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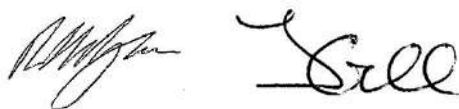
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THAMES QUARTER, KING'S MEADOW ROAD, READING PHASE II ENVIRONMENTAL SITE INVESTIGATION

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EXECUTIVE SUMMARY

Ramboll Environment and Health UK Limited ("Ramboll") was commissioned by Watkin Jones & Son Limited (the "Client") to carry out a Phase II Environmental Site Investigation (ESI) at the Thames Quarter development at King's Meadow, Reading, RG1 8BN (the "site"). The ESI is required in connection with the proposed development of the site by the Client for residential apartment end use.

Background

The Phase II ESI follows a Preliminary Risk Assessment (Phase I Environmental Assessment) (Ref. R1700001374_1_PRA, January 2018) undertaken by Ramboll. This developed a Conceptual Site Model and set out potential source-pathway-receptor relationships in the context of the proposed development that have been further assessed in this ESI. Of note no apartments will be present at the ground floor level, which will be occupied by car parking, storage rooms and access hallways, and as such reduces the vulnerability of residents to contamination. Limited landscaping will be present around the fringes of the site.

Historically the site was railway land with potential tank features marked in the east of site and was then occupied as a depot for vehicle maintenance use in the 1970s and a motor showroom from the 1980s to 2016.

A pollution incident is known to have occurred at the site in 2013 from an underground storage tank that overflowed with oil, located approximately centrally on site. The tank has been removed and much of the contamination has been remediated. Residual contamination as free phase product (i.e. neat oil) is known to remain close to the spill in the centre-east of the site within 5m of the former tank location. However, no evidence of contamination relating to the pollution incident has been identified migrating across the site or within the underlying sensitive Chalk aquifer.

Environmental Setting

The site is located in a sensitive environmental setting and is underlain sequentially by Alluvium (a Secondary A aquifer), River Terrace Deposits (a Secondary A aquifer), and at depth by Chalk (Principal aquifer). The ground conditions identified in this ESI are consistent with the findings of previous investigations that have identified a layer of relatively inert Made Ground overlying a layer of Alluvium 1-2m in thickness, underlain by River Terrace Deposits and Chalk at approximately 9-10 metres below ground level (m bgl). Groundwater was encountered as a seepage in the Alluvium that recharged slowly and as a more consistent water strike in the River Terrace Deposits and Chalk.

The Vastern Ditch / River Thames is located from 130m / 140m to the north of the site and groundwater in the River Terrace Deposits is expected to be in direct hydraulic continuity with the River Thames.

Scope of Works

The ESI involved drilling of thirteen window sample boreholes for combined ground gas and shallow groundwater sampling and six boreholes drilled into the underlying River Terrace Deposits for groundwater sampling only. One round of groundwater sampling from the Alluvium and River Terrace Deposits and three rounds of ground gas monitoring have been completed. Twenty-three soil samples and nineteen groundwater samples were analysed for a range of contaminants relevant to the historic site use.

Ground conditions across the majority of the site recorded very little evidence of significant ground contamination. Field evidence of ground contamination was limited in the new boreholes to three locations where petroleum hydrocarbon type contamination was encountered in the vicinity of the former pollution incident. In WS407 free phase product was present in a band of alluvial gravel at 1.6-2.2m bgl, in WS409 hydrocarbon odours were recorded in the Alluvium and River Terrace Deposits (at 1.6m bgl to 2.6m bgl) and in WS410 a vein of product was encountered in the Alluvium at 1.5m bgl. A

strong hydrocarbon odour was recorded on the underlying gravels in both WS409 and WS410 at approximately 2.6m bgl. Generally, very low field vapour readings were identified with only one sample recording a PID reading over 10 parts per million (ppm). No evidence of significant petroleum hydrocarbon contamination was encountered near previous RPS boreholes WS2/WS3 (southern boundary) and WS9 (east of the site) where evidence of contamination was identified before.

Free phase product floating on groundwater was not identified in the new borehole positions, although an oily sheen was observed at WS407. Free phase product does remain floating on groundwater in the existing locations of Sumps 1B and 1C (the most recent readings were 10mm and 30mm of product in these sumps, respectively)

Risks to human health, the built environment and controlled waters have been assessed in this ESI. The key findings are provided below.

Human Health Risk Assessment

All soil and groundwater results were compared to conservative Generic Assessment Criteria (GAC) for a residential end use (without private gardens). Three samples recorded the presence of beryllium above the Ramboll GAC and polycyclic aromatic hydrocarbon (PAH) compounds exceeded the GAC in five locations. The concentrations are considered to relate to the Made Ground materials and little evidence of a spatial distribution was identified. Nearly all locations lie beneath future buildings and hardstanding, although WS404 is close to an area of proposed soft landscaping. Future 'clean' landscaped areas will be required where landscaping is proposed.

No exceedances of the Ramboll GAC were recorded for volatile / semi-volatile organic compounds (VOC/SVOC) or petroleum hydrocarbons (and related compounds). No asbestos was detected in any of the analysed samples.

Free phase product was present in soils at one location (WS410) and floating on groundwater at three locations (WS407 (oily sheen), Sump 1b (discernible product) and Sump 1c (discernible product)), the presence of which is an exceedance of the residential GAC. Remediation of the identified free phase product will be required as part of the future development.

In terms of groundwater the dissolved phase concentrations of petroleum hydrocarbons detected at WS407 were in exceedance of the residential GAC and are likely linked to the presence of free phase product at this location. As above, it is recommended that free phase product is remediated.

Controlled Waters Risk Assessment

Isolated / sporadic exceedances of drinking water standards of metals and PAHs were recorded, predominantly in the alluvial groundwater and occasionally in the River Terrace Deposits. These are not considered to be representative of significant contamination across the site but more typical of trace contamination related to the Made Ground materials. TPH was detected in one of five chalk boreholes samples at a low concentration of 0.17mg/l. TPH was not detected in the overlying groundwater in the alluvium or River Terrace Deposits. The detection of TPH in the chalk is considered to be isolated and not indicative of significant contamination.

Elevated dissolved phase concentrations of petroleum hydrocarbons were recorded in the alluvial groundwater at WS407, which exceeds drinking water and environmental quality standards and is expected to be linked to the presence of free phase product at this location. This, as well as the presence of free phase product on groundwater in the river terrace gravels in Sumps 1b and 1c, will require remediation.

Built Environment Risk Assessment

The Made Ground on-site is relatively inert (formed largely of sand, gravel, brick and concrete), Three rounds of ground gas monitoring have been completed over a range of atmospheric conditions and the results of the monitoring have recorded low concentration of ground gas on-site with no positive flow

rates detected. This is in accordance with two previous rounds that found similar results. On this basis the proposed development will not require specific ground gas protection measures.

Given the presence of petroleum hydrocarbons on-site the building designer should liaise with the local water company to agree the specification of potable water supply pipes.

Overall Conclusion

In summary there is residual gross contamination in the form of free phase product locally entrained in the soils and floating on the groundwater near the area of the former pollution incident. The presence of which, represents a potential on-going risk to controlled waters and future residents, which will require remediation to allow the safe development of the site.

A remediation strategy should be prepared to document the areas that require clean-up, the methodology that will be used and how the work will be 'validated'. This will also need to include the measures to manage ground contamination risks based on a development led approach using buildings and hardstanding to break direct contact pathways and the introduction of 'clean' landscaped areas.

Prior to piling activities taking place a Foundation Works Risk Assessment (FWRA) will need to be undertaken to provide a qualitative assessment of the potential risks to the underlying aquifers and to set out any control measures that may be required.

1. INTRODUCTION

1.1 Background

Ramboll Environment and Health UK Limited ("Ramboll") was commissioned by Watkin Jones & Son Limited (the "Client") to carry out a Phase II Environmental Site Investigation (ESI) at the Thames Quarter development at King's Meadow, Reading, RG1 8BN (the "site"). The investigation works are required in connection with the proposed development of the site by the Client for residential apartment end use.

The Phase II Environmental Assessment follows a Preliminary Risk Assessment (Phase I Environmental Assessment) (Ref. R1700001374_1_PRA, January 2018) undertaken by Ramboll that should be read in conjunction with this Phase II ESI.

The site location and layout is presented in Figures 1 and 2, Appendix 1.

1.2 Objectives

The objective of the Phase II ESI was to provide a site-wide overview of whether ground contamination is present at the site that may represent a significant risk to current and future site users and the environment as part of the redevelopment of the site to residential apartment end use.

