not pose any further risk to human health or the water environment by demonstrating that the requirements of the approved verification plan have been met and that remediation of the site is complete in accordance with Arun Local Plan policies QE SP1 and QE DM4.

Condition 11

Piling & investigation boreholes using penetrative methods shall not be carried out other than with the written consent of the Local Planning Authority. The development shall be carried out and completed in accordance with details so approved.

Reason: To prevent pollution of groundwater in accordance with Arun Local Plan policy W DM1.



3.0 Conceptual Site Model

A conceptual site model has been developed for the site to identify the potentially active source-pathway-receptor linkages and is presented within the Desk Study report (GE16903-DSR-DEC17) and reproduced in the Ground Investigation Report (GE17106/GAR/AP01).

3.1 Site History

The site comprised a disused caravan park under the ownership of Arun District Council. The site formed part of a brick field from c.1911 until mapping of c.1958. A historic landfill was recorded on site, accepting inert, commercial and household waste. Intrusive investigation works have identified the presence of waste materials beneath a capping layer of clayey sandy silt and silty sandy clay to depths of between 0.60m and 1.02m bgl. The waste materials were encountered as Made Ground, comprising landfilled material encountered within all locations to depths of between 1.70m and 2.90m bgl and was of a mixed composition comprising sandy clay and silty sand with brick, glass, plastics, metal, china, ash, coal, concrete, black organic matter, shoes, fabric, timber, and flint gravel.

3.2 Proposed Development

The proposed development comprises the construction of residential properties on the site for which remedial measures for human health are required in the form of a capping system and the installation of gas protection measures. In addition, the development proposals include the introduction of 50% hard cover over the area of the site (houses/roads etc), together with the excavation of significant volumes of the Made Ground in order to accommodate the development. Made Ground (including the landfill) will be removed in the area of a bespoke soakaway within the central eastern portion of the site and where excavations are made to accommodate the cover system. In addition, the bespoke soakaway construction is designed to ensure that water inundation occurs through the natural soils only, negating the potential for mobilising further leachable contaminants into the groundwater.

3.3 Ground Conditions

A review of British Geological Survey mapping for the area has identified that the site is underlain by Made Ground/Waste Material and River Terrace Deposits overlying the Lewes Nodular Chalk Formation.

The Ground conditions were found to be broadly consistent at each of the site investigation location and encountered a capping of clayey sandy silt and silty sandy clay with brick and concrete fragments was encountered to depths of between 0.60m to 1.02m bgl. Beneath the turf, hardstanding or capping material Made Ground, comprising landfilled material was encountered within all locations to depths of between 1.70m and 2.90m bgl and was of a mixed composition comprising sandy clay and silty sand with brick, glass, plastics, metal, china, ash, coal, concrete, black organic matter, shoes, fabric, timber, and flint gravel.

Underlying the Made Ground, River Terrace Deposits were encountered within all locations with the exception of TP207 to depths of between 2.0m and 7.0m bgl and generally comprised medium dense orange brown sandy clay becoming orange brown sand with flint gravel with slight traces of chalk at depth. Organic malodours were noted within BH105 only, at a depth of between 6.50m and 7.00m bgl. TP207 was advanced within the Made Ground only and was terminated prematurely at a depth of 2.2mbgl.

Underlying the River Terrace Deposits, the Lewes Nodular Chalk was encountered within the cable percussive boreholes to depths of between 10.00m and 15.0m bgl (maximum depth of the investigation) and was generally recovered as structureless Chalk composed of sub-angular to rounded gravel. Clasts are weak, medium, high and very high density, off white within an off-white matrix.



3.4 Hydrogeology

Groundwater beneath the site provides a transport mechanism by which soil and groundwater contaminants can migrate to off-site receptors. Therefore, the hydrogeological regime beneath the site required consideration.

The site was identified as being outside of any groundwater Source Protection Zone, several groundwater abstractions were identified within 500m of the site. However, these all comprised irrigation or horticultural uses and were abstracted from the Chalk. A further surface water abstraction from a lake was identified within 500m for irrigation.

The underlying geology was classified as a Secondary 'A' Aquifer overlying a Principal Aquifer. Secondary 'A' Aquifers comprise permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability and usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

3.5 Site Conditions and Drainage

The site currently comprises a disused caravan park from which c.90% infiltration is presumed to occur (excluding evaporation and/or evapotranspiration effects) through the site. It is proposed to redevelop the site for a proposed residential land use and as such it is considered that the percentage of infiltration through the site would be significantly reduced. The proposed development includes residential properties with gardens and areas of soft landscaping. Where building footprint or hardstanding is proposed the direct contact pathways for end users on site would be blocked, where gardens and soft landscaping are proposed the ground investigation has identified that a cover system or capping layer will be required to mitigate the pathways to human health.

A piled foundation solution was to be adopted for the site due to the proven depth of Made Ground. The site overlies a Secondary 'A' Aquifer and a Principal Aquifer and as such the foundation solution adopted was selected so as to prevent the introduction of migration pathways for potential mobile contaminants from the overlying landfill materials. Continuous Flight Auger piles proposed to be undertaken, as this method prevents the formation of contamination pathways into protected water resources due to the pile shaft being supported by the flight auger throughout formation and the pile concrete being pumped in from the base of the pile bore as the flight auger is retracted, thereby forming an intimate interface between the pile shaft and surrounding ground. A Qualitative piling risk assessment has been developed for the site by Geo-Environmental on behalf of Thakeham Homes reference GE18103/QPRA/JUL19 dated July 2019, a further copy of which is presented in Appendix D.

3.6 Conceptual Site Model

The investigation works on site identified the potential for the waste materials underlying the site to have potentially to have resulted in an impact to groundwater beneath the site.

In order to refine the conceptual site model for the site ten groundwater monitoring wells were installed on the site between the 13th August and the 24th August 2018 (BH101-BH110) to depths of between 10.0m and 15.0m bgl. A further three monitoring wells (BHA-BHC) were installed on the 23rd to the 27th May 2019 to depths of 10m bgl.

The ground conditions encountered during the installation of the additional monitoring wells on site were noted to be broadly consistent with the soils previously encountered on the site during the main investigation in August 2018 works comprising a thickness of Made Ground to depths of between 2.00 and 2.70m underlain by sand, gravels and clay of the River Terrace Deposits to depths of between 4.10 and 6.70m overlying structureless chalk



of the white chalk subgroup to the depth of the investigation (10.00m+). Groundwater was encountered within all boreholes at depths ranging from 7.90m to 8.60m bgl within the chalk. BHA recorded an additional shallower water strike within the River Terrace Deposits at 4.30m bgl.



4.0 Soil Contamination

The intrusive investigation works undertaken in August 2018 identified that the shallow soils (landfill capping material) on site were impacted by elevated concentrations of lead with the landfilled materials impacted by elevated concentrations of lead, arsenic, PCBs, SVOCs and Asbestos Containing Materials (ACMs) for which remedial measures were required with respect to human health. In addition, the investigation identified that the near surface soils encountered and the recorded use of the site as receiving variable wastes, including domestic and inert was such that these materials were unsuitable for inclusion within private gardens or areas of soft landscaping due to the presence of asbestos, metal, glass, brick and putrescible wastes.

As part of the main phase of investigation works on the site reported in November 2018 it was considered that the Made Ground on site could be a source of contamination to the underlying groundwater. Therefore, leachate testing was undertaken on samples of the Made Ground to assess how leachable the contaminants were within the Made Ground.

Seven leachate samples were analysed with samples taken from the capping layer and landfill material during the 2018 investigation. The results were compared against the conservative UK drinking water standards (UKDWS). Where there were no comparable values, the results were compared against World Health Organisation standards Environmental Quality Standards (EQS) Water Framework Directive (UKTAG WFD) and World Health Organisation (WHO) and ATRISK (WSV).

The leachate results identified marginally elevated concentrations of PAHs (sum of 4) within BH110 at 1.0m (0.33µg/l) and within BH102 at 1.0m (0.15µg/l) when compared with the UKDWS (0.1µg/l).

The development proposals are to comprise the introduction of 50% hard cover over the area of the site (houses/roads etc), together with the excavation of significant volumes of the Made Ground in order to accommodate the development, particularly in the area of the bespoke soakaway within the central eastern portion of the site. In addition, the bespoke soakaway construction is designed to ensure that water inundation occurs through the natural soils only, negating the potential for mobilising further leachates.

It was considered that the measures proposed as part of the development would provide a betterment to the site in terms of reduced infiltration and therefore reduce the potential for leaching of contamination through the site and therefore, based on the results reported in 2018 and the development proposals it is considered that no further testing in respect of leachates is warranted and no specific remediation is required in this respect.

However, further assessment as undertaken with respect to the background quality of the underlying groundwater.



5.0 Groundwater Contamination

Groundwater was recorded within the majority of intrusive investigation on the site located within the River Terrace Deposits and White Chalk Subgroup. Groundwater monitoring standpipes were installed to allow for monitoring at depth, below the Made Ground within all boreholes, with additional monitoring wells installed such that they would remain accessible during the intrusive development works.

Chalk was identified to be present at depth beneath the site and is considered likely to be in hydraulic conductivity with the shallow groundwater on site. Deep borehole installed on site utilised clean drilling techniques to prevent creating a migration pathway to the deeper aquifer.

Details of the standpipes installed and depths at which groundwater has been encountered beneath the site are provided in Table 5.1 below.

Location	Standpipe diameter (mm)	Depth of Standpipe Response Zone (m bgl)	Level of Monitoring Well (m AOD)
BH101	50	7 – 10	8.03
BH102	50	10 – 15	7.85
BH103	50	7 – 10	7.92
BH104	50	10 – 15	8.13
BH105	50	7 – 10	8.39
BH106	50	7 – 10	7.60
BH107	50	10 – 15	8.04
BH108	50	10 – 15	8.34
BH109	50	7 – 10	7.91
BH110	50	10 – 15	7.83
BHA	50	7 – 10	7.75
BHB	50	7 – 10	7.75
BHC	50	7 – 10	8.10

Table 5.1 Summary on installed Standpipes

Location	Groundwater Depths m bgl (m AOD)					
	Water Strike	28/08/18	19/10/18	03/12/18	Water Strike* (May 2019)	05/11/19
BH101	7.50 (0.53)	7.00 (1.03)	6.80 (1.23)	6.34 (1.69)		
BH102	7.50 (0.35)	6.33 (1.52)	6.40 (1.45)	5.87 (1.98)		
BH103	9.00 (-1.08)	6.60 (1.32)	6.43 (1.49)	6.90 (1.02)		5.67 (2.25)
BH104	9.00 (-0.87)	6.55 (1.58)	6.65 (1.48)	6.18 (1.95)		
BH105	7.50 (0.89)	6.80 (1.59)	6.90 (1.49)	6.44 (1.95)		
BH106	7.50 (0.10)	6.00 (1.60)	5.95 (1.65)	5.60 (2.00)		
BH107	7.50 (0.54)	6.48 (1.56)	6.60 (1.44)	6.20 (1.84)		
BH108	7.50 (0.84)	7.10 (1.24)	7.00 (1.34)	6.47 (1.87)		
BH109	7.50 (0.41)	6.30 (1.61)	6.44 (1.47)	5.96 (1.95)		
BH110	9.00 (-1.17)	6.22 (1.61)	6.15 (1.68)	5.91 (1.92)		5.63 (2.20)
BHA	-	-	-	-	8.30 (-0.55)	5.53 (2.22)
BHB	-	-	-	-	7.90 (-0.15)	5.92 (1.83)
BHC	-	-	-	-	8.60 (-0.50)	6.10 (2.00)

NOTE: Groundwater levels are shown in brackets *Ground water strike details during installation in May 2019

Table 5.2 Summary of Groundwater Depths monitored within Standpipes



The hydraulic gradient was calculated to be generally towards the northwest, with variation to the east and southeast throughout the monitoring, based on the recorded groundwater levels (m AOD) within the standpipes and referenced to a survey of the topographic levels of the boreholes.

A part of the intrusive investigation groundwater analysis was undertaken to provide an indication of the baseline groundwater quality beneath the site. BH1 was sampled on the 7th December 2017, BH101-BH110 (deep wells) were sampled on the 28th August 2018 and BH101, BH103, BH108, BH109 and BH110 were sampled on the 13th March 2019.

A Tier 1 risk assessment was undertaken and the results of the groundwater analyses were compared against the Environmental Quality Standards for freshwater (EQS) and the Water Supply (Water Quality) Regulations 2000 and Water Framework Directive (WFD). A summary of contaminant concentrations encountered above the respective EQS, WFD and DWS guideline values (where available) is presented below.

Location	Determinand	Concentration	Appropriate Standard	Dated Sampled
Barium	BH101	143ug/l	100ug/l (DWS)	28/08/2018
	BH103	146ug/l		
	BH104	165ug/l		
	BH105	143ug/l		
	BH101	122ug/l		13/03/2019
	BH103	143ug/l		13/03/2019
Boron	BH109	1390ug/l	1000ug/l (WHO)	28/08/2018
Selenium	BH105	17ug/l	10ug/l (DWS)	28/08/2018
	BH109	33ug/l		
TPH	BH01	6120ug/l C16-C21 Ali – 85.5ug/l C21-C35 Ali – 3710ug/l C35-C40 Ali – 285ug/l C12-C16 Aro – 10.6ug/l C16-C21 Aro – 48ug/l C21-C35 Aro – 1860ug/l C35-C40 Aro – 122ug/l	10ug/l (DWS) 10.5mg/l (WSV)	07/12/2018
	BH101	TPH – 10.7ug/l C21-C35 Ali – 10.7ug/l	10ug/l (DWS)	28/08/2018
	BH103	TPH – 13.9ug/l C8-C10 Aro – 13.9ug/l	985ug/l (WSV)	28/08/2018
	BH104	TPH – 11.6ug/l C8-C10 Aro – 11.6ug/l	985ug/l (WSV)	28/08/2018
	BH109	TPH – 46.7ug/l C8-C10 Ali – 10.7ug/l C10-C12 Ali – 11.6ug/l C21-C35 Ali – 13.4ug/l C8-C10 Aro – 10.9ug/l	10ug/l (DWS) 985ug/l (WSV)	28/08/2018
	BH108	TPH- 10ug/l C21-C35 Ali – 10ug/l	10ug/l (DWS)	13/03/2019
Anthracene	BH01	0.17ug/l	0.02ug/l (EQS)	07/12/2018
	BH101	0.03ug/l		28/08/2018
	BH109	0.16ug/l		28/08/2018
	BH101	0.03ug/l		13/03/2019
Fluoranthene	BH01	1.31ug/l	0.02ug/l (EQS)	07/12/2018
	BH102	0.04ug/l		28/08/2018



	BH103	0.03ug/l		28/08/2018
	BH106	0.05ug/l		28/08/2018
	BH109	0.73ug/l		28/08/2018
	BH110	0.04ug/l		28/08/2018
	BH101	0.05ug/l		13/03/2019
	BH109	0.03ug/l		13/03/2019
Benzo(a)pyrene	BH01	0.71ug/l	0.01ug/l (DWS) 0.03ug/l (EQS)	07/12/2018
	BH102	0.05ug/l		28/08/2018
	BH103	0.02ug/l		28/08/2018
	BH106	0.04ug/l		28/08/2018
	BH109	0.35ug/l		28/08/2018
PAH Sum of four *	BH01	1.58ug/l	0.01ug/l (DWS)	07/12/2018
	BH102	0.12ug/l		28/08/2018
	BH106	0.15ug/l		28/08/2018
	BH109	0.73ug/l		28/08/2018
	BH110	0.73ug/l		28/08/2018
	BH101	0.07ug/l		13/03/2019

*benzo(b)fluoranthene, benzo(ghi)perylene, benzo (k) fluoranthene & indeno (1,2,3-c,d) pyrene.

* DWS - Water Supply (Water Quality) Regulations 1989

* EQS - Environmental Quality Standards (freshwater)

Table 5.3 Contaminant exceedances within Groundwater (ug/l)

Additional analysis was undertaken for biochemical oxygen demand, chemical oxygen demand, electrical conductivity, dissolved organic carbon and suspended solids on the 28th August 2018. The results are presented in Table 5.4,

Location	Biochemical Oxygen Demand (mg/l)	Chemical Oxygen Demand (mg/l)	Electrical Conductivity (uS/cm)	Dissolved Organic Carbon (mg/l)	pH (pH units)	Suspended Solids (mg/l)	Date
BH101	4	12	1400	16	6.7	450	28/08/2018
	<2	16	1320	14	6.7	170	13/03/2019
BH102	<2	3	1290	7.8	6.9	160	28/08/2018
BH103	8	27	1540	12	6.8	1800	28/08/2018
	<2	<2	1550	7.7	6.8	750	13/03/2019
BH104	3	8	1520	10	6.7	18	28/08/2018
BH105	3	12	2890	12	6.8	340	28/08/2018
BH106	2	3	1810	6.9	7.2	56	28/08/2018
BH107	3	7	1740	9.5	6.7	96	28/08/2018
BH108	<2	4	1320	8.1	6.9	120	28/08/2018
	<2	8	1170	4.5	7	70	13/03/2019
BH109	6	20	2740	10	7.0	530	28/08/2018
	4	8	1600	7.7	6.9	140	13/03/2019
BH110	2	5	1310	9.4	6.9	290	28/08/2019
	3	4	1310	8.7	6.9	56	13/03/2019

Table 5.4 Results from on-site monitoring 28/08/2019

Based on the results of the analysis and as stated in the previous section, the aim of the development is to provide a betterment of the sites groundwater quality. Proposals include the introduction of 50% hard cover over the area of the site (houses/roads etc), together with the excavation of significant volumes of the Made Ground in order to accommodate the development. Made Ground (including the landfill) will be removed in the area of the bespoke soakaway within the central eastern portion of the site and where excavations are made to accommodate



the cover system to migrate risk with respect to human health. In addition, the bespoke soakaway construction is designed to ensure that water inundation occurs through the natural soils only, negating the potential for mobilising further leachable contaminants into the groundwater.

It is re-stated that the above measures are for the betterment of the site status in respect of potential groundwater contamination and therefore, based on the results and the development proposals it is considered that no specific remediation is required in this respect of groundwater, however it was agreed that a period of groundwater monitoring would be undertaken during the intrusive element of the development works (piling and foundations) in order to demonstrate that the proposed development had not resulted in a detrimental impact to the site.

The aim of the risk assessment for the site is assess the risk to controlled waters from the contaminant concentrations identified within the groundwater beneath the site and to allow for the development of a monitoring plan for the site as part of the proposed redevelopment works.



6.0 Monitoring Plan

Based on the above assessment and the proposal to remove some of the more degradable waste materials as part of the proposed development it is considered that this would result in a natural betterment of the site and underlying groundwater quality. Where natural degradation processes are occurring the groundwater contaminant concentrations identified are unlikely to pose a risk to off-site receptors, where these processes are limited it may be possible to enhance the processes. However, it will be necessary to demonstrate that these works have been effective and have not resulted in further detrimental impact to controlled waters beneath the site, as such a water quality monitoring plan is required as part of the proposed development of the site

In line with the findings of the groundwater monitoring and assessment undertaken to date and to compile the conditions applied to the planning permission for residential development further groundwater monitoring is required which should comprise a period of monitoring prior to, during and following development, the scale of the monitoring required will be dependent on the build duration/construction programme of the proposed development.

6.1 Monitoring Plan Strategy

Given that there may be a time lapse between the completion of the WQP and development works progressing on the site it is recommended that where development works do not start within a six month period of the issue of the WQMP a further round of groundwater monitoring should be undertaken prior to development works commencing on site to confirm the baseline conditions on site haven't altered substantially. The most recent groundwater monitoring and analysis undertaken on the site was on the 5th November 2019, the results of which are still awaited at the time of writing.

Further monitoring is then required during the development phase of works on the site. Where the intrusive ground works (i.e. piling ground excavations and foundations) for the development is less than 6 months it is recommended that monitoring is undertaken bi-monthly intervals, where the build phase runs over a longer period (including phased works) it is recommended that this be expanded. A recommended groundwater monitoring schedule is presented in Table 8.1 below.

Due to the proposed phasing of the development the proposed monitoring wells have been selected and relocated where necessary to enable ongoing access during the development works. It is proposed to monitor 5No. locations as part of the monitoring program. All other wells not required on site will be decommissioned in line with Section 8.2 of the WQMP. To date BH1, BH101, BH01, BH105, BH106 and BH109 have been decommissioned. BH104, BH107 and BH108 are still to be decommissioned.

Locations	Frequency	Suite of Analysis	Phase
BH103, BH110 & BHA-BHC*	1No. further visit to determine baseline conditions if commencement date on site >6 months past WQMP issue date	General brownfield suite, speciated PAH, TPH, MNA parameters, water quality parameters and ground water level.	Pre commencement
BH103, BH110 & BHA-BHC	Bi-monthly		Initial 6 months
BH103, BH110 & BHA-BHC	Quarterly		6-24 months
BH103, BH110 & BHA-BHC	Six-monthly		>24 months (to be reviewed and agreed with LA/EA subject to results during initial 24



BH103, BH110 & BHA-BHC	1No. visit post intrusive development to confirm GW conditions following works on site.		months)
			Post Development on intrusive groundworks element

*Updated baseline from wells to be utilised for ongoing monitoring programme undertaken on the 5th November 2019 (receipt of analysis awaited from laboratory)

Table 6.1 Groundwater Monitoring Schedule

On completion of the intrusive element of site works a further monitoring visit should be undertaken to confirm the assessment which should be presented within the site's validation report.

Monitoring should be undertaken to include BH101 to BH110 and BHA-BHC which have been located in areas where access should remain possible in relation to the proposed development. Whilst it is appreciated that monitoring wells can get damaged on the site measures should be put in place to protect the wells. Where wells are located in the proximity of development works it is essential that the monitoring wells are protected and subsequently decommissioned in line with Environment Agency best practice to negate potential introduction of pathways for contaminate migration. To date BH1, BH101, BH01, BH105, BH106 and BH109 have been decommissioned. BH104, BH107 and BH108 are still to be decommissioned.

Where wells are destroyed or decommissioned in order to accommodate development activities it may be necessary to construct replacement wells in order to complete the monitoring on the site, subject to the results of the monitoring undertaken on site up until that point in time and subject to ongoing liaison with the Local Authority and Environment Agency.

A report should be produced on completion of each monitoring visit for submission to the Local Authority in line with planning conditions and for inclusion within the site validation report.

The aim of the ongoing monitoring is to demonstrate that the development works on site have not resulted in a detrimental impact to controlled waters, and that the remedial works proposed for human health have also resulted in an improve to groundwater quality beneath the site. The monitoring will also consider natural attenuation parameters to allow for consideration of natural degradation processes within the aquifer beneath the site.

6.2 Monitoring Well Decommissioning

Where gas and groundwater monitoring wells have been installed on the site as part of the ground investigation works or ongoing monitoring programme these should be decommissioned in line with best practice and in line with Environment Agency Guidance prior to or as they become redundant on site and prior to any development works where they are situated on site. The monitoring wells to be utilised during the development works have initially been located in areas where access should be maintained during the intrusive element of the development works (i.e. piling and foundations). The decommissioning should comprise the removal of the well and back filling of the location with bentonite, in order to ensure that a pollution pathway does not remain on the site.



7.0 Human Health Receptors

The site comprises a disused caravan park which is scheduled for development as residential land use with private gardens and areas of soft landscaping as such the risk assessment is based on the proposed land use. The nearest neighbouring properties also comprised residential properties located to the north, schools to the west and south and commercial properties to the east. It is considered that the percentage of infiltration through the site would be reduced, from that currently occurring, due to the proposed development. Where building footprint or hardstanding is proposed direct contact pathways for end users on site would be blocked, where gardens and soft landscaping are proposed the ground investigation has identified that a cover system or capping layer will be required to mitigate the pathways to human health.

Further details with respect to Human Health and presented within the update RSVP in Appendix E.



8.0 Verification

Verification is required to be undertaken throughout the course of the remediation works. The Verification Report will be submitted to the Client, NHBC and Local Authority for formal approval and Environment Agency if requested as part of any works completed under the Definition of Waste Code of Practice.

The Verification Report will refer to the works as set out within the RSVP for the site (GE17106/RSVP-GE/NOV18) and this WQMP and as required by relevant planning conditions. The Report will include relevant site based information and detail findings of any further investigations works (if undertaken on the site) and detail the remediations works undertaken with respect to gas protection measures, within proposed private gardens and areas of managed soft landscaping, results from the proposed groundwater monitoring and as well as relevant site based information such as records from site inspections, locations where the Made Ground/impacted soils was excavated (where required by proposed development levels) and re-used on site or disposed of and validation sampling where required. Details of capping system installation and validation of thicknesses. Photographs of specific remedial or waste handling measures and an audit trail for imported any subsoil and Topsoil, including source, provenance, analytical results, placement location and thickness (should subsoil and/or Topsoil be imported).

A summary of verification proposals was presented within the RSVP, November 2018 and is presented herein for completeness.

In term of the timetable for validation works, validation works will be undertaken at regular intervals following the completion of each element of the site works for each phase of development works to allow for a phased discharge of conditions and release of properties in relation to the site with a final validation report issued at the end of each phase and on completion of the development in order to formalise all the documentation on completion.

The client has provided the following tentative timetable in relation to the proposed piling to be undertaken for each phase of the works. Please note that these dates are provided as a guidance and are subject to change subject to progress on site.

Phase	Piling Commence	Piling Complete	Plot Completion (CML Dates)
Phase 1 (Plots 1-15)	Start February 2020	Mid-February 2020	Start August 2020 to Mid October 2020
Phase 2 (Plots 36-43)	Mid-February 2020	End February 2020	End October 2020 to Mid December 2020
Phase 3 (Plots 24-35)	Mid-February 2020	End February 2020	Start January 2021 to June 2021
Phase 4 (Plots 16-23 & Plots 66-77)	Mid-February 2020	End February 2020	Start February 2021 to June 2021
Phase 5 (Plots 44-65)	End of February 2020	Start October 2020*	Start June 2021 to October 2021.

*Delay on piling completion date for this phase due to plant and machinery being set up and located around Plots 50-59 such that the piling contractor will need to return to site to complete these plots after the main phase of piling works on this site within this phase.

Table 9.1 Proposed Piling Dates for site split into Phases (1-5)

As such the first phase of Validation will comprise the groundwater monitoring works to be undertaken during the main phase of piling and intrusive groundworks on site.

Subsequent validation reports will be produced per phase for the various elements required ahead of CML dates. As such we request permission for a phased discharge of conditions in relation to the site and proposed development.

The remedial works will be inspected and validated by the Environmental Consultant (Geo-Environmental).



Reference	Principal requirements	Design or construction related	Site visit required by Qualified Geo-Environmental Engineer	Supporting documentation
1.0 Verification general principles	Geo-Environmental have been commissioned to supervise remedial works at Cornfield Close, Littlehampton. These works require excavations of impacted Made Ground and installation of a soil cover system within private gardens and areas of soft landscaping and the installation of gas protection measures. The aforementioned work is in line with the approach adopted for site investigation and risk assessment and previously undertaken by Geo-Environmental in respect of the development.	Construction	Yes – See below	Details of construction programme to be provided by client/contractor.
2.0 Excavation of Made Ground	Reduced dig exercise to excavate Made Ground or raise the site to a depth of 650mm to be verified by Geo-Environmental.	Construction	Yes – 5 days' notice required	Regular visits to site required to confirm works being undertaken validation sampling within the natural soils following removal of the impacted material.
3.0 Cover System	Cover system to be constructed by the ground workers and inspected by the Environmental Consultant	Construction	Yes - 5 days' notice required	Samples to be taken and chemical test results presented in the report. Thickness and construction of cover system to be verified.
4.0 Gas protection measures	Gas Protection Measures to be included within proposed development to protect against methane and Carbon Dioxide identified from the onsite (wider site) former landfill.	Design and Construction	Yes - 5 days' notice required	Regular visits to site required to confirm works being undertaken and to validate the various stages of installation across the site.
5.0 Waste Management	Waste soils arising from the site strip will be disposed of appropriately with WAC testing undertake once soils for disposal have been identified. The results should be presented to the landfill site prior to removal for confirmation of the classification.	Design and Construction	No (unless further testing required where 5 days' notice required)	Chemical test results (WAC)



Reference	Principal requirements	Design or construction related	Site visit required by Qualified Geo-Environmental Engineer	Supporting documentation
	Waste tickets for the removal of arisings should be compiled for submission as part of the verification report for each phase of the development. The waste tickets will be required to demonstrate that the approximate amount of material being removed is equal to the summed volume on the waste tickets.			Consignment notes
	Where it is demonstrated that there is a need for materials to be re-used on site and that the risk is acceptable, soils may be re-used on site under the Definition of Waste Code of Practice under a Materials Management Plan for the site.			Records of material movements on site to be provided for inclusion in the validation report. (Assumed to be recorded by Ground workers, if not then independent inspections will be required.
6.0 Imported Soils	In-situ testing of any soils imported onto site for landscaping purposes will be carried out after placement at a frequency of one sample per 50m ³ or one sample per landscaped area (whichever is the smallest) with comparison of results to assessment criteria for residential end use.	Construction	Yes	Pre import certification verifying the chemical quality of the topsoil and subsoil to be provided to the Environmental Consultant for review prior to Importation.
7.0 Groundwater Monitoring and Reporting	Groundwater monitoring analysis in line with Table 6.2, analysis and Reporting	Construction	Yes	Overview of analysis to be compiled by Environmental Consultant on receipt of results.

Table 8.1 Details of Verification Visits Required on Site.



9.0 Discovery Strategy

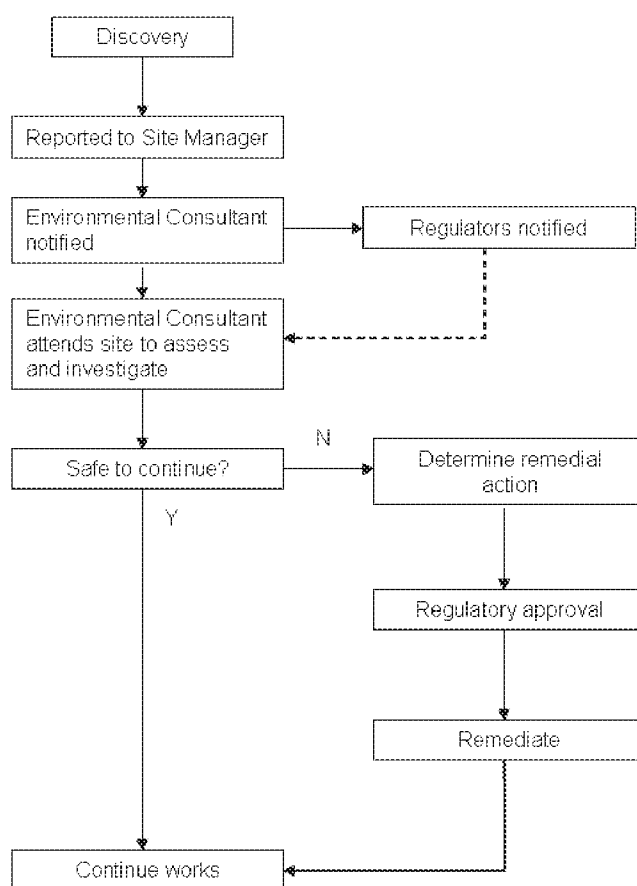
Whilst the investigation undertaken on the site to date is considered to be thorough, it remains possible that previously unexpected soil and groundwater conditions may be encountered during the process of site demolition and construction.