1.3 Scope of Works

The ESI comprised:

- setting out exploratory locations by a specialist underground service clearance contractor before the start of intrusive works, in accordance with Ramboll's Health and Safety procedures;
- drilling of thirteen window sample boreholes to facilitate the collection of shallow soil samples and allow the assessment of ground conditions for environmental purposes;
- installation of shallow monitoring wells within the window sample boreholes for ground gas monitoring and the collection of groundwater samples from the Alluvium, where present;
- drilling of six boreholes using cable percussion and rotary methods to facilitate the collection of soil samples and allow the assessment of ground conditions for environmental purposes;
- installation of monitoring wells within the six deeper boreholes for groundwater monitoring from the River Terrace Deposits and the collection of groundwater samples;
- supervision of drilling works by Ramboll field engineers, who logged the soil arisings and collected soil samples for laboratory analysis. Soil arisings were also screened at regular intervals for the presence of volatile compounds using a hand-held photo-ionisation detector (PID);
- monitoring of resting groundwater levels, where present within the monitoring wells, followed by collection of groundwater samples;
- monitoring the installed window sample wells on three occasions for ground gases;
- submission of selected soil and groundwater samples to a Ramboll approved MCERTs¹ and UKAS² accredited laboratory for analysis for a range of determinands; and
- production of an interpretative report, to include comparison of the analytical results with Ramboll's Generic Assessment Criteria (GAC), derived in accordance with UK guidance on risk assessment and in the context of the conceptual site model derived in the PRA.

¹ Environment Agency's Monitoring Certification Scheme.

² United Kingdom Accreditation Service for organisations that provide certification, testing, inspection and calibration services.

In preparation of this report Ramboll has made reference to relevant UK regulatory guidance. British Standards and 'good practice' industry guidance and methodologies, including, but not limited to:

- CLR11 Model Procedures for the Management of Land Contamination (Environment Agency, 2004);
- BS5930:2015 Code of Practice for Site Investigation; and
- BS10175:2011 Code of Practice for the Investigation of Potentially Contaminated Sites.

1.4 Limitations

Overall, whilst there are service constraints on-site, Ramboll obtained good coverage across the site with exploratory positions targeted at the areas of interest. Of note a Thames Water culvert runs in a north-south orientation through the east of the site and there are other services including high voltage electricity cables that cross the site. It should be noted, as is the case for any brownfield, that varying ground conditions could locally in between exploratory positions. However, in future a watching brief will take place to manage 'unexpected' contamination finds.

This report has been written in relation to a future residential apartment (no private gardens) end use of the site.

The interpretation of the geological and environmental conditions at the site is based on an extrapolation of targeted point-source information using geological experience. There is a degree of subjectivity in any interpretation. In addition, certain indicators of the presence of contamination may not have been apparent at the time of the investigation and may become observable under different site conditions (i.e. redevelopment).

This report in no way comprises a geotechnical / structural assessment of the strata underlying the site.

2. SITE DESCRIPTION

2.1 Site Description

The site is located on the southern side of the King's Meadow Road in Reading, approximately 140m south of the River Thames, at National Grid Reference 471830, 173870. Access to the site is via King's Meadow Road.

The site is currently in use as a pay and display car park. The south-eastern area of the site is occupied by a three-level multi-storey car park and the remainder of the site provides outdoor ground level car parking. The site is generally flat, as is the surrounding area, and extends to an area of approximately 0.59 hectares.

Prior to its current use, the site was a BMW car dealership, which included a showroom and workshop building in the west of the site that was demolished in May 2016. A pollution incident is known to have occurred at the site in 2013, whilst in use as a car dealership. It is understood that an underground oil storage tank in the centre-east of the site leaked into the ground. There have been several phases of site investigation and remediation associated with the oil leak that are discussed in Ramboll's Preliminary Risk Assessment Report. Historically, the site was railway land and tanks were noted to have been present in the east of the site.

At present there is no bulk fuel or chemical storage on-site and the current site activities are considered to have a low potential to cause significant ground contamination.

2.2 Planning Permission

The site is being developed under Reading Borough Council Planning Permission Number 162166, which was permitted on the 6th December 2016.

This contains planning conditions that require an assessment of the nature and extent of contamination at the site (Condition 6) and for ground gas characterisation to take place Condition 10. The conditions are replicated below.

Condition 6 states:

No development shall take place until an assessment of the nature and extent of contamination has been submitted to and approved in writing by the Local Planning Authority. This assessment must be undertaken by a competent person, and shall assess any contamination on the site, whether or not it originates on the site. Moreover, it must include:

- *(i) a survey of the extent, scale and nature of contamination;*
- *(ii) a conceptual model of the site indicating sources, pathways and receptors*
- *(iii) potentially unacceptable risks arising from contamination of the site*
- *(iv) an assessment of the potential risks to:*
 - *human health,*
 - *property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes,*
 - *adjoining land,*
 - *groundwaters and surface waters,*
 - *ecological systems,*
 - *archaeological sites and ancient monuments;*

Condition 10 states:

No development shall take place until a detailed land gas site investigation has been carried out by a competent person to fully and effectively characterise the nature and extent of land gas and

its implications. The method and extent of this site investigation shall be agreed with the Local Planning Authority prior to commencement of the work and shall then proceed in strict accordance with the measures approved.

2.3 Preliminary Risk Assessment

The Preliminary Risk Assessment (Phase I Environmental Assessment) (Ref. R1700001374_1_PRA, January 2018) that has been prepared provides a summary of the previous information for the site, develops a Conceptual Site Model and provides a rationale for the boreholes locations. No apartments will be present at the ground floor level, which will be occupied by car parking, storage rooms and access hallways, and as such reduces the sensitivity of ground floor uses. Limited landscaping will be present around the fringes of the site.

The scope of works for this site investigation was agreed with Environmental Health Department of Reading Borough Council and the Environment Agency as documented in the PRA. The ESI is described in the following sections.

3. SITE INVESTIGATION STRATEGY

3.1 Investigation Scope of Work

The ESI was undertaken from the 5th to 8th December 2017 and was supervised by Mr. Robert Hodgson of Ramboll. One round of subsequent groundwater sampling, was undertaken on the 13th December 2017; three rounds of gas monitoring and groundwater level monitoring were undertaken on the 13th and 20th December 2017, and 10th January 2018. Groundwater samples were collected from the chalk wells on-site on 24th – 26th January 2017.

A summary of the investigation scope is presented in Table 3.1 below. Exploratory location plans are included within Appendix 1 and borehole logs (including monitoring well details) are provided within Appendix 2.

Table 3.1 Summary of Intrusive Works		
Item	No.	Comments
Service Location Survey	1	Prior to intrusive works a specialist service location contractor was used to locate below ground utility services to ensure that boreholes were positioned at least 1.5m from utilities.
Window Sample Locations	13	A window sampling rig was used to advance thirteen boreholes (WS401 to WS413) to maximum depths of 4.0m below ground level (m bgl). Monitoring wells were installed within all window samples for ground gas monitoring and groundwater sampling purposes.
Cable Percussion / Rotary Boreholes	6	Cable percussion and rotary drilling techniques were used to advance six boreholes (BH401 to BH406) into the River Terrace Deposits, lying beneath the Made Ground and Alluvium. All boreholes were drilled to depths of 6.0m bgl and installed with groundwater monitoring wells in the River Terrace Deposits.
Headspace testing	86	Selected soil samples were tested on-site for the presence of volatile organic compounds (VOCs) using a photo-ionisation detector (PID), calibrated in accordance with Ramboll's Quality Management System procedures. Each soil sample tested was placed into a sealed plastic bag and agitated. The PID was then inserted into the headspace of the bag and the total VOC reading recorded. The PID (Phocheck Tiger) screens for a wide range of VOCs but does not indicate a specific compound; therefore, the results of the PID screening provide a semi-quantitative indication of the concentration of VOCs present in soil pore spaces in parts per million (ppm).
Soil Sampling and Analysis	23	Samples were collected in accordance with BS10175:2011 and were stored within appropriate sample containers and forwarded to an independent MCERTS accredited analytical laboratory (Exova Jones). Selected soil samples were analysed for a predetermined suite of contaminants, designed to be reflective of the site's historic uses.
Groundwater Sampling and Analysis	19	Groundwater samples were collected from each of the six deeper boreholes, within the river terrace deposits; and from nine of the window sample boreholes, within the Made Ground or Alluvium. Additionally, samples were collected from four monitoring wells installed in the river terrace gravels from previous stages of site investigation (Sump C, Sump 1I, BH201, BH305). The development, purging and groundwater sampling was undertaken using dedicated clean disposable sampling equipment. Five groundwater samples were taken from boreholes installed into the chalk aquifer; two from existing boreholes BH1 and BH2, and three from new boreholes CP01-CP03. The chalk groundwater samples were collected after purging

Table 3.1 Summary of Intrusive Works		
Item	No.	Comments
		the well and sampling using a submersible pump and in line low flow controller. Samples were collected in accordance with BS10175:2011 and were stored within appropriate sample containers and forwarded to an independent MCERTS accredited analytical laboratory (Exova Jones). The samples were analysed for a suite of contaminants designed to be reflective of the site's historic uses.
Gas Monitoring	3	Three rounds of ground-gas monitoring were undertaken on the 13 th and 20 th December 2017, and 10 th January 2018. Ground gases including carbon dioxide, methane and oxygen were monitored using an infra-red portable gas analyser (Gas Data GFM 430/ GA5000) and volatile organic compounds were recorded using a PID (Phocheck Tiger).

3.2 Sample Location Rationale

Overall, sample locations were chosen to further characterise areas of previously identified ground contamination; to target potential historical sources of contamination; and to provide more detailed coverage of areas of the site that have not been previously investigated. The rationale behind the design of the investigation is further discussed within Ramboll's Preliminary Risk Assessment Report.

3.3 Chemical Analysis

Table 3.2 presents the analytical schedule for soil and groundwater samples together with the rationale for analysis.

Table 3.2: Analytical Strategy			
Analytical Suite	Rationale	No. of soil samples	No. of Groundwater samples
Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG) including BTEX	Typically associated with fuels and oils.	23	24
Polycyclic Aromatic Hydrocarbons (PAH)	Typically associated with fuels and oils, and often found in Made Ground.	15	16
Volatile Organic Compounds (VOCs)	Selected samples were analysed to target oil and fuel storage areas and other volatile substances such as degreasers often found at industrial sites.	8	24
Semi Volatile Organic Compounds (SVOCs)	Selected samples were analysed to target possible solvent contamination and other semi volatile substances occasionally found at industrial sites.	8	24
Total Phenols & Cyanide	Often associated with industrial processes.	15	16

Table 3.2: Analytical Strategy			
Analytical Suite	Rationale	No. of soil samples	No. of Groundwater samples
Metals	Often encountered in Made Ground, waste deposits and industrial facilities.	15	16
Asbestos	Commonly associated with Made Ground including demolition materials.	14	N/A

3.4 Data Quality Assurance

The laboratory selected to perform the analysis is accredited by UKAS to ISO 17025 and MCERTs standards. Internal quality assurance checks are carried out by the laboratory prior to the laboratory certificates being issued.

4. SITE INVESTIGATION FINDINGS

4.1 Ground Conditions

The ground conditions identified on-site are presented in Table 4.1 below.

Table 4.1: Summary of Ground Conditions			
Strata	Description	Depth to Top and Base of Strata (m bgl)	Maximum Thickness (m)
Made Ground (Surface)	Hardstanding present in all locations: asphalt of approximately 0.08m thickness; block paving of approximately 0.10m thickness; and concrete (present beneath block paving in the ground floor of the multi-storey building) of approximately 0.40m thickness.	0.0 - 0.5	0.4
Made Ground (Sub surface)	Brown, locally black (ashy) variably sandy gravel or gravelly sandy with fragments of concrete and brick throughout and locally fragments of coal, clinker, slag, chalk, and plastic. A layer of re-worked chalk was encountered at / near the base of the Made Ground in seven locations (WS401, WS403, WS411, WS413, BH401, BH404, BH405). Made Ground was encountered to a maximum depth of 2.80m bgl in WS404, in the north of the site; however, typically Made Ground was encountered to depths of between 1.0m and 2.0m bgl.	0.1-2.8	2.7
Silty Clay and Clay (Alluvium)	Variably coloured, predominantly grey-brown slightly sandy silty clay / clay deposits were observed in all locations. Locally, the Alluvium is mottled black and a slight natural organic odour was observed.	1.1-3.8 (where proven)	2.0
Sandy Gravel (River Terrace Deposits)	Orange-brown slightly silty sandy gravel of flint was encountered in all deeper boreholes and ten of the shallow window sample boreholes.	2.6 (base not proven)	At least 3.1

Broadly the shallow ground conditions are in keeping with those previously identified at the site.

4.2 Groundwater

Where possible to record, groundwater strikes were encountered at the base of the Alluvium, as drilling progressed into the underlying River Terrace Deposits. Groundwater was also recorded as a seepage / perched groundwater within Made Ground in WS404. Groundwater was subsequently recorded in the boreholes drilled into the Alluvium and River Terrace Deposits.

Resting groundwater levels were recorded during the gas monitoring rounds undertaken by Ramboll. A summary of the groundwater levels is provided in Table 4.2.

Table 4.2: Summary of Groundwater Observations				
Exploratory Hole	Date	Borehole Elevation (m AOD)	Depth to Groundwater (m bgl)	Groundwater Elevation (m AOD)
WS401	12/12/2017	37.76	1.97	35.79
	20/12/2017		2.05	35.71
	10/01/2018		1.99	35.77
WS402	12/12/2017	37.62	1.81	35.81
	20/12/2017		1.85	35.77
	10/01/2018		1.78	35.84
WS403	12/12/2017	37.79	1.24	36.55
	20/12/2017		1.28	36.51
	10/01/2018		1.28	36.51
WS404	12/12/2017	37.73	1.89	35.84
	20/12/2017		1.95	35.79
	10/01/2018		1.91	35.82
WS405	12/12/2017	37.58	0.84	36.74
	20/12/2017		1.98	35.60
	10/01/2018		1.98	35.60
WS406	12/12/2017	37.73	1.38	36.35
	20/12/2017		1.24	36.49
	10/01/2018		1.22	36.51
WS407	12/12/2017	37.80	1.24*	36.56
	20/12/2017		1.26*	36.54
	10/01/2018		1.33*	36.47
WS408	12/12/2017	37.94	Dry	N/A
	20/12/2017		Dry	N/A
	10/01/2018		1.98	35.96
WS409	12/12/2017	37.64	1.99	35.65
	20/12/2017		1.96	35.69
	10/01/2018		1.87	35.77
WS410	12/12/2017	37.66	1.89	35.77
	20/12/2017		1.85	35.81
	10/01/2018		1.53	36.13
WS411	12/12/2017	37.95	Dry	N/A
	20/12/2017		1.61	36.36
	10/01/2018		1.51	36.44
WS412	12/12/2017	-	1.91	-
	20/12/2017		2.04	-

Table 4.2: Summary of Groundwater Observations				
Exploratory Hole	Date	Borehole Elevation (m AOD)	Depth to Groundwater (m bgl)	Groundwater Elevation (m AOD)
	10/01/2018		1.79	-
WS413	12/12/2017	37.75	Dry	N/A
	20/12/2017		1.91	35.84
	10/01/2018		1.61	36.14
BH401	12/12/2017	37.61	1.85	35.76
	20/12/2017		1.87	35.74
	10/01/2018		1.85	35.76
BH402	12/12/2017	37.57	1.85	35.72
	20/12/2017		1.87	35.70
	10/01/2018		1.85	35.72
BH403	12/12/2017	37.73	1.99	35.74
	20/12/2017		2.01	35.72
	10/01/2018		1.99	35.74
BH404	12/12/2017	-	1.89	-
	20/12/2017		1.93	-
	10/01/2018		1.92	-
BH405	12/12/2017	37.93	2.18	35.75
	20/12/2017		2.20	35.73
	10/01/2018		2.15	35.78
BH406	12/12/2017	37.95	2.20	35.75
	20/12/2017		2.23	35.72
	10/01/2018		2.19	35.76
m AOD – meters Above Ordnance Datum				
* oily sheen observed on groundwater				

Where encountered, resting groundwater levels within the shallow window sample boreholes were recorded at depths of between 0.84m bgl and 2.05m bgl. Resting groundwater levels in the deeper boreholes, within the River Terrace Deposits, were recorded at depths of between 1.85m bgl and 2.23m bgl.

Results indicate that there is shallow potentially discontinuous groundwater body within the Alluvium (and in places including the Made Ground) and a continuous groundwater aquifer within the River Terrace Deposits. Groundwater is inferred to flow to the north in the gravels.

4.3 Field Evidence of Contamination

Visual and olfactory evidence of contamination noted within the soil arisings is described in further detail below:

- Made Ground was encountered in all exploratory locations. The Made Ground observed variably sandy gravel or gravelly sandy with construction materials such as concrete and

brick present throughout. Fragments of coal, clinker, slag, chalk, and plastic were also identified within the Made Ground.

- Visual and olfactory evidence of hydrocarbon contamination was recorded in three of the window sample boreholes, co-incident with the area where the underground oil storage tank was present and remediation took place, as detailed below:
 - WS407: A band of gravel in the Alluvium was recorded as saturated by free phase product (black oil) at a depth of 1.60m to 2.20m bgl, which was underlain by a layer of clay. The oil appears to be present in the gravel and potentially on perched water associated with the gravel band. Beneath the clay, a slight hydrocarbon odour was recorded in the River Terrace Deposits between 2.80m and 3.00m bgl.
 - WS409: A hydrocarbon odour was recorded within the alluvial clay, at depths between 1.60m and 2.60m bgl. The underlying gravel was recorded with a strong hydrocarbon odour, between 2.60m and 3.00m bgl.
 - WS410: All recovered soil between 1.10m and the base of the hole at 3.00m bgl was recorded to have a strong hydrocarbon odour. Additionally, a vein of free-phase product (black oil) was recorded in the alluvial soil between 1.10m and 2.50m bgl.
- Soil headspace screening for VOCs was undertaken using a photo-ionisation detector (PID). Of the 86 samples analysed by the headspace method, only one sample was recorded at greater than 10 ppm. This PID reading was recorded at WS407 at 2.00m bgl. A slightly elevated reading of 5.4 ppm was recorded in WS407 at a depth of 2.5m bgl; and a reading of 7.3 ppm was recorded in WS410 at a depth of 2.5m bgl. These were recorded in soil that was recorded as having a hydrocarbon odour.