Examples may include oily pockets within the soil, pockets of cement boarding or fibrous materials within the soil, black ashy materials, soils exhibiting strong odours, brightly coloured materials, free product and former structures or brickwork.

Should previously undiscovered contamination be encountered during the demolition/construction of the new buildings the following course of action should be adhered to:

- Works in the area of the suspected contamination should cease immediately. The ground workers should report any suspected contamination immediately to the Client's site supervisor. **The supervisor should contact the Environmental Consultant**, who should visit the site to assess the extent of the 'contamination'.
- The Environmental Consultant shall make records of their inspection and pass details of these to the Local Authority.
- Where the conditions revealed differ from those previously anticipated, the Environmental Consultant shall take samples as deemed appropriate to be dispatched for appropriate chemical testing.
- Depending on the results of the testing either: 1) no further work will be required; 2) a further detailed risk assessment will be required; and/or 3) localised specific remedial measures will be necessary. Appraisal criteria will vary depending on the nature of the assessment.
- The results of any such testing will be sent to the Regulatory Authority for consultation. If remediation is required, the Regulatory Authority will be informed of the date and time of the proposed works.
- Remediation will be undertaken in accordance with a method statement submitted to the Local Authority for approval. The works shall be supervised by the Environmental Consultant who shall provide a Validation Report for the Local Authorities purposes.

The process is summarised overleaf:



A copy of this strategy should be lodged on site, and provisions made to ensure that all workers are made aware of their responsibility to observe, report, and act on any potentially suspicious or contaminated materials they may encounter.



Caveat

Geo-Environmental Services Limited takes no responsibility for conditions that either have not been revealed in the available records, or that occurs between or under points of physical investigation. Whilst every effort has been made to interpret the conditions, such information is only indicative and liability cannot be accepted for its accuracy.

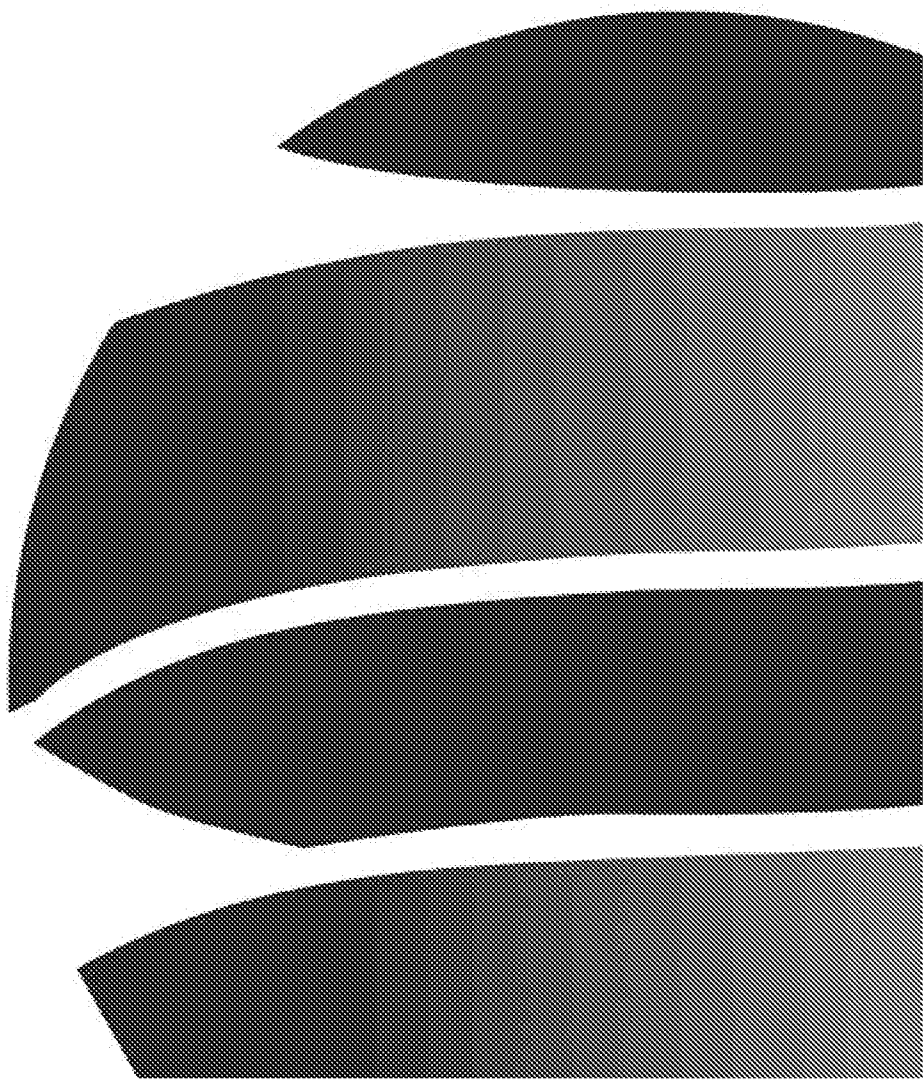
Information contained in this report is intended for the use of the client and their agents, and Geo-Environmental Services Limited can take no responsibility for the use of this information by any third party for uses other than that described in this report.

It should be noted that in particular the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore only be representative of the conditions at the time of sampling. Such reservations have been indicated in the text where such conditions are considered to apply.

Geo-Environmental Services Limited does not indemnify any third parties such as the vendor against any dispute or claim arising from any finding or result of this investigation or any claim or dispute arising as a result of any decisions made thereof.

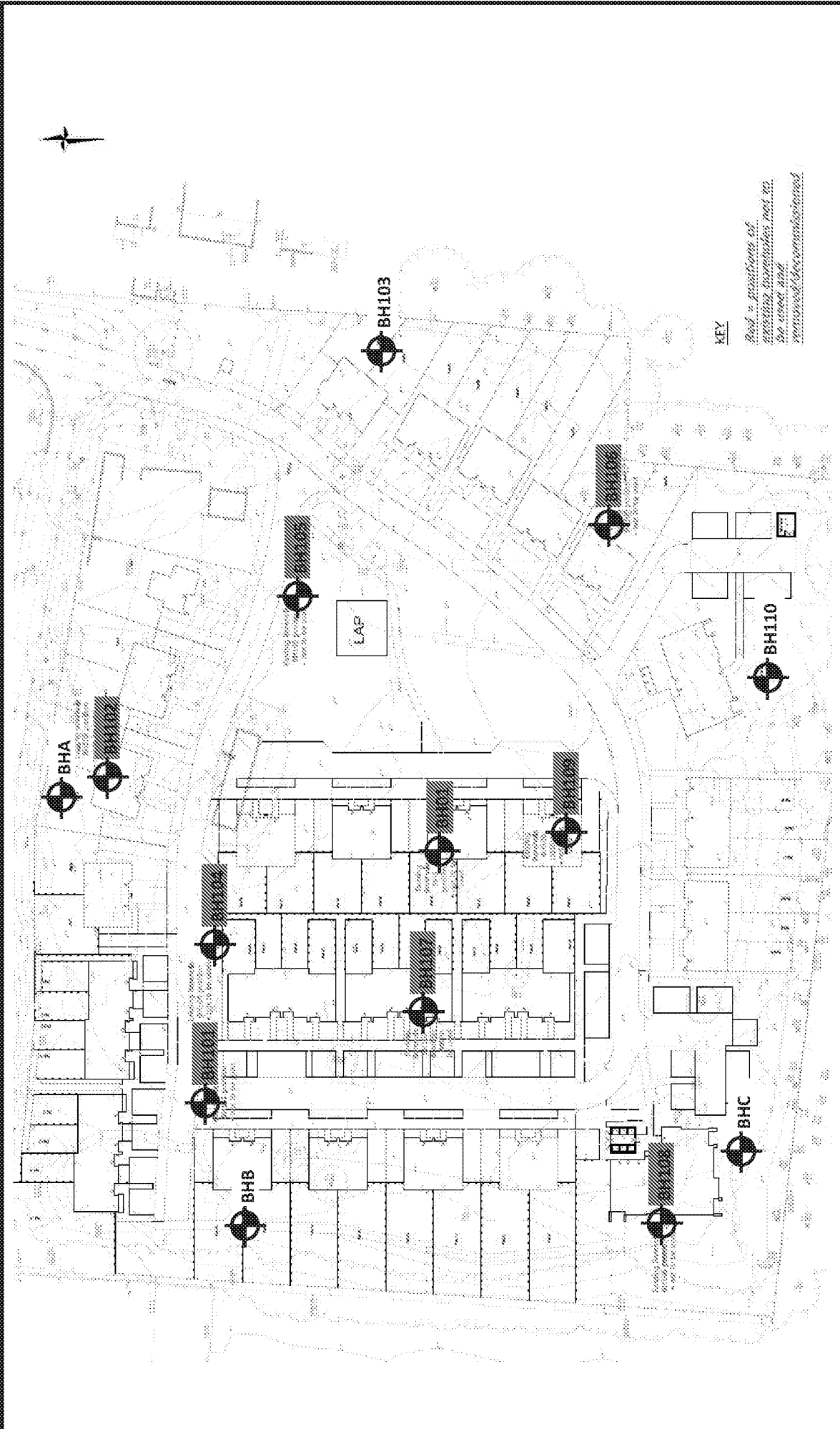


FIGURES

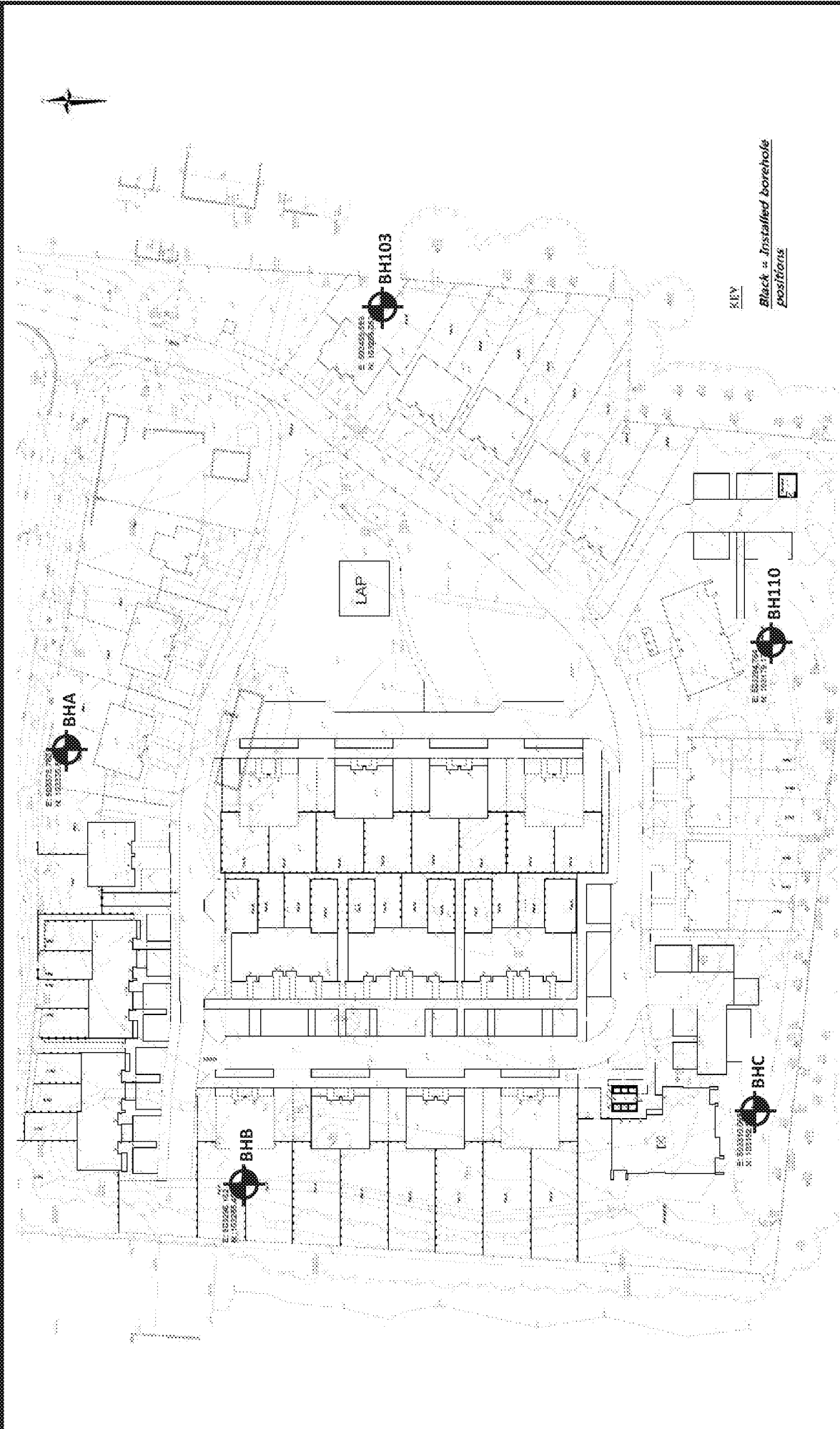




Project:	Cornfield Close, Littlehampton, West Sussex			Title	Site Location Plan
Client:	Thakeham Homes			Geo-Environmental Services Ltd	
Ref No:	GE18103	Revision:	0	Unit 7 Danworth Farm, Cuckfield Road	
Drawn:	LL	Date:	01/10/2019	Hurstpierpoint, West Sussex BN6 9GL	
Figure:	1	Scale:	Not To Scale		
				 Geo-Environmental	