Field evidence of contamination identified in the groundwater is noted below:

- As noted above, the only potential evidence of free phase product present in the new boreholes was in WS407 where oil product was observed on perched water in a gravel band in the Alluvium. In the monitoring well at this location a strong hydrocarbon odour and oily sheen / residue was observed rather than a distinct product layer on groundwater. This is likely due to the low viscosity nature of the oil product being retained in the soil and on the perched water outside of the monitoring well.
- Free-phase oil product was observed in the remedial sumps of 1b and 1c although the product depth could not be recorded during the investigation due to the presence of oil recovery equipment. The most recent monitoring event (July 2017) recorded 10mm and 30mm of product in these sumps.

It is also noted that in certain boreholes the alluvial water also extended into the overlying Made Ground – this was in boreholes WS402, WS403, WS404, WS406 and WS407. No evidence of contamination was observed in the samples taken from the chalk.

The site investigation identified evidence of petroleum hydrocarbon impact in close proximity to where the oil leaked from the underground storage tank. Outside of these areas no evidence of impact to the ground was identified including around RPS location WS9 and RPS locations WS2 / WS3 on the southern boundary of the site where previous evidence of petroleum hydrocarbon was recorded (albeit in a site investigation ten years ago now).

5. HUMAN HEALTH ASSESSMENT

5.1 Legislative Background

The main environmental legislation relating to contaminated land in the UK is Part 2A of the Environmental Protection Act 1990. The philosophy behind Part 2A is that of the contaminant-pathway-receptor concept; for land to be contaminated all three aspects must be present (i.e. a contaminant source must be present and able to move along a pathway and impact a receptor at a concentration that causes significant harm or pollution).

Ramboll has derived Generic Assessment Criteria (Ramboll GACs) (as defined within Appendix 3) for the interpretation of soil and groundwater chemical analyses. The laboratory analytical certificates are provided in Appendix 4. The Ramboll GACs are threshold based screening criteria, below which a significant risk is not considered to be present to a receptor. Contaminants at concentrations above the Ramboll GACs do not infer that an unacceptable risk is present; rather further assessment is required to more fully understand potential contamination risks (as explained in later sections).

Soil and groundwater analytical results have been assessed using the Ramboll GACs for residential end use without plant uptake (as no private gardens are proposed). The comparison with Ramboll GACs is presented in Appendix 5.

5.2 Soil Analytical Results

5.2.1 Analytical Results

Inorganics

Fifteen soil samples were tested for a range of heavy metals and inorganic parameters. Metal concentrations were generally low and only concentrations of beryllium were noted to exceed the relevant GACs.

Concentrations of beryllium in three locations were noted to exceed the GAC of 1.7mg/kg, these were WS408 (0.6-0.8m) at 2.4mg/kg, BH405 (0.8-1.0m) at 3.5mg/kg and WS404 (0.3-0.5m) at 4mg/kg. All three boreholes lie beneath the future building / hardstanding that would 'break' direct contact with the underlying soils

Cyanide was not detected above the laboratory method detection limit (LMDL) in fifteen soil samples that were tested.

pH was noted to range from 8.53 to 12.18 across the fifteen samples analysed. The pH of 12.18 was noted in WS402 at 0.25-0.5m it was also noted to be above a pH of 10 in WS401 (0.25-0.5m), WS406 (0.3-0.5m), WS407 (0.25-0.5m) and WS411 (0.5/0.7m).

Sulphate as SO₄ was noted to range from 0.0122 to 0.2134 g/l across the samples analysed.

Phenols

Eight samples were tested for phenols. None of the samples were noted to contain phenols at concentrations above the LMDL.

Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs were detected above the LDML in seventeen of the nineteen samples.

The majority of the highest PAH concentrations were noted in WS403 (0.3-0.5m) with pyrene (25.84mg/kg), phenanthrene (27.15mg/kg), indeno(123-cd)pyrene (8.14mg/kg), fluoranthene (32.16mg/kg), dibenzo (ah)anthracene (2.11mg/kg), chrysene (12.26mg/kg), benzo(k)fluoranthene (5.95mg/kg), benzo(b)fluoranthene (15.31mg/kg), benzo(ghi)fluoranthene

(21.26mg/kg) benzo(a)anthracene (13.83mg/kg), anthracene (9.06mg/kg), acenaphthylene (1.05mg/kg) and benzo(a)pyrene (12.44mg/kg). Concentrations of fluorene (1.28mg/kg), acenaphthene (1.85mg/kg) and naphthalene (1.31mg/kg) were noted to be highest in WS412 (0.6-0.8m).

When compared to the Ramboll GAC, low level exceedances of PAHs were recorded, including of:

- naphthalene in WS412 (0.6-0.8m) marginally exceeded the GAC of 0.99 mg/kg at 1.31 mg/kg
- benzo(a)pyrene exceeded the GAC of 5.3mg/kg in four locations (three of which were marginal):
 - WS403 (0.3-0.5m at 12.44mg/kg);
 - WS401 (0.25-0.5m at 6.82mg/kg);
 - WS402 (0.25-0.5m at 6.99mg/kg); and
 - WS405 (0.25-0.5m at 5.44mg/kg).

Sporadic exceedances have been identified that can be managed through the inclusion of clean topsoil break layers in future landscaped areas.

Total Petroleum Hydrocarbons (TPH)

Total Petroleum Hydrocarbons were detected in fourteen of the twenty-three samples analysed with heavy end aliphatic and aromatic carbon chains typically detected.

- the highest aliphatic hydrocarbons were detected in WS407 (1.3-1.4m) with C5-6 (0.1mg/kg), C6-8 (0.6mg/kg), C8-10 (1.5mg/kg), C10-12 (16.6mg/kg), C12-16 (35mg/kg), C16-21 (108mg/kg) and C21-35 (4674mg/kg); and
- the highest aromatic hydrocarbons were also detected in WS407 (1.3-1.4m) with C8-10 (0.6mg/kg), C10-12 (21.3mg/kg), C12-16 (46mg/kg), C16-21 (161mg/kg) and C21-35 (1769mg/kg).

Lower concentrations were noted over several boreholes across the site. In comparison with the residential GACs none of the results were noted to exceed the relevant GACs in terms of the maximum results recorded.

Assessment of the light end aromatic hydrocarbons has been encompassed within the BTEX section below.

BTEX and MTBE

Twenty-three samples were tested for BTEX (collectively benzene, toluene, ethylbenzene, and xylenes) and MTBE (methyl-tert-butyl-ether). Concentrations were noted to exceed the LMDL in only three locations, WS407 (1.3-1.4m), BH402 (0.3-0.5m) and BH405 (0.8-1.0m).

- Concentrations of benzene were noted in WS407 (1.3-1.4m) at 0.019mg/kg.
- Ethylbenzene was noted in WS407 (1.3-1.4m) at 0.01mg/kg and BH402 (0.3-0.5m) at 0.003mg/kg.
- Toluene was noted in WS407 (1.3-1.4m) at 0.019mg/kg, BH402 (0.3-0.5m) at 0.003mg/kg and BH405 (0.8-1.0m) at 0.006mg/kg.
- MTBE was not detected at concentrations above the laboratory method detection limit.
- Xylene-m&p was noted in WS407 (1.3-1.4m) at 0.367mg/kg, BH402 (0.3-0.5m) at 0.009mg/kg and BH405 (0.8-1.0m) at 0.007mg/kg.
- Xylene-o was noted in WS407 (1.3-1.4m) at 0.191mg/kg and BH402 (0.3-0.5m) at 0.003mg/kg.

In comparison to the Ramboll residential GACs none of the samples were noted to exceed the relevant GAC.

VOCs and SVOCs

Generally low concentrations of PID headspace reading were taken across the site. Eight samples were tested for VOCs and SVOCs. Only concentrations of dichloromethane, carbazole, dibenzofuran and methylnaphthalene-2 were detected above the LMDL, as follows:

- Dichloromethane was detected in two locations BH402 (0.3-0.5mg/kg) at 0.09mg/kg and BH405 (0.8-1.0m) at 0.08mg/kg.
- Carbazole was detected in two locations WS412 (0.6-0.8m) at 1.036mg/kg and BH405 (0.8-1.0m) at 0.309mg/kg.
- Dibenzofuran was detected in three locations WS412 (0.6-0.8m) at 1.134mg/kg, BH405 (0.8-1.0m) at 0.142mg/kg and BH402 (0.3-0.5mg/kg) at 0.161mg/kg.
- Methylnaphthalene-2 was detected in three locations WS412 (0.6-0.8m) at 0.767mg/kg, BH405 (0.8-1.0m) at 0.196mg/kg and BH402 (0.3-0.5mg/kg) at 0.205mg/kg.