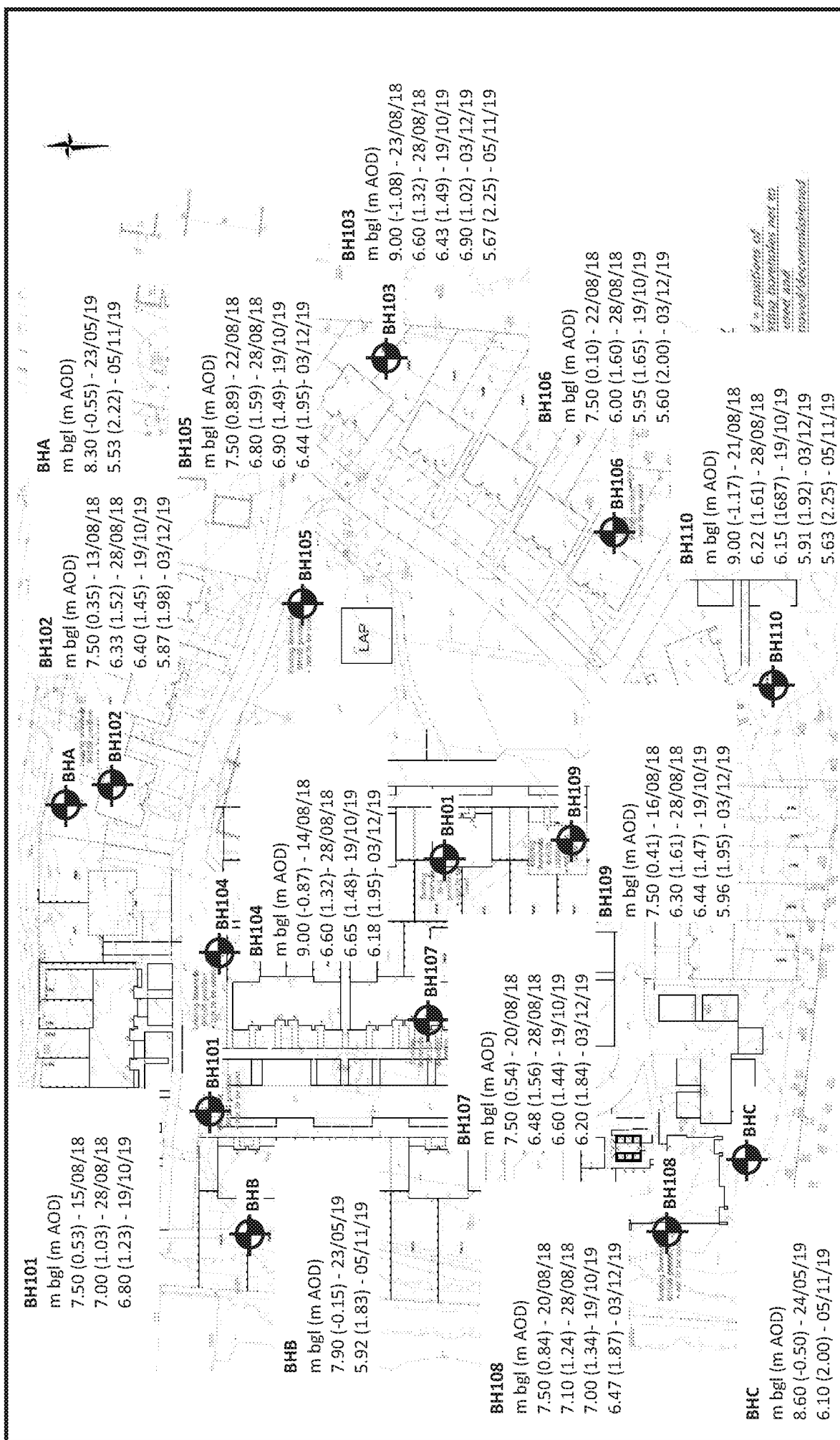
Project:	Cornfield Close, Littlehampton, West Sussex			Title	Site Investigation Locations (GW Monitoring Locations)	
Client:	Thakeham Homes			Geo-Environmental Services Ltd		
Ref No:	GE18103	Revision:	0	Unit 7 Danworth Farm, Cuckfield Road		
Drawn:	LL	Date:	01/10/2019	Hurstpierpoint, West Sussex BN6 9GL		
Figure:	2a	Scale:	Not To Scale	 Geo-Environmental		



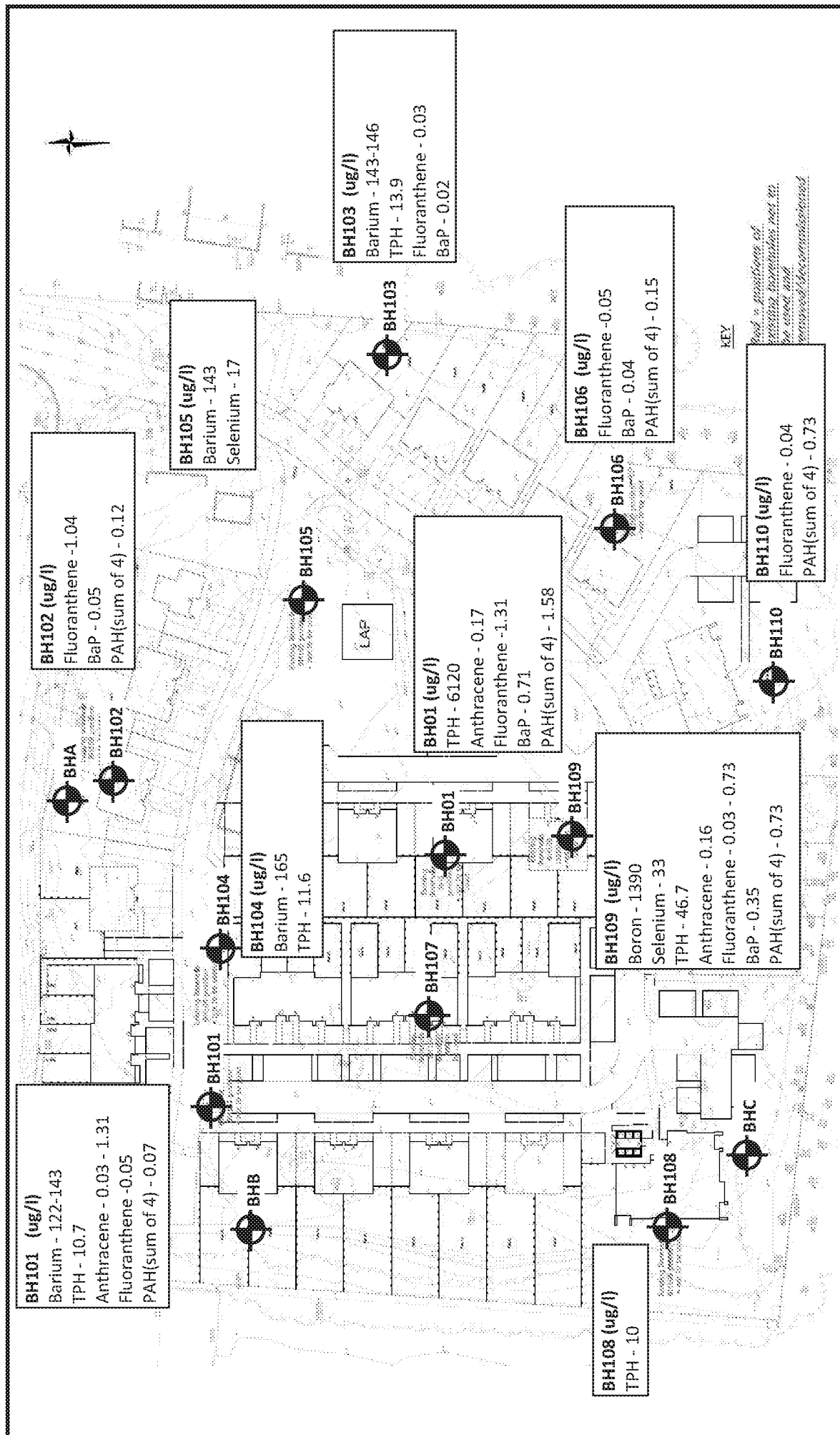
Project:	Cornfield Close, Littlehampton, West Sussex			Title	Monitoring Well Locations (to remain during development)
Client:	Thakeham Homes			Geo-Environmental Services Ltd	
Ref No:	GE18103	Revision:	0	Unit 7 Danworth Farm, Cuckfield Road	
Drawn:	LL	Date:	01/10/2019	Hurstpierpoint, West Sussex BN6 9GL	
Figure:	3	Scale:	Not To Scale		
				 Geo-Environmental	



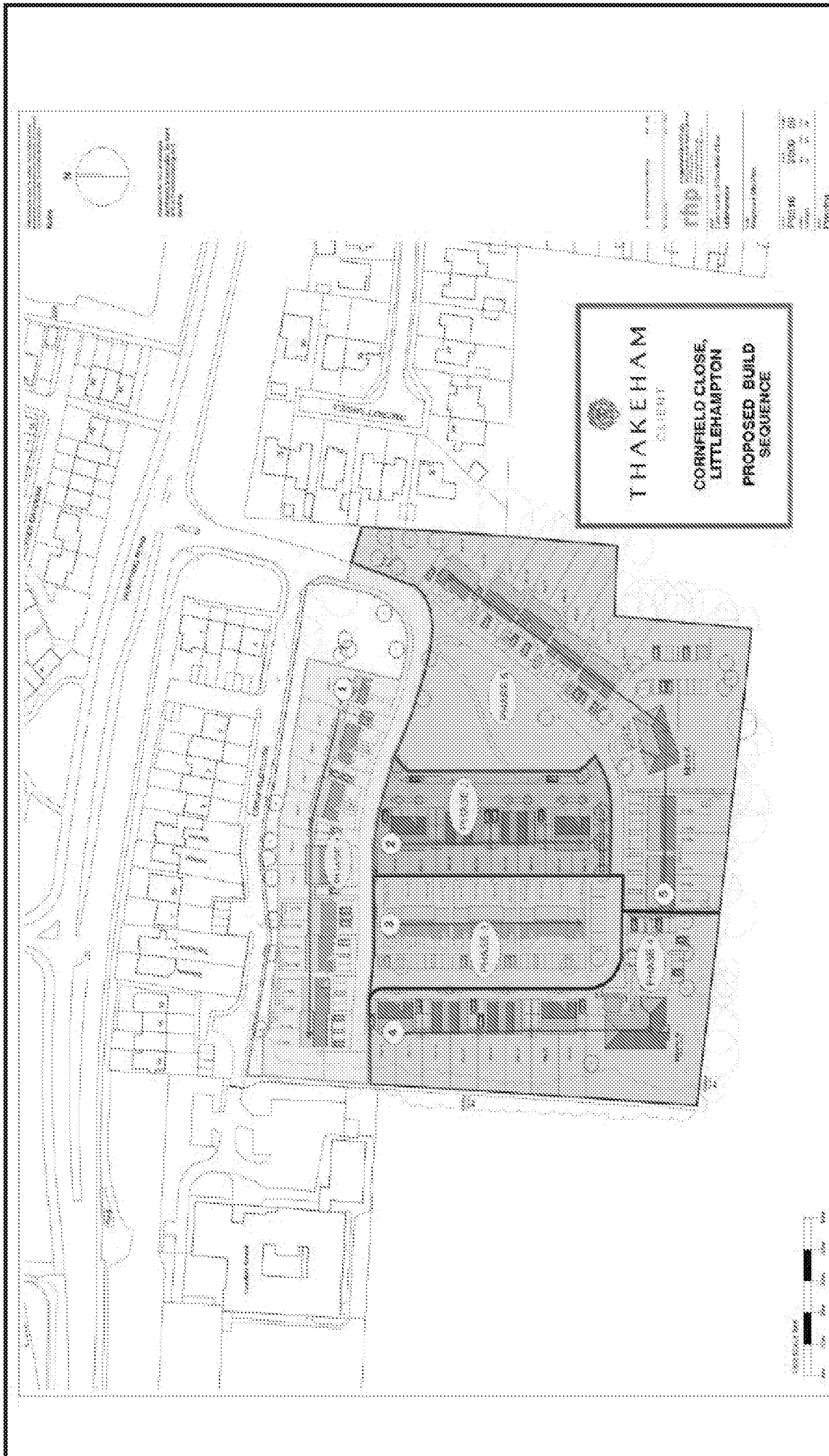
Geo-Environmental



Project:	Cornfield Close, Littlehampton, West Sussex			Title	Groundwater Levels
Client:	Thakeham Homes			Geo-Environmental Services Ltd	
Ref No:	GE18103	Revision:	0	Unit 7 Danworth Farm, Cuckfield Road	
Drawn:	LL	Date:	01/10/2019	Hurstpierpoint, West Sussex BN6 9GL	
Figure:	3	Scale:	Not To Scale	 Geo-Environmental	



Project:	Cornfield Close, Littlehampton, West Sussex	Title	Groundwater Contamination Levels
Client:	Thakeham Homes	Geo-Environmental Services Ltd	
Ref No:	GE18103	Revision:	0
Drawn:	LL	Date:	01/10/2019
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		Unit 7 Danworth Farm, Cuckfield Road Hurstpierpoint, West Sussex BN6 9GL	
		 Geo-Environmental	



Project:	Cornfield Close, Littlehampton, West Sussex			Title	Development Phasing Plan (Phase 1-5)	
Client:	Thakeham Homes			Geo-Environmental Services Ltd		
Ref No:	GE18103	Revision:	0	Unit 7 Danworth Farm, Cuckfield Road		
Drawn:	LL	Date:	01/10/2019	Hurstpierpoint, West Sussex BN6 9GL		
Figure:	5	Scale:	Not To Scale			
				 Geo-Environmental		

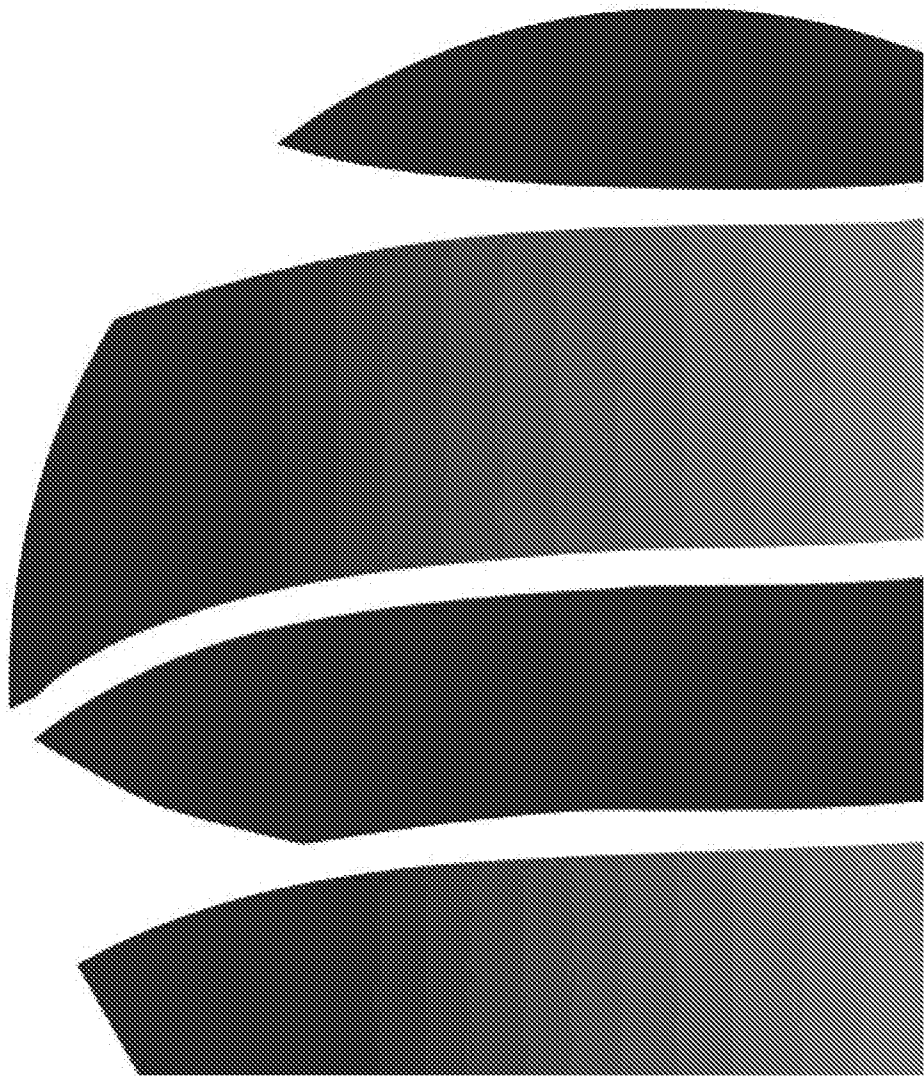


Geo-Environmental



APPENDIX A

Exploratory Hole Logs (BH103, BH110) – Installed August 2018



Unit 7, Danworth Farm Hurstpierpoint BN6 9GJ		Borehole Log		Borehole No. BH103	
				Sheet 1 of 1	
Project Name: Cornfield Close, Littlehampton		Project No. GE17106		Co-ords: 503448E - 103254N	
Location: Littlehampton, West Sussex		Level: 7.92		Hole Type CP	
Client: Thakeham Client		Dates: 23/08/2018		Scale 1:50	
Logged By					

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.12			7.80		Grass overlying brown sandy silt.		
		0.30	B				MADE GROUND		
		0.30	ES				Light brown clayey sandy silt with frequent brick and concrete fragments.		
		0.50	B		0.60	7.32	MADE GROUND		
		0.50	ES				Dark brown, dark grey and black silty clayey sand with frequent ash, glass, brick concrete, metal, plastic and timber.	1	
		1.00	B				MADE GROUND		
		1.00	ES						
		1.50 - 1.95	D						
		1.50	S	N=8 (2,2/2,2,2,2)					
		2.00	D					2	
		2.50	B		2.40	5.52	Orange brown clayey SAND.		
		2.50	ES				RIVER TERRACE DEPOSITS		
		3.00 - 3.45	D		3.00	4.92	Medium dense brown slightly gravelly clayey SAND (gravels fine to medium and sub-angular).	3	
		3.00	S	N=30 (5,6/6,8,8,8)			RIVER TERRACE DEPOSITS		
		3.50	D		3.50	4.42	Medium dense orangish brown very gravelly, very clayey SAND (gravel is fine to coarse and sub-angular).	4	
		4.00	D				RIVER TERRACE DEPOSITS		
		4.50 - 4.95	D						
		4.50	S	N=17 (3,3/4,4,4,5)					
		5.00	D					5	
		5.50	D						
	6.00 - 6.45	D							
	6.00	S	N=10 (2,2/2,3,3,2)	6.20	1.72	Recovered as structureless CHALK composed of sub-angular to rounded gravel. Clasts are weak, low to medium density, off-white within an off-white matrix.	6		
	6.50	D				CHALK			
	7.00	D					7		
	7.50 - 7.95	D							
	7.50	S	N=29 (4,5/7,7,8,7)						
	8.00	D					8		
	8.50	D							
	9.00 - 9.45	D							
	9.00	S	N=30 (5,5/6,8,7,9)				9		
	9.50	D							
	10.00	D		10.00	-2.08		End of Borehole at 10.00m	10	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
200	3.00	9.00	9.00			
150	10.00					

		Unit 7, Danworth Farm Hurstpierpoint BN6 9GL		Borehole Log			Borehole No. BH110			
Project Name: Cornfield Close, Littlehampton		Project No. GE17106		Co-ords: 503393E - 103181N		Sheet 1 of 2				
Location: Littlehampton, West Sussex				Level: 7.83		Hole Type CP				
Client: Thakeham Client				Dates: 21/08/2018		Scale 1:50				
Well		Water Strikes		Sample and In Situ Testing		Depth (m)	Level (m)	Legend	Stratum Description	
				Depth (m)	Type					Results
		0.30		B	N=4 (1,0/1,1,1,1)	0.17	7.66		Grass overlying brown sandy silt.	
		0.30		ES		0.70	7.13			MADE GROUND
		0.50		B						Light brown clayey sandy silt with frequent brick and concrete fragments.
		0.50		ES						
		1.00		B	N=6 (1,1/1,2,1,2)	2.50	5.33		Dark brown and dark grey clayey sand with frequent ash, brick, concrete, fabric, metal, timber and glass. MADE GROUND	
		1.00		ES						3.00
		1.50 - 1.95		D	N=11 (2,2/2,3,3,3)	4.60	3.23		Loose to medium dense light brown and orange brown slightly clayey SAND with frequent flint gravel. RIVER TERRACE DEPOSITS	
		1.50		S						N=38 (3,3/9,8,11,10)
		2.00		D	N=25 (4,5/5,6,7,7)	8.00	9.00		CHALK	
		2.50		D						N=29 (6,6/6,8,7,8)
		3.00 - 3.45		D	Continued on Next Sheet					
		3.00		S						
		3.50		D						
		4.00		D						
		4.50 - 4.95		D						
		4.50		S						
		5.00		D						
		5.50		D						
		6.00 - 6.45		D						
		6.00		S						
6.50		D								
7.00		D								
7.50 - 7.95		D								
7.50		S								
8.00		D								
8.50		D								
9.00 - 9.45		D								
9.00		S								
9.50		D								
10.00		D								

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
200	3.00	9.00	9.00				
150	15.00						

Unit 7, Danworth Farm Hurstpierpoint BN6 9GL		Borehole Log				Borehole No.	
						BH110	
Project Name: Cornfield Close, Littlehampton		Project No. GE17106		Co-ords: 503393E - 103181N		Sheet 2 of 2	
Location: Littlehampton, West Sussex				Level: 7.83		Hole Type CP	
Client: Thakeham Client				Dates: 21/08/2018		Scale 1:50	
Client: Thakeham Client				Dates: 21/08/2018		Logged By AP	

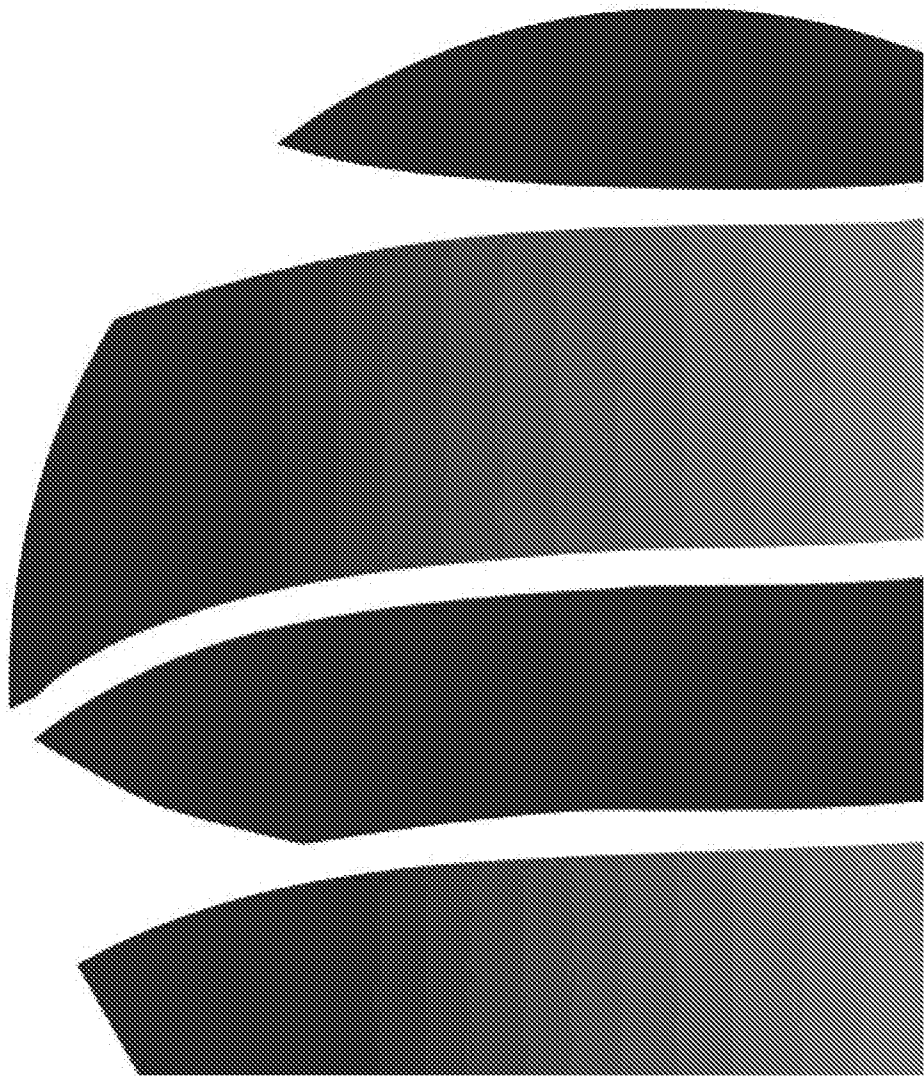
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description					
		Depth (m)	Type	Results									
		10.50 - 10.95 10.50	D S	N=28 (12,12/7,6,6,9)	15.00	-7.17			11				
		11.00	D										12
		11.50	D										13
		12.00 - 12.45 12.00	D S	N=32 (6,14/6,8,8,10)									14
		12.50	D										15
		13.00	D										16
		13.50 - 13.95 13.50	D S	50 (15,10/50 for 150mm)									17
		14.00	D										18
		14.50 - 14.95 14.50	D S	N=32 (8,10/9,9,6,8)									19
		15.00	D										20
End of Borehole at 15.00m													

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
200 150	3.00 15.00	9.00	9.00				



APPENDIX B

Exploratory Hole Logs (BHA - BHC) - Installed May 2019

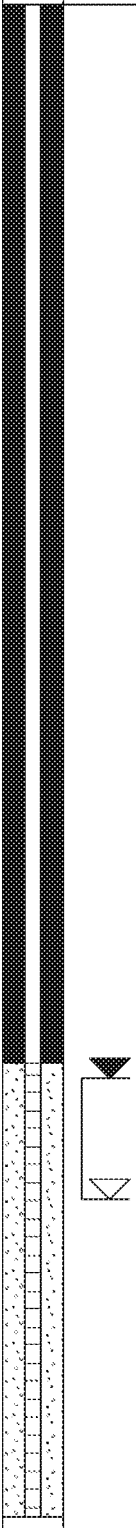
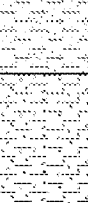
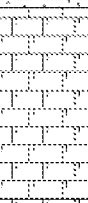
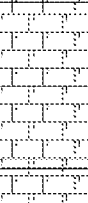
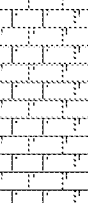
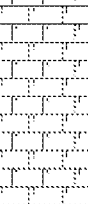


		Unit 7, Danworth Farm Hurstpierpoint BN6 9GL		Borehole Log			Borehole No. BHA	
Project Name: Cornfield Close - Long term monitoring		Project No. GE18103		Co-ords: 503376E - 103321N		Sheet 1 of 1 Hole Type CP		
Location: Littlehampton				Level: 7.75		Scale 1:50		
Client: Thakeham CLient Limited				Dates: 23/05/2019		Logged By V. Bennett		

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.15	7.60		Grass overlying brown silty clay. TOPSOIL.	1
					0.50	7.25			
					1.50	6.25			Dark grey silty clay and clayey sand with frequent ash, concrete, brick, ceramic and glass. MADE GROUND
					2.00	5.75			Firm orangey brown sandy gravelly clay, gravel is angular brick. MADE GROUND
					4.30	3.45			Coarse brown gravelly SAND. Gravel is sub angular flint. LAMBETH GROUP
									Brown SAND and GRAVEL, gravel is subrounded flint. LAMBETH GROUP
					6.50	1.25			Firm brown chalky CLAY. LAMBETH GROUP
					6.70	1.05			Hard off white CHALK. WHITE CHALK SUBGROUP
									End of Borehole at 10.00m
					10.00	-2.25			
								9	
								10	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
200	3.00	4.30	3.80			
150	9.00	8.30	7.60			

 Geo-Environment		Unit 7, Danworth Farm Hurstpierpoint BN6 9GL		Borehole Log			Borehole No. BHB Sheet 1 of 1	
Project Name:		Cornfield Close - Long term monitoring		Project No. GE18103		Co-ords: 503296E - 103274N		Hole Type CP
Location:		Littlehampton		Level:		7.75		Scale 1:50
Client:		Thakeham CLient Limited		Dates:		23/05/2019		Logged By V. Bennett

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	7.65		Grass overlying brown silty clay. TOPSOIL firm to stiff brown gravelly CLAY. Gravel is angular brick. MADE GROUND	1
					1.40	6.35			Stiff grey angular clay with frequent ash, brick, glass and ceramic. Organoleptic evidence of organic malodour. MADE GROUND
					2.70	5.05			Stiff to firm brown sandy CLAY. LAMBETH GROUP
					3.20	4.55			Firm brown chalky CLAY. LAMBETH GROUP
					4.10	3.65			Firm off white CHALK. WHITE CHALK SUBGROUP
					5.40	2.35			Firm brown chalky CLAY. WHITE CHALK SUBGROUP
					6.50	1.25			Hard off white CHALK. WHITE CHALK SUBGROUP
				10.00	-2.25	End of Borehole at 10.00m		10	

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to	
200	3.00	7.90	7.10			
150	9.00					



		Unit 7, Danworth Farm Hurstpierpoint BN6 9GL		Borehole Log			Borehole No. BHC	
Project Name: Cornfield Close - Long term monitoring		Project No. GE18103		Co-ords: 503310E - 103182N		Sheet 1 of 1		
Location: Littlehampton				Level: 8.10		Hole Type CP		
Client: Thakeham CLient Limited				Dates: 24/05/2019		Scale 1:50		
Logged By V. Bennett								