In comparison to the relevant residential Ramboll GAC none of the concentrations were noted to exceed the GAC.

Asbestos

Fourteen soil samples were tested for asbestos and no asbestos fibres were detected in any of the analysed samples.

5.2.2 Summary of Soil Results

Three samples recorded the presence of beryllium above the Ramboll GAC and PAH compounds exceed the GAC in five locations. The concentrations are considered to relate to the Made Ground materials with little evidence of a spatial distribution; nearly all locations lie beneath future buildings and hardstanding, although WS404 is close to an area of proposed soft landscaping. Future 'clean' landscaped areas will break this contaminant pathway.

In comparison to the Ramboll GACs none of the samples was noted to exceed for VOCs, SVOCs, TPH, BTEX, MTBE and Phenol. No asbestos was detected in any of the analysed samples.

In summary, the soil contamination identified across the site is not considered to present a significant risk to future residents as the future development plans are a high-rise building with no gardens. It is noted that free phase product was present in some locations i.e. WS407, WS410, Sump 1b and Sump 1c and that the presence of free phase product within the soil is an exceedance of the residential GACs. Removal of the identified free phase will be required as part of the future development.

5.3 Groundwater Analytical Results – Human Health

Groundwater was taken from nineteen locations across the site. Due to limited recharge of the groundwater in some of the boreholes (Sump 1l, Sump C, BH201, BH305, WS402, WS406, WS410 and WS412) only eleven samples could be tested for inorganics.

Inorganics

The inorganics results show:

- Metal concentrations were generally low in the eleven samples analysed with locally elevated concentrations of boron noted.
- Maximum concentrations detected include: arsenic (12.1µg/l), total Chromium (10.3µg/l), chromium VI (53µg/l), copper (43µg/l), nickel (8µg/l) and vanadium (43.1µg/l) in WS405.

The highest concentrations of zinc were noted at 29µg/l in BH404 and boron at 2,664µg/l in WS403, with the second highest concentrations of boron in WS407 at 476µg/l.

- Concentrations of beryllium, cadmium, chromium III, lead, mercury and selenium were noted to not exceed the LMDL in any of the eleven locations.
- Eleven samples were tested for cyanide, of which only two samples were noted to exceed the LMDL with 0.01mg/l in WS407 and 0.12mg/l in WS404.
- pH was tested in eleven samples and ranged from 7.2 to 12.72 across the locations. The pH levels ranged from 7.2 to 8.3 in ten of the wells which pH levels of 12.72 were noted in WS405.
- Sulphate as SO₄ was noted to range from 53.4 to 526.3mg/l across the eleven samples. This highest two results were noted in WS403 at 248.7mg/l and WS404 at 526.3mg/l.
- Ammoniacal Nitrogen (as Nitrogen (N)) was noted to range from the LMDL to 2.92mg/l. The concentrations range between 0.03mg/l (LMDL) to 0.23mg/l across eight of the locations with elevated readings noted in WS401 at 1.31mg/l, WS407 at 2.29mg/l and WS405 at 2.92mg/l. This may relate to the presence and decomposition of organic matter in the alluvial soils.
- Hardness of groundwater (CaCO₃) was noted to range from 161mg/l to 687mg/l across the eleven locations. The highest was noted in WS404 at 687mg/l.

In comparison with the residential GACs none of the concentrations of heavy metals or inorganics were noted to exceed the relevant GACs.

Phenols

Phenols were not detected above the LMDL in the nineteen samples analysed. In comparison with the residential GACs none of the concentrations of phenols were noted to exceed the relevant GACs.

Polycyclic Aromatic Hydrocarbons

PAHs were tested for in nineteen samples, concentrations were noted to exceed the LMDL in ten samples. The concentrations ranged from trace levels of PAHs in BH401, BH402 and BH404 to total PAH in the range from 0.268µg/l to 9.7µg/l in the remaining locations (BH406, WS401, WS404, WS405, WS407 and WS410). The highest concentration was noted to be present in WS410.

In comparison with the residential GACs the majority of the concentrations of PAHs did not exceed the relevant GACs. Concentrations of benzo(bk)fluoranthene were noted to marginally exceed the GAC of 0.8µg/l in one location, WS404 at 1µg/l. Concentrations of benzo(ghi)perylene were noted to exceed the GAC in two locations WS407 (5.3µg/l) and WS410 (1.9µg/l). These exceedances are marginal and not considered to be significant given the nature of the development and ground floor uses.

Total Petroleum Hydrocarbons

Concentration of TPH were noted in nineteen samples. The concentration of TPH did not exceed the LMDL in any locations except WS407 where free phase product was identified and a total TPH concentration of 62.8 mg/l detected.

In WS407 the concentrations of individual petroleum hydrocarbon fractions were noted as follows Aliphatic **C8-10 (30µg/l)**, **C10-12 (82µg/l)**, **C12-16 (60µg/l)**, C16-35 (27,510µg/l), Aromatic C8-10 (30µg/l), 10-12 (144µg/l), 12-16 (140µg/l) and 16-35 (7,320µg/l). **The fractions highlighted in bold exceed the respective GAC.** In addition, field notes indicate the presence of free phase product in Sumps 1b and 1c, the presence of free phase product exceeds the relevant GAC.

BTEX and MTBE

Concentrations of BTEX and MTBE were tested for in nineteen samples. Concentrations of benzene, toluene, ethylbenzene and m&p xylene did not exceed the LMDL.

Concentrations of o-xylene were noted to exceed the LMDL in six locations (BH403, BH406, Sump C, WS406, WS407 and WS410) with the highest concentration noted in WS406 at 6.1µg/l. concentrations of o-xylene were exceeded the LMDL in one location in WS407 at 22µg/l.

In comparison with the residential GACs none of the concentrations of BTEX or MTBE were noted to exceed the relevant residential GACs.

VOCs and SVOCs

Nineteen samples were tested for VOCs and SVOCs. Concentrations of Di(2-ethylhexyl) phthalate (DEHP) and Trimethylbenzene-1,3,5 were the only compounds noted to be present above the LMDL. Concentrations of DEHP were detected at 33µg/l in WS410 and Trimethylbenzene-1,3,5 at 8µg/l in WS407.

In comparison with the residential GACs none of the concentrations of VOCs and SVOCs were noted to exceed and no GAC has been calculated for DEHP. The concentration of DEHP are considered to be low and not considered to be of significant given the isolated detection and relatively low sensitivity of the ground floor uses.

5.3.1 Summary of Groundwater Results

Concentrations of isolated PAHs were noted to exceed the GACs in three locations. The exceedances are considered to be marginal and are not considered to represent a significant risk to residential receptors given the conservative nature of the GAC, the absence of residential users at ground floor level and that residents would not be expected to come into contact with groundwater.

Concentrations of DEHP were noted at 33ug/l but no groundwater GAC is determined, the concentration is considered to be low and as an isolated detection is not considered to represent a significant risk to the future development given the low sensitivity of the ground floor uses. No other VOCs or SVOCs were noted to exceed the residential GACs.

In comparison with the residential GACs none of the concentrations of BTEX or MTBE, heavy metals or inorganics were noted to exceed the relevant residential GACs.

TPH was noted in WS407 in exceedance of the residential GACs for Aliphatic C8-16. In addition, the presence of free phase hydrocarbons on groundwater in Sumps 1b and 1c also exceeds the residential GAC. The presence of an oily sheen and dissolved phase hydrocarbons in WS407 are considered to present a potential risk to future residents. Further remediation will be required in these areas as part of the development.

5.4 Construction Workers

Construction workers may be exposed to contaminants in soil and groundwater during future redevelopment. It is recommended that a full catalogue of previous reports (including this report) should be provided to future contractors to allow complete consideration of the potential risks.

The assessment of the risks to construction workers from contamination is outside of the scope of this report.

6. CONTROLLED WATERS ASSESSMENT

A summary of the groundwater results is presented below in the context of drinking water and environmental standards.

The groundwater chemical analyses have been assessed in relation to the Ramboll GAC for controlled waters, which for this assessment has been compared to both the drinking water standards, due to the presence of the Chalk aquifer, and the environmental quality standards due to the designation of the shallow groundwater as secondary aquifers. Screening tables are provided in Appendix 6.

The UK Drinking Water Standards (DWS) have been chosen in the first instance then the European DWS if no UK DWS is present and in the absence of either analyses have been compared against international published criteria (ISEPA Regional Screening level drinking water standards). The UK and European Quality standards (EQS) have been used for assessment in comparison with Environmental Standards.

6.1 Groundwater Results – Drinking Water Standards

Inorganics

Isolated exceedances of contaminants were recorded in locations where the alluvial groundwater extended into the Made Ground as follows:

- arsenic exceeded the GAC of 10ug/l in one location (WS405 at 12.1ug/l);
- boron exceeded the GAC of 1,000ug/l in one location (WS403 at 2,664ug/l);
- chromium VI exceeded the GAC of 50ug/l in one location (WS403 at 53ug/l);
- cyanide exceeded the GAC of 0.05mg/l in one location WS404 at 0.12mg/l; and
- sulphate (as SO₄) exceeded the GAC of 250mg/l in one location WS404 at 526.3mg/l.
- No exceedances were identified for the chalk.

Concentrations of pH were noted to be outside the EU indicator parameters range of 6.5-9.5 for groundwater in WS405 where the pH was noted to be 12.27.

The inorganic results are not considered to be indicative of a significant risk to controlled waters at the site and are typical of results for urban land.

Phenols

In comparison with the groundwater GACs none of the concentrations of phenols were noted to exceed the relevant GACs.

Polycyclic Aromatic Hydrocarbons

The majority of PAH concentrations did not exceed the relevant GACs. Concentrations of benzo(a)pyrene were noted to exceed the GAC of 0.01ug/l in five of nineteen locations: BH406 (0.021ug/l), WS401(0.034ug/l), WS404 (0.077ug/l), WS405 (0.051ug/l) and WS407 (0.209ug/l). The exceedances are mainly in the alluvial groundwater where the water column is close to or extends into the overlying Made Ground, apart from the result from BH406 where the sample was taken from the River Terrace Deposits (and is only marginally above the GAC).

In addition the sum of PAHs (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(123-cd)pyrene) was noted to exceed the GAC of 0.1ug/l in the alluvial groundwater in WS401, WS404, WS405 and WS407.

No exceedances were identified for the chalk.

Overall the PAH exceedances are considered to be marginal and sporadic and therefore not significant with the highest individual PAH recorded at 0.251 µg/l likely relating to the on-site Made Ground.

Total Petroleum Hydrocarbons

Of the nineteen samples analysed, only one recorded a concentration above the LMDL in the alluvium and gravel. **WS407 recorded a TPH concentration of 62.8mg/l that exceeds the DWS GAC.** TPH was also detected above the LMDL in one of five chalk wells in CP01 at a concentration of 0.17mg/l. This location is not in the immediate vicinity of the remediation area and the overlying chalk and alluvial groundwater did not record the presence of TPH in this area. The result is therefore considered to be isolated and not indicate of significant contamination.

In addition, field notes indicate **the presence of an oily sheen in WS407 on alluvial groundwater and free phase product in Sumps 1B and 1C in the River Terrace Deposits which exceeds the relevant GAC.** Free phase product is also present in WS410 in soils.

BTEX and MTBE

In comparison with the groundwater GACs none of the concentrations of BTEX or MTBE were noted to exceed the relevant GACs.

VOCs and SVOCs

The majority of the concentrations of VOCs and SVOCs did not exceed the relevant groundwater GACs. Only one exceedance was noted of DEHP in WS410 at 33ug/l exceeding the GAC of 8ug/l. This is not considered to be significant given the isolated nature of the exceedance.

6.2 Groundwater Results – Environmental Quality Standards

Inorganics

Local exceedances of contaminants were recorded in the groundwater as follows:

- boron exceeded the GAC of 2,000ug/l in one location (WS403 at 2,664ug/l).
- total chromium exceeded the GAC of 3.4ug/l in three locations, BH403 (5.5ug/l), WS401 (4ug/l) and WS405 (10.3ug/l), the GAC for total chromium is based on chromium VI standards.
- concentrations of chromium VI were noted to exceed the GAC of 3.4ug/l in one location (WS403 at 53ug/l), it is also noted that the laboratory method detection limit for chromium VI is 6ug/l which is greater than the GAC.
- copper was noted to exceed the GAC of 1ug/l in WS405 at 43ug/l and concentrations of nickel in WS405 at 8ug/l in comparison to a GAC of 4ug/l. Bioavailability has been considered with comparison for this sample with a site specific PNEC of 1ug/l for copper and 4ug/l for nickel calculated for WS405, of which both contaminants exceed.
- concentrations of nickel were noted to exceed the GAC (4ug/l) in WS407 at 6ug/l and concentrations of zinc at 24ug/l in comparison to the GAC of 10.9ug/l. The site specific PNEC at WS407 was calculated for nickel to be 38.89ug/l and 68.66ug/l for zinc, the identified concentrations do not exceed these limits.
- in the chalk traces of metals were detected sporadically with lead detected in CP02 (8µg/l) and BH2 (6µg/l), nickel detected in CP02 (6µg/l) and CP03 (7µg/l), and zinc in CP03 (52µg/l) were detected above the GAC.
- ammoniacal nitrogen (as N) exceeds the GAC of 0.3mg/l in WS401 (1.31mg/l), WS405 (2.92mg/l) and WS407 (2.29mg/l) all of which are alluvial groundwater samples and therefore the presence of ammonia is likely linked to the alluvial nature of the soil.

- cyanide exceeded the GAC of 0.001mg/l in two locations WS404 at 0.12mg/l and WS407 at 0.01mg/l.
- sulphate (as SO₄) exceeded the GAC of 400mg/l in one location WS404 at 526.3mg/l.
- concentrations of pH were noted to be outside the EU indicator parameters range of 6.5-9.5 for groundwater in WS405 where the pH was noted to be 12.27.

The exceedances are considered to be typical of urban land and are not considered to trigger remedial requirements.

Phenols

Phenols did not exceed the relevant GACs.

Polycyclic Aromatic Hydrocarbons

In comparison with the groundwater GACs exceedances of benzo(a)pyrene (and surrogates), anthracene and fluorene were noted, as follows:

- Concentrations of anthracene exceeded the GAC of 0.1ug/l in WS405 at 0.129ug/l.
- Concentrations of benzo(a)pyrene exceeded the GAC of 0.00017ug/l in BH406 (0.021ug/l), WS401 (0.034 ug/l), WS404 (0.077 ug/l), WS405 (0.051 ug/l) and WS407 (0.209 ug/l).
- Where present concentrations of benzo(b)fluoranthene, benzo(b,k)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(123-cd)pyrene were noted to exceed the surrogate benzo(a)pyrene GAC of 0.00017 with the highest individual PAH recorded at 0.251 µg/l likely relating to the on-site Made Ground.
- Concentrations of fluorene were noted to exceed the GAC of 0.0063ug/l in eight of nineteen samples BH401 (0.021 ug/l), BH402 (0.085 ug/l), BH404 (0.047 ug/l), BH406 (0.031 ug/l), WS401 (0.136 ug/l), WS404 (0.186 ug/l), WS405 (0.293 ug/l) and WS407 (0.14 ug/l), as well as the LMDL. The exceedances are sporadic and not considered to be significant.
- Traces of PAHs were detected in the chalk in CP01 above the GAC for benzo(b)fluoranthene (at 0.02µg/l), benzo(ghi)perylene (at 0.017µg/l), and fluoranthene was detected in CP01, CP02 and CP03 at concentrations of 0.031µg/l to 0.091µg/l.

The exceedances are considered to be typical of urban land and are not considered to trigger remedial requirements.

Total Petroleum Hydrocarbons

The only TPH detected in the alluvium and river terrace deposits was in WS407 at 62.8 mg/l where an oily sheen was observed on groundwater. **The presence of the oily sheen in WS407 and free phase product in Sumps 1B and 1C is considered to represent an exceedance of the DWS GAC.**

TPH was also detected in CP01 at a concentration of 0.17mg/l, TPH was not detected in any other chalk wells nor was TPH detected in the boreholes installed in the alluvium or river terrace deposits around the location of CP01.

BTEX and MTBE

In comparison with the GACs none of the concentrations of BTEX or MTBE were noted to exceed.

VOCs and SVOCs

In comparison with the GACs the majority of the concentrations of VOCs and SVOCs did not exceed. Only one exceedance was noted of DEHP in WS410 at 33ug/l exceeding the GAC of 1.3ug/l. This is not considered to be significant given the isolated nature of the exceedance.

6.2.1 Summary of Controlled Waters Screening

The shallower groundwater across the Made Ground / Alluvium has recorded locally elevated concentrations of inorganics/metals and PAHs in some boreholes where the groundwater extended or was close to the Made Ground. The traces of contamination appear to be limited to sporadic exceedances of the EQS/DWS and did not extend significantly into the underlying River Terrace Deposits aquifer. The results are typical of urban land and were detected at low concentrations that are not considered to represent a significant risk to drinking water resources (the Chalk aquifer) or environmental quality receptors (the wider aquifers and nearby surface waters). Sporadic and very low level exceedances of metals, PAHs and TPH were detected in the chalk predominantly of environmental quality standards, which are not considered to be significant in the context of the urban setting of the site.

Where potentially mobile free phase product has been identified in soils and groundwater this will require remediation to protect controlled waters.

7. BUILT ENVIRONMENT ASSESSMENT

7.1 Context

This assessment details the results of three rounds of gas monitoring. The ground gas assessment included in this report is therefore provided as an initial assessment for indicative purposes only and is not intended for use as a detailed ground gas risk assessment, which should also consider the specific design of any proposed redevelopment.

7.2 Ground Gas Results

In total thirteen wells were monitored for ground gas parameters methane, carbon dioxide, widespread VOCs using a PID and flow rates (MiniRAE PID, GA5000 and MultiRAE GFM430 Gas Analyser). The ground gas results for these three gas monitoring rounds are presented in Appendix 7 and a summary is provided below:

Methane

Methane was only detected above the instrument detection limit of the gas analyser (0.1% by volume (v/v)) in the first round in WS402 at 0.2% v/v. No methane was detected in subsequent rounds. Previously RPS did not detect methane on-site in two monitoring rounds completed in 2008.

Carbon Dioxide

Carbon dioxide was detected above the instrument detection limit (0.1% v/v) in eight of the thirteen monitoring wells, locations with no carbon dioxide were WS401, WS403, WS405, WS406 and WS407. The maximum concentration of 3.5% v/v was recorded in WS408. The highest concentrations in each round were WS408 at 3.5% v/v in Round 1, WS413 at 3.4% v/v in Round 2 and WS413 at 2.5% v/v in Round 3 both of which are located on the eastern boundary of the site. Previously RPS did detect a maximum carbon dioxide concentration of 1.6% v/v on-site in two monitoring rounds completed in 2008.

Oxygen

Oxygen concentrations were recorded between 7.3% v/v WS402 in Round 2 and 20.2% v/v WS403. Four locations recorded concentrations below 18% v/v (the lower limit to prevent asphyxiation as stated in WMP27) and were generally aligned with slightly increased concentrations of carbon dioxide. Only one location showed significantly reduced oxygen concentrations in WS402 where concentrations were noted at 8.4%v/v in Round 1 and 7.3%v/v in Round 2 but no samples could be obtained during Round 3.

Hydrogen Sulphide

Hydrogen sulphide readings from round 3 were noted to be 1ppm across all the locations, no samples could be obtained from WS402.

Carbon Monoxide

Carbon Monoxide readings from Round 3 were noted to be above the instrument detection limit in two locations at 2ppm (WS401 and WS413), no samples could be obtained from WS402.

PID

In the monitoring wells, a maximum PID reading was recorded at 2.2 ppm within WS407. PID readings above the instrument limit of detection (<0.1ppm) were monitored within three of the monitoring wells ranging from 0.1ppm to 2.2ppm (WS409, WS410 and WS407).

Flow Rates

No flow rates were recorded above 0.0 litres/hour across all the locations. The weather conditions were recorded during each event and atmospheric pressure conditions were as follows:

- Round 1: atmospheric pressure rose from 974mb 48 hours before the monitoring event to 1008mb on the day of monitoring.
- Round 2: atmospheric pressure rose from 1029mb 48hours before the monitoring event to 1035mb on the day of monitoring.
- Round 3: atmospheric pressure fell from 1023mb 48hours before the monitoring event to 1004mb on the day of monitoring.
- The RPS monitoring in 2008 did not detect positive flow rates on-site and was undertaken at atmospheric pressures of 1022mb and 992mb.

7.2.1 Site Gas Screening Value (SGSV)

The assessment of ground gas risk in the UK is based on comparing a site-specific gas screening value to threshold values that determine the level of risk and protection measures that may be required. There are two main methods for the assessment of ground gas risk discussed in C665:

- Situation A – relevant to all development types including industrial / commercial and high rise residential; and
- Situation B - relevant to low rise housing with a sub floor void only (the NHBC Traffic light system).

These methods are used in assessing future developments as an indication of potential ground gas risks. It is understood that the site will be redeveloped into a high rise residential building and therefore Situation A is applicable for the site.

Situation A - Wilson and Card Approach

The Wilson and Card Approach uses gas concentrations and borehole flow rates to define a characteristic situation for the site, by calculating a Gas Screening Value (GSV). The GSV is calculated using the worst-case scenario (i.e. the maximum gas concentration and flow rates detected) across the entire site during the monitoring period. The GSV is calculated using the highest concentration of methane or carbon dioxide, whichever is highest, and the 'Characteristic Situation' is derived by comparison with a table relevant to each method. It is important to note that GSVs are not absolute thresholds but guideline values.

Based on the methane detected (0.2%v/v) and carbon dioxide maximum detection of 3.5%v/v a maximum GSV was calculated for the site as 0.0035 l/hr (based on an assumed flow rate of 0.1 l/hr (considered conservative as no flow was detected on site).

Based on the above guidance, as the GSV is well below 0.07, the Modified Wilson and Card classification places the site in Characteristic Situation 1 (CS1), 'Very Low Risk' where no special gas protection measures are required. This accords with the relatively inert nature of the Made Ground detected on-site and two rounds of previous monitoring completed by RPS in 2008. The previous hydrocarbon leak has largely been remediated and there is no evidence of methane production from hydrocarbon degradation on-site.

Based on the above no specific requirements for ground gas protection are recommended for the proposed development. Nevertheless, as noted in Section 5 there will be a need to remediate free phase product on-site.

This assessment makes a number of assumptions and the development architect / structural engineer should ensure that the assumptions are appropriate for the site based on the specific future building design. The Gas Screening Values are not designed to consider below ground

structures, such as basements and services, and the risk from the recorded ground gases should be managed in the design process if such structures were to be included.

7.3 Water Supply Pipes

Buried water supply pipes can be at risk from permeation and accelerated deterioration from certain contaminants including petroleum hydrocarbons. A detailed assessment of existing and future pipe materials is outside of the scope of this investigation; however, the building designer should liaise with the local water supply company and are directed to the following document for guidance:

- Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites; UK Water Industry Research (UK WIR), 2010 (Ref. 10/WM/03/21).

7.4 Building Materials

There are a number of contaminants that may attack some building materials under certain conditions if present. The focus of this investigation is to assess risks to human health and environmental receptors and no assessment has been made of impact to building materials.

8. POST SITE INVESTIGATION RISK ASSESSMENT

The site investigation results have been considered in line with the CSM developed in the PRA. The results are discussed for each pollutant linkage below. The overall conclusion of the report is presented in Section 9.

Table 6.2: Potential Pollutant Linkages			Pollutant Linkage	Site Investigation Results	Pollutant Linkage Active
Humans	On-site	Dermal contact, inhalation and ingestion of contaminated soils by residents in landscaped areas.	PL1	Three samples recorded the presence of beryllium above the Ramboll GAC and PAH compounds exceed the Ramboll GAC in five locations. However, in most of these the exceedances were marginal and the locations were positioned in areas where buildings or concrete hardstanding would be present. Given that residential uses are absent from the ground floor the risk of contaminant exposure to metals or PAH compounds would be via dust inhalation from areas of exposed soil. In this context areas external to buildings and hardstanding i.e. landscaped areas should be installed with a cover layer to 'break' the direct exposure pathway to such contamination.	Yes – in landscaped areas.
	On-site	Contaminant volatilisation into indoor and outdoor airspaces.	PL2	The majority of volatile contaminants detected do not exceed the Ramboll GAC. Whilst the ground floor uses of the proposed development are of relatively limited sensitivity it is recommended that residual free phase product is remediated.	Yes – remediation in areas where free phase product is present.
	Off-site	Lateral migration and volatilisation of contaminants from groundwater to off-site commercial receptors.	PL3	No evidence of lateral migration of contaminants was detected at the site. TPH in groundwater was only detected in WS407 and all other locations were below the LMDL. No other significant exceedances of volatile contaminants was identified.	No.
Water Environment	On-site	Migration of soil contaminants to groundwater via leaching.	PL4	There is some evidence of trace contamination from PAHs and metals in the alluvial groundwater where this comes into contact with the Made Ground. However, this is typical of urban land and the underlying River Terrace Deposits show very little evidence of impact from the overlying soils. Where free phase product is locally present and potentially entrained in soils this will require remediation.	Yes – where free phase product remains entrained in the alluvial clay this continues to represent a risk to controlled waters.
	On-Site / Off-site	Lateral migration of contaminants in groundwater to the wider aquifers, off-site surface waters, potable water abstractions.	PL5	As noted for PL3 no significant evidence of lateral contaminant migration was recorded on-site.	No.

Table 6.2: Potential Pollutant Linkages			Pollutant Linkage	Site Investigation Results	Pollutant Linkage Active
Built Environment	On-site	Migration of ground gases into buildings and structures.	PL6	Overall five rounds of ground gas monitoring have been completed at the site and no requirement for special protection measures has been identified. This accords with the ground on-site being relatively inert.	No.
		Leaching of contaminants into water supply pipes.	PL7	Residual petroleum hydrocarbon contamination is present and the appropriate selection of water supply pipes will require further consideration.	Yes – this will require further consideration.
		Piled foundations creating preferential pathways for contaminant migration.	PL8	A qualitative assessment of the risks to inform piling works will be required as part of a Foundation Works Risk Assessment. Prior to this further remedial work will be required to remove residual free phase product from the site.	Yes – further remediation required where residual free phase product is present.

9. CONCLUSION

The site investigation has provided up to date data that broadly covers the entire site and has targeted both historic source areas (railway use and tanks), the recent showroom activities and the area associated with the historic pollution incident.

In relation to human health risks the majority of the ground and groundwater conditions do not represent a significant risk to human health. Potential direct contact risks exist in areas of soft landscaping that can be managed through the introduction of clean landscaping in the limited areas where landscaping is present. Where free phase product is locally present at location WS407 (alluvial groundwater as oily residue), WS410 (in soils) and in Sumps 1B and 1C (on River Terrace Deposit groundwater) this could represent a risk to a future residential use and should be remediated. Nevertheless, the majority of the site is not considered to represent a vapour risk to site users, other than where free phase product remains.

In terms of risks to controlled waters the residual free phase product represents an on-going risk to the shallow aquifers and will require remediation. This is however localised to discrete areas of the site and across the majority of the site the soil and groundwater conditions are not considered to represent a significant risk to controlled waters.

In total five rounds of ground gas monitoring have been completed over a range of atmospheric conditions and the results of the monitoring have recorded low concentration of ground gas on-site with no positive flow rates detected. On this basis the proposed development will not require specific ground gas protection measures.

Given the presence of petroleum hydrocarbons on-site the building designer should liaise with the local water company to agree the specification of potable water supply pipes.

There is no current evidence that the site represents a risk to the wider commercial uses, aquifers and surface waters.

In summary there is residual gross contamination in the form of free phase product locally entrained in the alluvial soils and floating on the River Terrace Deposits within the area of the historic pollution incident. This represents an on-going risk to controlled waters and potentially future residents. This will require remediation to allow the safe development of the site.

A remediation strategy should be prepared to document the areas that require clean-up, the methodology that will be used and how the work will be 'validated'. This will also need to include the measures to manage ground contamination risks based on a development led approach using buildings and hardstanding to break direct contact pathways and the introduction of 'clean' landscaped areas. As with any urban brownfield land it cannot be discounted that discrete local pockets of contamination may remain between exploratory boreholes and for this reason a 'watching brief' is recommended during earthworks on-site.

Prior to piling activities taking place a Foundation Works Risk Assessment will need to be undertaken to provide a qualitative assessment of the potential risks to the underlying aquifers and to set out any control measures that may be required.

APPENDIX 1 FIGURES

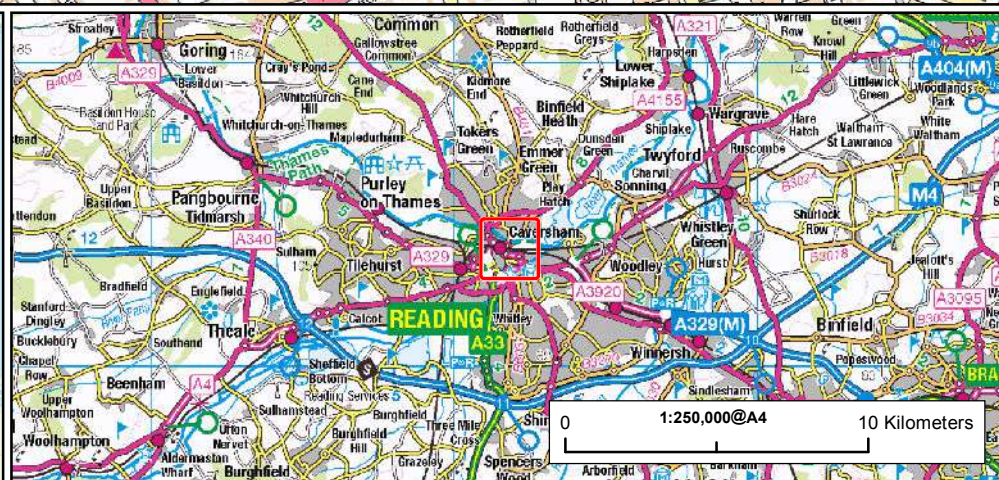
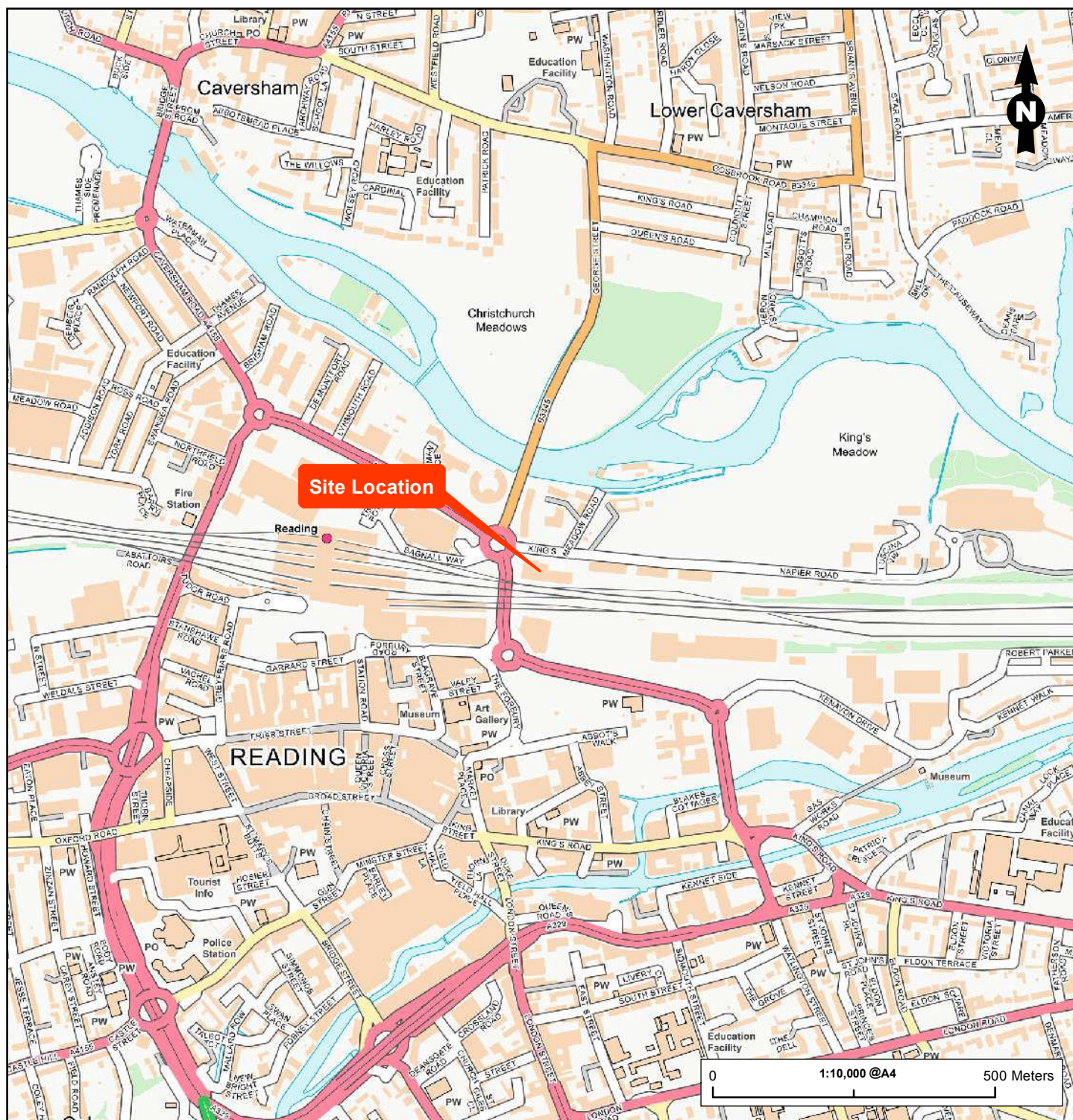


Figure Title Figure 1: Site Location	Project Name Thames Quarter, Kings Meadow Road, Reading	Date January 2018	
Project Number 1700001374	Client Watkin Jones & Son Limited	Scale As shown	
		Issue 1 Prepared By DM	



Key	
	Site Boundary
	2017 Ramboll Environ Window Sample
	2017 Ramboll Environ Borehole
	RPS Shell + Auger
	RPS window sample borehole with installation
	Ramboll Environ window sample borehole with installation
	Ramboll Environ rotary borehole
	Ramboll Environ rotary borehole sump for product removal
	Ramboll Environ gravel targeted sump installed during Source Removal remediation works
Mid-Term Works	
	Ramboll Environ gravel targeted sump installed during Mid Term remediation works
	Tier Consultants window sample borehole
	Tier Consultants cable percussive borehole

Title Figure 2: Phase II Borehole Location Plan	
Project No. 1700001374	
Site Thames Quarter, Kings Meadow Road, Reading	
Client Watkin Jones & Son Limited	
Date February 2018	
Scale 1:400 @ A3	
Issue 1	Drawn by BVK

APPENDIX 2 EXPLORATORY LOGS

BOREHOLE SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.61m AOD

ID: BH401

Co-ordinates: 471814E, 173862N

Site: King's Meadow Reading