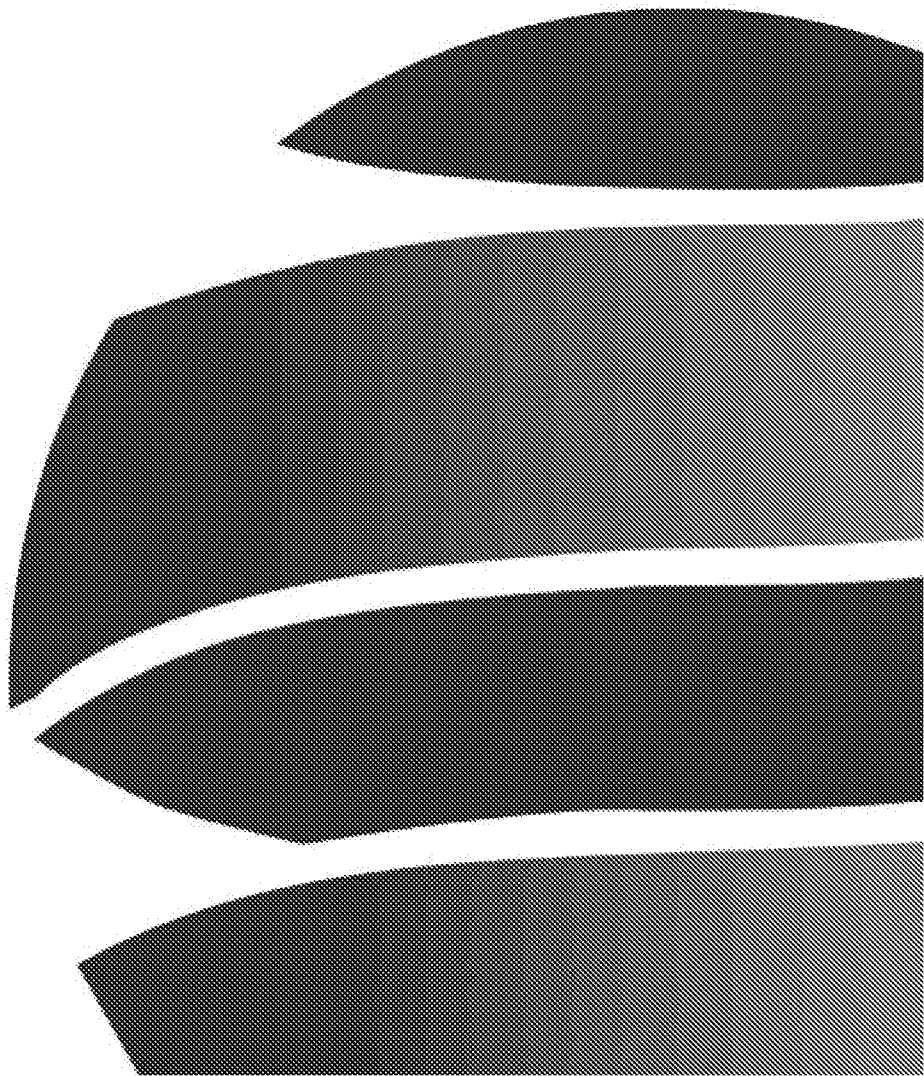
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	8.00		Grass overlying brown silty clay. TOPSOIL	1
					1.20	6.90		Firm brown CLAY. MADE GROUND	
					2.10	6.00		Dark grey silty clay and clayey sand with frequent ash, concrete, brick, ceramic and glass. MADE GROUND	2
					3.20	4.90		Firm orangey brown silty CLAY. LAMBETH GROUP	
					4.10	4.00		Firm to stiff orangey brown sandy CLAY with occasional gravel of subrounded flint. LAMBETH GROUP	3
					5.50	2.60		Brown gravelly coarse SAND gravel is subrounded flint. LAMBETH GROUP	
					5.90	2.20		Firm brown chalky CLAY. LAMBETH GROUP	4
								Hard off white CHALK. WHITE CHALK SUBGROUP	
									5
									6
								7	
								8	
								9	
					10.00	-1.90		End of Borehole at 10.00m	10

Casing		Water Strikes (mbgl)		Chiselling (mbgl)		Remarks	
Diameter	Depth (m)	Depth Strike	Rose to	Depth from	Depth to		
200	3.00	8.60	8.00				
150	10.00						



APPENDIX C

Groundwater Monitoring Results (December 2017, August 2018 & March 2019)





2683

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 17-15387

Issue: 1

Date of Issue: 18/12/2017

Contact: Anthony Potter

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q14-00021

Order No: Not Supplied

Customer Reference: GE16903

Date Received: 08/12/2017

Date Approved: 18/12/2017

Details: Cornfield Close, Littlehampton

Approved by:

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 17-15387

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
121207	BH1 6.64	07/12/2017	11/12/2017		



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Results Summary

Report No.: 17-15387

ELAB Reference	121207
Customer Reference	6.64
Sample ID	BH1
Sample Type	WATER
Sample Location	BH1
Sample Depth (m)	
Sampling Date	07/12/2017

Determinand	Codes	Units	LOD	
Dissolved Metals				
Arsenic	U	ug/l	5	< 5
Boron	N	ug/l	5	311
Barium	U	ug/l	5	28
Beryllium	U	ug/l	5	< 5
Cadmium	U	ug/l	1	< 1
Chromium	U	ug/l	5	< 5
Copper	U	ug/l	5	< 5
Mercury	U	ug/l	0.1	< 0.1
Nickel	U	ug/l	5	< 5
Lead	U	ug/l	1	< 1
Selenium	U	ug/l	5	< 5
Vanadium	N	ug/l	5	< 5
Zinc	U	ug/l	5	< 5
Anions				
Chloride	U	mg/l	0.5	32.6
Sulphate	U	mg/l	0.5	167
Inorganics				
Elemental Sulphur	N	mg/l	0.1	< 0.1
Hexavalent Chromium	U	ug/l	100	< 100
Sulphide	N	mg/l	0.1	0.2
Miscellaneous				
Dissolved organic carbon	U	mg/l	1.5	5.5
pH	U	pH units	0.1	7.8
Phenols				
Phenol	N	ug/l	1	< 1
M.P.-Cresol	N	ug/l	1	< 1
O-Cresol	N	ug/l	1	< 1
3,4-Dimethylphenol	N	ug/l	1	< 1
2,3-Dimethylphenol	N	ug/l	1	< 1
2,3,5-trimethylphenol	N	ug/l	1	< 1
Total Monohydric Phenols	N	ug/l	1	< 1
Polyaromatic hydrocarbons				
Naphthalene GCMS	N	ug/l	0.01	0.05
Acenaphthylene GCMS	N	ug/l	0.01	0.06
Acenaphthene GCMS	N	ug/l	0.01	0.04
Fluorene GCMS	N	ug/l	0.01	0.04
Phenanthrene GCMS	N	ug/l	0.01	0.51
Anthracene GCMS	N	ug/l	0.01	0.17
Fluoranthene GCMS	N	ug/l	0.01	1.31
Pyrene GCMS	N	ug/l	0.01	1.09
Benzo (a) anthracene GCMS	N	ug/l	0.01	0.68
Chrysene GCMS	N	ug/l	0.01	0.55
Benzo (b) fluoranthene GCMS	N	ug/l	0.01	0.50
Benzo (k) fluoranthene GCMS	N	ug/l	0.01	0.56
Benzo (a) pyrene GCMS	N	ug/l	0.01	0.71
Indeno (1,2,3-cd) pyrene GCMS	N	ug/l	0.01	0.37
Dibenzo(a,h)anthracene GCMS	N	ug/l	0.01	0.14
Benzo(ghi)perylene GCMS	N	ug/l	0.01	0.38
Total PAH(16) GCMS	N	ug/l	0.01	7.16
TPH CWG				
>C5-C8 Aliphatic	N	ug/l	1	< 1.0

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The Environmental Laboratory Ltd. Reg. No. 3882193



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Results Summary

Report No.: 17-15387

ELAB Reference	121207
Customer Reference	6.64
Sample ID	BH1
Sample Type	WATER
Sample Location	BH1
Sample Depth (m)	
Sampling Date	07/12/2017

Determinand	Codes	Units	LOD	
>C6-C8 Aliphatic	N	ug/l	1	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	85.2
>C21-C35 Aliphatic	N	ug/l	5	3710
>C35-C40 Aliphatic	N	ug/l	5	285
Total (>C5-C40) Aliphatic	N	ug/l	5	4080
>C5-C7 Aromatic	N	ug/l	1	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0
>C12-C16 Aromatic	N	ug/l	5	10.6
>C16-C21 Aromatic	N	ug/l	5	48.0
>C21-C35 Aromatic	N	ug/l	5	1860
>C35-C40 Aromatic	N	ug/l	5	122
Total (>C5-C40) Aromatic	N	ug/l	5	2040
Total (>C5-C40) Ali/Aro	N	ug/l	5	6120

Method Summary

Report No.: 17-15387

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Water					
Aliphatic/Aromatic hydrocarbons in water	N		15/12/2017		GC-FID
Aromatic hydrocarbons in water	N		15/12/2017		GC-FID
Phenols in waters	N		13/12/2017		HPLC
Dissolved metals by ICP in waters	U		13/12/2017	101	ICPMS
Dissolved organic carbon	U		14/12/2017	102	IR
pH of waters	U		13/12/2017	113	Electromeric
Chromium Hexavalent in waters	U		14/12/2017	123	Colorimetry
Anions	U		13/12/2017	131	Ion Chromatography
PAHs and/or PCBs in waters	N		13/12/2017	135	GC-MS
Elemental Sulphur by HPLC in waters	N	As submitted sample	14/12/2017	206	HPLC
Aliphatic hydrocarbons in water	N		13/12/2017	215	GC-FID
Aromatic hydrocarbons in water	N		13/12/2017	215	GC-FID
Low range Aliphatic hydrocarbons water	N		13/12/2017	215	GC-MS
Low range Aromatic hydrocarbons water	N		13/12/2017	215	GC-MS

Tests marked N are not UKAS accredited



Report Information

Report No.: 17-15387

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 18-19293

Issue: 1

Date of Issue: 06/09/2018

Contact: Tobias Smith

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex
BN6 9GL

Quotation No: Q14-00021

Order No: PO-0725

Customer Reference: GE17106

Date Received: 29/08/2018

Date Approved: 06/09/2018

Details: Cornfield Close, Littlehampton

Approved by:

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

Sample Summary

Report No.: 18-19293

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
148282	BH101d 7.00	28/08/2018	29/08/2018		
148283	BH102d 6.33	28/08/2018	29/08/2018		
148284	BH103d 6.60	28/08/2018	29/08/2018		
148285	BH104d 6.55	28/08/2018	29/08/2018		
148286	BH105d 6.80	28/08/2018	29/08/2018		
148287	BH106d 6.00	28/08/2018	29/08/2018		
148288	BH107d 6.48	28/08/2018	29/08/2018		
148289	BH108d 7.10	28/08/2018	29/08/2018		
148290	BH109d 6.30	28/08/2018	29/08/2018		
148291	BH110d 6.22	28/08/2018	29/08/2018		



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Results Summary

Report No.: 18-19293

ELAB Reference	148282	148283	148284	148285	148286
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH101d	BH102d	BH103d	BH104d	BH105d
Sample Depth (m)	7.00	6.33	6.60	6.55	6.80
Sampling Date	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018

Determinand	Codes	Units	LOD					
Dissolved Metals								
Arsenic	U	ug/l	5	7	< 5	< 5	< 5	< 5
Boron	N	ug/l	5	473	520	527	953	928
Barium	U	ug/l	5	143	59	146	165	143
Beryllium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Cadmium	U	ug/l	1	< 1	< 1	< 1	< 1	< 1
Chromium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Copper	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Mercury	U	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	U	ug/l	5	35	7	50	18	18
Lead	U	ug/l	1	< 1	< 1	< 1	< 1	< 1
Selenium	U	ug/l	5	< 5	< 5	7	< 5	17
Vanadium	N	ug/l	5	< 5	< 5	< 5	< 5	< 5
Zinc	U	ug/l	5	15	48	32	38	5
Anions								
Chloride	U	mg/l	0.5	27.1	37.5	34.2	15.5	320
Sulphate	U	mg/l	0.5	47.5	106	198	181	229
Inorganics								
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexavalent Chromium	U	ug/l	100	< 100	< 100	< 100	< 100	< 100
Sulphide	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Miscellaneous								
Biochemical Oxygen Demand (5 day)	N	mg/l	2	4	< 2	8	3	3
Chemical Oxygen Demand	N	mg/l	2	12	3	27	8	12
Electrical Conductivity	U	uS/cm	1	1400	1290	1540	1520	2890
Dissolved organic carbon	U	mg/l	1.5	16	7.8	12	10	12
pH	U	pH units	0.1	6.7	6.9	6.8	6.7	6.8
Suspended Solids	N	mg/l	0.1	450	160	1800	18	340
Phenols								
Phenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
2,3,5-trimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	ug/l	1	< 1	< 1	< 1	< 1	< 1

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The Environmental Laboratory Ltd. Reg. No. 3882193

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Results Summary

Report No.: 18-19293

ELAB Reference				148282	148283	148284	148285	148286
Customer Reference								
Sample ID								
Sample Type				WATER	WATER	WATER	WATER	WATER
Sample Location				BH101d	BH102d	BH103d	BH104d	BH105d
Sample Depth (m)				7.00	6.33	6.60	6.55	6.80
Sampling Date				28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018
Determinand	Codes	Units	LOD					
Polyaromatic hydrocarbons								
Naphthalene GCMS	N	ug/l	0.01	0.05	0.02	0.03	0.03	0.06
Acenaphthylene GCMS	N	ug/l	0.01	0.03	0.02	0.02	0.02	0.02
Acenaphthene GCMS	N	ug/l	0.01	0.10	< 0.01	< 0.01	< 0.01	0.01
Fluorene GCMS	N	ug/l	0.01	0.05	< 0.01	< 0.01	< 0.01	0.01
Phenanthrene GCMS	N	ug/l	0.01	0.04	0.04	0.03	0.05	0.03
Anthracene GCMS	N	ug/l	0.01	0.03	0.02	< 0.01	0.01	0.02
Fluoranthene GCMS	N	ug/l	0.01	0.02	0.04	0.03	< 0.01	0.02
Pyrene GCMS	N	ug/l	0.01	0.02	0.05	0.03	< 0.01	0.02
Benzo (a) anthracene GCMS	N	ug/l	0.01	0.01	0.05	0.01	< 0.01	0.01
Chrysene GCMS	N	ug/l	0.01	0.01	0.06	0.02	< 0.01	0.01
Benzo (b) fluoranthene GCMS	N	ug/l	0.01	0.02	0.04	0.01	< 0.01	0.02
Benzo (k) fluoranthene GCMS	N	ug/l	0.01	0.01	0.05	0.02	< 0.01	0.01
Benzo (a) pyrene GCMS	N	ug/l	0.01	0.01	0.05	0.02	< 0.01	0.01
Indeno (1,2,3-cd) pyrene GCMS	N	ug/l	0.01	0.01	0.02	0.01	< 0.01	0.01
Dibenzo(a,h)anthracene GCMS	N	ug/l	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Benzo(ghi)perylene GCMS	N	ug/l	0.01	0.02	0.04	0.03	0.01	0.02
Total PAH(16) GCMS	N	ug/l	0.01	0.46	0.53	0.30	0.20	0.30
TPH CWG								
>C5-C6 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C6-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aliphatic	N	ug/l	5	10.7	< 5.0	13.9	< 5.0	< 5.0
>C35-C40 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aliphatic	N	ug/l	5	10.7	< 5.0	13.9	< 5.0	< 5.0
>C5-C7 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	11.6	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C35-C40 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	11.6	< 5.0
Total (>C5-C40) Ali/Aro	N	ug/l	5	10.7	< 5.0	13.9	11.6	< 5.0
PCB (ICES 7 congeners)								
PCB 28	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 52	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 101	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB118	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 153	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 138	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 180	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB (7 Congeners)	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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The Environmental Laboratory Ltd. Reg. No. 3882193

Results Summary

Report No.: 18-19293

ELAB Reference	148287	148288	148289	148290	148291
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH106d	BH107d	BH108d	BH109d	BH110d
Sample Depth (m)	6.00	6.48	7.10	6.30	6.22
Sampling Date	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018

Determinand	Codes	Units	LOD					
Dissolved Metals								
Arsenic	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Boron	N	ug/l	5	402	976	402	1390	392
Barium	U	ug/l	5	51	78	51	63	76
Beryllium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Cadmium	U	ug/l	1	< 1	< 1	< 1	< 1	< 1
Chromium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Copper	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Mercury	U	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	U	ug/l	5	7	8	< 5	7	6
Lead	U	ug/l	1	< 1	< 1	< 1	< 1	< 1
Selenium	U	ug/l	5	5	< 5	5	33	< 5
Vanadium	N	ug/l	5	< 5	< 5	< 5	< 5	< 5
Zinc	U	ug/l	5	8	23	9	< 5	21
Anions								
Chloride	U	mg/l	0.5	237	27.4	71.9	286	64.1
Sulphate	U	mg/l	0.5	127	309	144	348	149
Inorganics								
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexavalent Chromium	U	ug/l	100	< 100	< 100	< 100	< 100	< 100
Sulphide	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Miscellaneous								
Biochemical Oxygen Demand (5 day)	N	mg/l	2	2	3	< 2	6	2
Chemical Oxygen Demand	N	mg/l	2	3	7	4	20	5
Electrical Conductivity	U	uS/cm	1	1810	1740	1320	2740	1310
Dissolved organic carbon	U	mg/l	1.5	6.9	9.5	8.1	10	9.4
pH	U	pH units	0.1	7.2	6.7	6.9	7.0	6.9
Suspended Solids	N	mg/l	0.1	56	96	120	530	290
Phenols								
Phenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
2,3,5-trimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	ug/l	1	< 1	< 1	< 1	< 1	< 1

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The Environmental Laboratory Ltd. Reg. No. 3882193



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Results Summary

Report No.: 18-19293

ELAB Reference	148287	148288	148289	148290	148291
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH106d	BH107d	BH108d	BH109d	BH110d
Sample Depth (m)	6.00	6.48	7.10	6.30	6.22
Sampling Date	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018

Determinand	Codes	Units	LOD					
Polyaromatic hydrocarbons								
Naphthalene GCMS	N	ug/l	0.01	0.02	0.04	0.03	0.06	0.03
Acenaphthylene GCMS	N	ug/l	0.01	0.02	0.03	0.02	0.06	0.02
Acenaphthene GCMS	N	ug/l	0.01	< 0.01	< 0.01	< 0.01	0.07	< 0.01
Fluorene GCMS	N	ug/l	0.01	< 0.01	0.01	< 0.01	0.06	< 0.01
Phenanthrene GCMS	N	ug/l	0.01	0.05	0.05	0.03	0.33	0.03
Anthracene GCMS	N	ug/l	0.01	0.02	0.02	< 0.01	0.16	0.01
Fluoranthene GCMS	N	ug/l	0.01	0.05	0.02	0.02	0.73	0.04
Pyrene GCMS	N	ug/l	0.01	0.05	0.02	0.02	0.93	0.03
Benzo (a) anthracene GCMS	N	ug/l	0.01	0.03	0.01	0.01	0.30	0.02
Chrysene GCMS	N	ug/l	0.01	0.04	0.01	0.01	0.40	0.02
Benzo (b) fluoranthene GCMS	N	ug/l	0.01	0.04	0.02	0.01	0.20	0.02
Benzo (k) fluoranthene GCMS	N	ug/l	0.01	0.05	0.01	0.01	0.39	0.02
Benzo (a) pyrene GCMS	N	ug/l	0.01	0.04	0.01	0.01	0.35	0.01
Indeno (1,2,3-cd) pyrene GCMS	N	ug/l	0.01	0.02	0.01	< 0.01	0.13	0.01
Dibenzo(a,h)anthracene GCMS	N	ug/l	0.01	< 0.01	< 0.01	< 0.01	0.05	< 0.01
Benzo(ghi)perylene GCMS	N	ug/l	0.01	0.04	0.02	0.01	0.20	0.02
Total PAH(16) GCMS	N	ug/l	0.01	0.49	0.31	0.21	4.41	0.32
TPH CWG								
>C5-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C6-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	10.7	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	11.6	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	13.4	< 5.0
>C35-C40 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	35.7	< 5.0
>C5-C7 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	10.9	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C35-C40 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	10.9	< 5.0
Total (>C5-C40) Ali/Aro	N	ug/l	5	< 5.0	< 5.0	< 5.0	46.7	< 5.0
PCB (ICES 7 congeners)								
PCB 28	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 52	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 101	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB118	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 153	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 138	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 180	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB (7 Congeners)	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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Results Summary

Report No.: 18-19293

ELAB Reference	148262	148283	148284	148285	148286	148287	148288	148289	148290	148291
Customer Reference										
Sample ID										
Sample Type	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
Sample Location	BH101d	BH102d	BH103d	BH104d	BH105d	BH106d	BH107d	BH108d	BH109d	BH110d
Sample Depth (m)	7.00	6.33	6.60	6.55	6.80	6.00	6.46	7.10	6.30	6.22
Sampling Date	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018
Determinand	Codes	Units	LOD							
VOC										
MTBE	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Heptane	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Octane	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Nonane	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Benzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Toluene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
o-xylene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-dichloroethene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Chloroform	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Tetrachloromethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Trichloroethylene	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethylene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-Tetrachloroethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Methylethylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloro-1-propene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethylene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloro-1-propene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloro-1-propene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Styrene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Propylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
2-Chlorotoluene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
4-Chlorotoluene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
t-butylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1-methylpropylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
o-cymene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichlorobenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Bulylbenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2-Dibromo-3-chloropropane	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	N	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1
Bromoform	U	ug/l	1	<1	<1	<1	<1	<1	<1	<1



Results Summary

Report No.: 18-19293

ELAB Reference				148282	148283	148284	148285	148286
Customer Reference								
Sample ID								
Sample Type				WATER	WATER	WATER	WATER	WATER
Sample Location				BH101d	BH102d	BH103d	BH104d	BH105d
Sample Depth (m)				7.00	6.33	6.60	6.55	6.80
Sampling Date				28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018
Determinand	Codes	Units	LOD					
SVOC								
Phenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Aniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroethyl)ether	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Chlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Benzyl Alcohol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroisopropyl)ether	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
3 and 4-methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
N-Nitrosodi-n-propylamine	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloroethane	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Nitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Isophorone	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Nitrophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4-Dimethylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroethoxy)methane	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4-Dichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3,5-Trichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Naphthalene	N	ug/l	0.01	0.06	0.03	0.03	0.04	0.06
3-Chloroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloro-1,3-butadiene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
4-Chloro-3-methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Methylnaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-Methylnaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachlorocyclopentadiene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4,6-Trichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4,5-Trichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-Chloronaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Nitroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Dimethyl phthalate	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-3-dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-6-dinitrotoluene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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Results Summary

Report No.: 18-19293

ELAB Reference	148282	148283	148284	148285	148286
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH101d	BH102d	BH103d	BH104d	BH105d
Sample Depth (m)	7.00	6.33	6.60	6.55	6.80
Sampling Date	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018
Determinand	Codes	Units	LOD		
SVOC					
Acenaphthylene	N	ug/l	0.01	0.02	0.01
1,2-Dinitrobenzene	N	ug/l	1	< 1.00	< 1.00
3-Nitroaniline	N	ug/l	1	< 1.00	< 1.00
Acenaphthene	N	ug/l	0.01	0.11	0.01
4-nitrophenol	N	ug/l	1	< 1.00	< 1.00
Dibenzofuran	N	ug/l	1	< 1.00	< 1.00
2,3,5,6-Tetrachlorophenol	N	ug/l	1	< 1.00	< 1.00
2,3,4,6-Tetrachlorophenol	N	ug/l	1	< 1.00	< 1.00
Diethyl phthalate	N	ug/l	1	< 1.00	< 1.00
1-chloro-4-phenoxybenzene	N	ug/l	1	< 1.00	< 1.00
Fluorene	N	ug/l	0.01	0.05	< 0.01
4-Nitroaniline	N	ug/l	1	< 1.00	< 1.00
Dinitro-o-cresol	N	ug/l	1	< 1.00	< 1.00
Diphenylamine	N	ug/l	1	< 1.00	< 1.00
Azobenzene	N	ug/l	1	< 1.00	< 1.00
1-bromo-4-phenoxybenzene	N	ug/l	1	< 1.00	< 1.00
Hexachlorobenzene	N	ug/l	1	< 1.00	< 1.00
Pentachlorophenol	N	ug/l	1	< 1.00	< 1.00
Phenanthrene	N	ug/l	0.01	0.03	0.03
Anthracene	N	ug/l	0.01	0.02	< 0.01
Carbazole	N	ug/l	1	< 1.00	< 1.00
Dibutyl phthalate	N	ug/l	1	< 1.00	< 1.00
Fluoranthene	N	ug/l	0.01	0.03	0.03
Pyrene	N	ug/l	0.01	0.03	0.04
Butyl benzyl phthalate	N	ug/l	1	< 1.00	< 1.00
Bis-2-ethylhexyladipate	N	ug/l	1	< 1.00	< 1.00
Butyl benzyl phthalate	N	ug/l	1	< 1.00	< 1.00
Benzo(a)anthracene	N	ug/l	0.01	0.01	0.04
Chrysene	N	ug/l	0.01	0.01	0.06
Bis(2-ethylhexyl)phthalate	N	ug/l	1	< 1.00	< 1.00
Benzo(b)fluoranthene	N	ug/l	0.01	0.01	0.05
Benzo(k)fluoranthene	N	ug/l	0.01	0.01	0.06
Benzo(a)pyrene	N	ug/l	0.01	< 0.01	0.04
Indeno(1,2,3-CD)pyrene	N	ug/l	0.01	0.01	0.02
Dibenz(ah)anthracene	N	ug/l	0.01	< 0.01	< 0.01
Benzo(ghi)perylene	N	ug/l	0.01	0.02	0.04

Tests marked N are not UKAS accredited.

The Environmental Laboratory Ltd. Reg. No. 3882193



Results Summary

Report No.: 18-19293

ELAB Reference				148287	148288	148289	148290	148291
Customer Reference								
Sample ID								
Sample Type				WATER	WATER	WATER	WATER	WATER
Sample Location				BH106d	BH107d	BH108d	BH109d	BH110d
Sample Depth (m)				6.00	6.48	7.10	6.30	6.22
Sampling Date				28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018
Determinand	Codes	Units	LOD					
SVOC								
Phenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Aniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroethyl)ether	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Chlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Benzyl Alcohol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroisopropyl)ether	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
3 and 4-methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
N-Nitrosodi-n-propylamine	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloroethane	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Nitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Isophorone	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Nitrophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4-Dimethylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroethoxy)methane	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4-Dichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3,5-Trichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Naphthalene	N	ug/l	0.01	0.03	0.05	0.03	0.06	0.04
3-Chloroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloro-1,3-butadiene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
4-Chloro-3-methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Methylnaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-Methylnaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachlorocyclopentadiene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4,6-Trichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4,5-Trichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-Chloronaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Nitroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Dimethyl phthalate	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-3-dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-6-dinitrotoluene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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The Environmental Laboratory Ltd. Reg. No. 3882193

Results Summary

Report No.: 18-19293

ELAB Reference	148287	148288	148289	148290	148291
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH106d	BH107d	BH108d	BH109d	BH110d
Sample Depth (m)	6.00	6.48	7.10	6.30	6.22
Sampling Date	28/08/2018	28/08/2018	28/08/2018	28/08/2018	28/08/2018
Determinand	Codes	Units	LOD		
SVOC					
Acenaphthylene	N	ug/l	0.01	0.02	0.02
1,2-Dinitrobenzene	N	ug/l	1	< 1.00	< 1.00
3-Nitroaniline	N	ug/l	1	< 1.00	< 1.00
Acenaphthene	N	ug/l	0.01	< 0.01	0.01
4-nitrophenol	N	ug/l	1	< 1.00	< 1.00
Dibenzofuran	N	ug/l	1	< 1.00	< 1.00
2,3,5,6-Tetrachlorophenol	N	ug/l	1	< 1.00	< 1.00
2,3,4,6-Tetrachlorophenol	N	ug/l	1	< 1.00	< 1.00
Diethyl phthalate	N	ug/l	1	< 1.00	< 1.00
1-chloro-4-phenoxybenzene	N	ug/l	1	< 1.00	< 1.00
Fluorene	N	ug/l	0.01	< 0.01	< 0.01
4-Nitroaniline	N	ug/l	1	< 1.00	< 1.00
Dinitro-o-cresol	N	ug/l	1	< 1.00	< 1.00
Diphenylamine	N	ug/l	1	< 1.00	< 1.00
Azobenzene	N	ug/l	1	< 1.00	< 1.00
1-bromo-4-phenoxybenzene	N	ug/l	1	< 1.00	< 1.00
Hexachlorobenzene	N	ug/l	1	< 1.00	< 1.00
Pentachlorophenol	N	ug/l	1	< 1.00	< 1.00
Phenanthrene	N	ug/l	0.01	0.03	0.04
Anthracene	N	ug/l	0.01	0.01	0.01
Carbazole	N	ug/l	1	< 1.00	< 1.00
Dibutyl phthalate	N	ug/l	1	< 1.00	< 1.00
Fluoranthene	N	ug/l	0.01	0.04	0.03
Pyrene	N	ug/l	0.01	0.04	0.02
Butyl benzyl phthalate	N	ug/l	1	< 1.00	< 1.00
Bis-2-ethylhexyladipate	N	ug/l	1	< 1.00	< 1.00
Butyl benzyl phthalate	N	ug/l	1	< 1.00	< 1.00
Benzo(a)anthracene	N	ug/l	0.01	0.03	< 0.01
Chrysene	N	ug/l	0.01	0.04	0.01
Bis(2-ethylhexyl)phthalate	N	ug/l	1	< 1.00	< 1.00
Benzo(b)fluoranthene	N	ug/l	0.01	0.05	0.02
Benzo(k)fluoranthene	N	ug/l	0.01	0.05	0.01
Benzo(a)pyrene	N	ug/l	0.01	0.03	0.01
Indeno(1,2,3-CD)pyrene	N	ug/l	0.01	0.02	0.01
Dibenz(ah)anthracene	N	ug/l	0.01	< 0.01	< 0.01
Benzo(ghi)perylene	N	ug/l	0.01	0.04	0.03

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The Environmental Laboratory Ltd. Reg. No. 3882193

Method Summary

Report No.: 18-19293

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Water					
Aliphatic/Aromatic hydrocarbons in water	N		04/09/2018		GC-FID
Aromatic hydrocarbons in water	N		04/09/2018		GC-FID
Phenols in waters	N		31/08/2018		HPLC
Dissolved metals by ICP in waters	U		31/08/2018	101	ICPMS
Dissolved organic carbon	U		04/09/2018	102	IR
pH of waters	U		31/08/2018	113	Electromeric
Chromium Hexavalent in waters	U		04/09/2018	123	Colorimetry
PAHs and/or PCBs in waters	N		03/09/2018	135	GC-MS
Electrical conductivity of water	U		31/08/2018	136	Electromeric
BOD	N		06/09/2018	142	5 Day
COD (Chemical Oxygen Demand in waters)	N		06/09/2018	143	Colorimetry
Suspended Solids in waters	N		04/09/2018	155	Gravimetry
SVOC in waters	N		03/09/2018	167	GC-MS
PAHs and/or PCBs in waters	N		03/09/2018	170	GC-MS
Low range Aliphatic hydrocarbons water	N		03/09/2018	200	GC-MS
Low range Aromatic hydrocarbons water	N		03/09/2018	200	GC-MS
VOC in waters	U		31/08/2018	200	GC-MS
Elemental Sulphur by HPLC in waters	N		03/09/2018	206	HPLC
Aliphatic hydrocarbons in water	N		03/09/2018	215	GC-FID
Aromatic hydrocarbons in water	N		03/09/2018	215	GC-FID
Anions	U		31/08/2018	270	Ion Chromatography

Tests marked N are not UKAS accredited



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Report Information

Report No.: 18-19293

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 19-22286

Issue: 1

Date of Issue: 01/04/2019

Contact: Glyn Evans

Customer Details: GESL
Unit 7
Danworth Farm
Hurstpierpoint
West Sussex BN6 9GL

Quotation No: Q14-00021

Order No: PO-1427

Customer Reference: GE17106

Date Received: 14/03/2019

Date Approved: 01/04/2019

Details: Cornfield Close, Littlehampton

Approved by:

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 19-22286, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
168552	BH101d 6.25	13/03/2019	18/03/2019		
168553	BH103d 5.80	13/03/2019	18/03/2019		
168554	BH108d 6.40	13/03/2019	18/03/2019		
168555	BH109d 6.00	13/03/2019	18/03/2019		
168556	BH110d 5.55	13/03/2019	18/03/2019		
168557	BH102d 5.90	13/03/2019	18/03/2019		

Results Summary

Report No.: 19-22286, issue number 1

ELAB Reference:	168552	168553	168554	168555	168556
Customer Reference:					
Sample ID:					
Sample Type:	WATER	WATER	WATER	WATER	WATER
Sample Location:	BH101d	BH103d	BH108d	BH109d	BH110d
Sample Depth (m):	6.25	5.80	6.40	6.00	5.55
Sampling Date:	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019

Determinand	Codes	Units	LOD					
Dissolved Metals								
Arsenic	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Boron	N	ug/l	5	388	585	350	918	414
Barium	U	ug/l	5	122	143	40	35	69
Beryllium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Cadmium	U	ug/l	1	< 1	< 1	< 1	< 1	< 1
Chromium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Copper	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Iron	U	ug/l	140	< 140	< 140	< 140	< 140	< 140
Mercury	U	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	U	ug/l	5	38	37	< 5	6	8
Lead	U	ug/l	1	< 1	< 1	< 1	< 1	< 1
Selenium	U	ug/l	5	< 5	< 5	< 5	< 5	< 5
Vanadium	N	ug/l	5	< 5	< 5	< 5	< 5	< 5
Zinc	U	ug/l	5	10	15	< 5	< 5	14
Anions								
Chloride	U	mg/l	0.5	27.3	23.6	74.0	22.7	57.3
Nitrate	U	mg/l	0.5	< 0.5	15.8	44.1	36.4	11.5
Sulphate	U	mg/l	0.5	30.1	195	142	340	155
Inorganics								
Elemental Sulphur	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ammoniacal Nitrogen as N	N	mg/l	0.1	12	12	2.5	5.8	1.6
Free ammonia (NH3)	N	mg/l	0.1	18	18	3.6	8.5	2.4
Hexavalent Chromium	U	ug/l	100	< 100	< 100	< 100	< 100	< 100
Sulphide	N	mg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Miscellaneous								
Total Alkalinity (CaCO3)	N	mg/l	5	580	620	400	520	450
Biochemical Oxygen Demand (5 day)	N	mg/l	2	< 2	< 2	< 2	4	3
Chemical Oxygen Demand	N	mg/l	2	16	< 2	8	8	4
Electrical Conductivity	U	uS/cm	1	1320	1550	1170	1600	1310
Dissolved organic carbon	U	mg/l	1.5	14	7.7	4.5	7.7	8.7
pH	U	pH units	0.1	6.7	6.8	7.0	6.9	6.9
Suspended Solids	N	mg/l	0.1	170	750	70	140	56
Phenols								
Phenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
2,3,5-trimethylphenol	N	ug/l	1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	ug/l	1	< 1	< 1	< 1	< 1	< 1

Tests marked N are not UKAS accredited.

The Environmental Laboratory Ltd. Reg. No. 3882193

Results Summary

Report No.: 19-22286, issue number 1

ELAB Reference:	168552	168553	168554	168555	168556
Customer Reference:					
Sample ID:					
Sample Type:	WATER	WATER	WATER	WATER	WATER
Sample Location:	BH101d	BH103d	BH108d	BH109d	BH110d
Sample Depth (m):	6.25	5.80	6.40	6.00	5.55
Sampling Date:	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019

Determinand	Codes	Units	LOD					
Polyaromatic hydrocarbons								
Naphthalene GCMS	N	ug/l	0.01	0.01	< 0.01	< 0.01	0.01	0.01
Acenaphthylene GCMS	N	ug/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene GCMS	N	ug/l	0.01	0.14	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene GCMS	N	ug/l	0.01	0.09	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene GCMS	N	ug/l	0.01	0.04	0.03	0.02	0.02	0.03
Anthracene GCMS	N	ug/l	0.01	0.03	< 0.01	< 0.01	0.02	0.01
Fluoranthene GCMS	N	ug/l	0.01	0.05	0.02	0.02	0.03	0.02
Pyrene GCMS	N	ug/l	0.01	0.04	0.02	0.01	0.02	0.02
Benzo (a) anthracene GCMS	N	ug/l	0.01	0.02	< 0.01	< 0.01	0.01	< 0.01
Chrysene GCMS	N	ug/l	0.01	0.02	0.01	< 0.01	0.02	< 0.01
Benzo (b) fluoranthene GCMS	N	ug/l	0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01
Benzo (k) fluoranthene GCMS	N	ug/l	0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01
Benzo (a) pyrene GCMS	N	ug/l	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno (1,2,3-cd) pyrene GCMS	N	ug/l	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene GCMS	N	ug/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene GCMS	N	ug/l	0.01	0.02	0.01	< 0.01	< 0.01	< 0.01
Total PAH(16) GCMS	N	ug/l	0.01	0.54	0.15	0.11	0.18	0.14
TPH CWG								
>C5-C6 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C6-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aliphatic	N	ug/l	5	< 5.0	< 5.0	10.0	< 5.0	< 5.0
>C35-C40 Aliphatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aliphatic	N	ug/l	5	< 5.0	< 5.0	10.0	< 5.0	< 5.0
>C5-C7 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C12-C16 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C16-C21 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C21-C35 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
>C35-C40 Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Aromatic	N	ug/l	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total (>C5-C40) Ali/Aro	N	ug/l	5	< 5.0	< 5.0	10.0	< 5.0	< 5.0
PCB (ICES 7 congeners)								
PCB 28	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 52	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 101	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 118	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 153	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 138	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB 180	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PCB (7 Congeners)	N	ug/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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The Environmental Laboratory Ltd. Reg. No. 3882193

Results Summary

Report No.: 19-22286, issue number 1

ELAB Reference	168552	168553	168554	168555	168556
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH101d	BH103d	BH108d	BH109d	BH110d
Sample Depth (m)	6.25	5.80	5.40	6.00	5.55
Sampling Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Determinand	Codes	Units	LOD		
VOC					
MTBE	U	ug/l	1	< 1	< 1
Heptane	N	ug/l	1	< 1	< 1
Octane	N	ug/l	1	< 1	< 1
Nonane	N	ug/l	1	< 1	< 1
Benzene	U	ug/l	1	< 1	< 1
Toluene	U	ug/l	1	< 1	< 1
Ethylbenzene	U	ug/l	1	< 1	< 1
m+p-xylene	U	ug/l	1	< 1	< 1
o-xylene	U	ug/l	1	< 1	< 1
cis-1,2-dichloroethene	U	ug/l	1	< 1	< 1
1,1-Dichloroethane	U	ug/l	1	< 1	< 1
Chloroform	U	ug/l	1	< 1	< 1
Tetrachloromethane	U	ug/l	1	< 1	< 1
1,1,1-Trichloroethane	U	ug/l	1	< 1	< 1
Trichloroethylene	N	ug/l	1	< 1	< 1
Tetrachloroethylene	U	ug/l	1	< 1	< 1
1,1,1,2-Tetrachloroethane	U	ug/l	1	< 1	< 1
1,1,2,2-Tetrachloroethane	N	ug/l	1	< 1	< 1
Chlorobenzene	U	ug/l	1	< 1	< 1
Bromobenzene	U	ug/l	1	< 1	< 1
Bromodichloromethane	U	ug/l	1	< 1	< 1
Methylethylbenzene	U	ug/l	1	< 1	< 1
1,1-Dichloro-1-propene	U	ug/l	1	< 1	< 1
Trans-1,2-dichloroethylene	U	ug/l	1	< 1	< 1
2,2-Dichloropropane	N	ug/l	1	< 1	< 1
Bromochloromethane	N	ug/l	1	< 1	< 1
1,2-Dichloroethane	U	ug/l	1	< 1	< 1
Dibromomethane	U	ug/l	1	< 1	< 1
1,2-Dichloropropane	U	ug/l	1	< 1	< 1
cis-1,3-Dichloro-1-propene	U	ug/l	1	< 1	< 1
trans-1,3-Dichloro-1-propene	U	ug/l	1	< 1	< 1
1,1,2-Trichloroethane	U	ug/l	1	< 1	< 1
Dibromochloromethane	U	ug/l	1	< 1	< 1
1,3-Dichloropropane	U	ug/l	1	< 1	< 1
Dibromoethane	U	ug/l	1	< 1	< 1
Styrene	U	ug/l	1	< 1	< 1
Propylbenzene	U	ug/l	1	< 1	< 1
2-Chlorotoluene	U	ug/l	1	< 1	< 1
1,2,4-Trimethylbenzene	U	ug/l	1	< 1	< 1
4-Chlorotoluene	U	ug/l	1	< 1	< 1
t-butylbenzene	U	ug/l	1	< 1	< 1
1,3,5-Trimethylbenzene	U	ug/l	1	< 1	< 1
1-methylpropylbenzene	U	ug/l	1	< 1	< 1
p-cymene	U	ug/l	1	< 1	< 1
1,3-Dichlorobenzene	U	ug/l	1	< 1	< 1
Butylbenzene	U	ug/l	1	< 1	< 1
1,2-Dibromo-3-chloropropane	U	ug/l	1	< 1	< 1
Hexachlorobutadiene	U	ug/l	1	< 1	< 1
1,2,3-Trichlorobenzene	N	ug/l	1	< 1	< 1
Naphthalene	U	ug/l	1	< 1	< 1
1,2,4-Trichlorobenzene	N	ug/l	1	< 1	< 1
1,4-Dichlorobenzene	U	ug/l	1	< 1	< 1
1,2-Dichlorobenzene	U	ug/l	1	< 1	< 1
Bromoform	U	ug/l	1	< 1	< 1

Results Summary

Report No.: 19-22286, issue number 1

				ELAB Reference	168552	168553	168554	168555	168556
				Customer Reference					
				Sample ID					
				Sample Type	WATER	WATER	WATER	WATER	WATER
				Sample Location	BH101d	BH103d	BH108d	BH109d	BH110d
				Sample Depth (m)	6.25	5.80	6.40	6.00	5.55
				Sampling Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Determinand	Codes	Units	LOD						
SVOC									
Phenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Aniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroethyl)ether	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Chlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Benzyl Alcohol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,2-Dichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroisopropyl)ether	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
3 and 4-methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
N-Nitrosodi-n-propylamine	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloroethane	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Nitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Isophorone	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Nitrophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4-Dimethylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Bis(2-chloroethoxy)methane	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4-Dichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3,5-Trichlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Naphthalene	N	ug/l	0.01	0.03	0.02	0.02	0.02	0.02	0.02
3-Chloroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachloro-1,3-butadiene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
4-Chloro-3-methylphenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Methylnaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-Methylnaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachlorocyclopentadiene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4,6-Trichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,4,5-Trichlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-Chloronaphthalene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2-Nitroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,4-Dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Dimethyl phthalate	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1,3-dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,6-dinitrotoluene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Acenaphthylene	N	ug/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-Dinitrobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
3-Nitroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Acenaphthene	N	ug/l	0.01	0.15	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-nitrophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Dibenzofuran	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,3,5,6-Tetrachlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
2,3,4,6-Tetrachlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Diethyl phthalate	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-chloro-4-phenoxybenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Fluorene	N	ug/l	0.01	0.06	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-Nitroaniline	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Dinitro-o-cresol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Diphenylamine	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Azobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
1-bromo-4-phenoxybenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Hexachlorobenzene	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00
Pentachlorophenol	N	ug/l	1	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00

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Results Summary

Report No.: 19-22286, issue number 1

ELAB Reference	168552	168553	168554	168555	168556
Customer Reference					
Sample ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sample Location	BH101d	BH103d	BH108d	BH109d	BH110d
Sample Depth (m)	6.25	5.80	6.40	6.00	5.55
Sampling Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Determinand	Codes	Units	LOD		
SVOC					
Phenanthrene	N	ug/l	0.01	0.03	0.02
Anthracene	N	ug/l	0.01	0.02	< 0.01
Carbazole	N	ug/l	1	< 1.00	< 1.00
Dibutyl phthalate	N	ug/l	1	< 1.00	< 1.00
Fluoranthene	N	ug/l	0.01	0.04	0.02
Pyrene	N	ug/l	0.01	0.04	0.02
Butyl benzyl phthalate	N	ug/l	1	< 1.00	< 1.00
Bis-2-ethylhexyladipate	N	ug/l	1	< 1.00	< 1.00
Butyl benzyl phthalate	N	ug/l	1	< 1.00	< 1.00
Benzo(a)anthracene	N	ug/l	0.01	0.02	< 0.01
Chrysene	N	ug/l	0.01	0.02	< 0.01
Bis(2-ethylhexyl)phthalate	N	ug/l	1	< 1.00	< 1.00
Benzo(b)fluoranthene	N	ug/l	0.01	0.02	< 0.01
Benzo(k)fluoranthene	N	ug/l	0.01	0.01	< 0.01
Benzo(a)pyrene	N	ug/l	0.01	0.01	< 0.01
Indeno(1,2,3-CD)pyrene	N	ug/l	0.01	0.01	< 0.01
Dibenz(ah)anthracene	N	ug/l	0.01	< 0.01	< 0.01
Benzo(ghi)perylene	N	ug/l	0.01	0.01	< 0.01

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Method Summary

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Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Water					
Aliphatic/Aromatic hydrocarbons in water	N		27/03/2019		GC-FID
Aromatic hydrocarbons in water	N		27/03/2019		GC-FID
Phenols in waters	N		20/03/2019		HPLC
Alkalinity in waters	N		20/03/2019	100	Titrimetry
Dissolved metals by ICP in waters	U		20/03/2019	101	ICPMS
Dissolved organic carbon	U		21/03/2019	102	IR
pH of waters	U		20/03/2019	113	Electromeric
Chromium Hexavalent in waters	U		20/03/2019	123	Colorimetry
Sulphide in water	N		22/03/2019	134	Colorimetry
PAHs and/or PCBs in waters	N		22/03/2019	135	GC-MS
Electrical conductivity of water	U		20/03/2019	136	Electromeric
BOD	N		25/03/2019	142	5 Day
COD (Chemical Oxygen Demand in waters)	N		25/03/2019	143	Colorimetry
Ammonia in waters	N		21/03/2019	151	Colorimetry
Suspended Solids in waters	N		21/03/2019	155	Gravimetry
SVOC in waters	N		22/03/2019	167	GC-MS
PAHs and/or PCBs in waters	N		22/03/2019	170	GC-MS
Low range Aliphatic hydrocarbons water	N		21/03/2019	200	GC-MS
Low range Aromatic hydrocarbons water	N		21/03/2019	200	GC-MS
VOC in waters	U		19/03/2019	200	GC-MS
Elemental Sulphur by HPLC in waters	N		21/03/2019	206	HPLC
Aliphatic hydrocarbons in water	N		25/03/2019	215	GC-FID
Aromatic hydrocarbons in water	N		25/03/2019	215	GC-FID
Anions	U		20/03/2019	270	Ion Chromatography

Tests marked N are not UKAS accredited



Report Information

Report No.: 19-22286, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C)

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage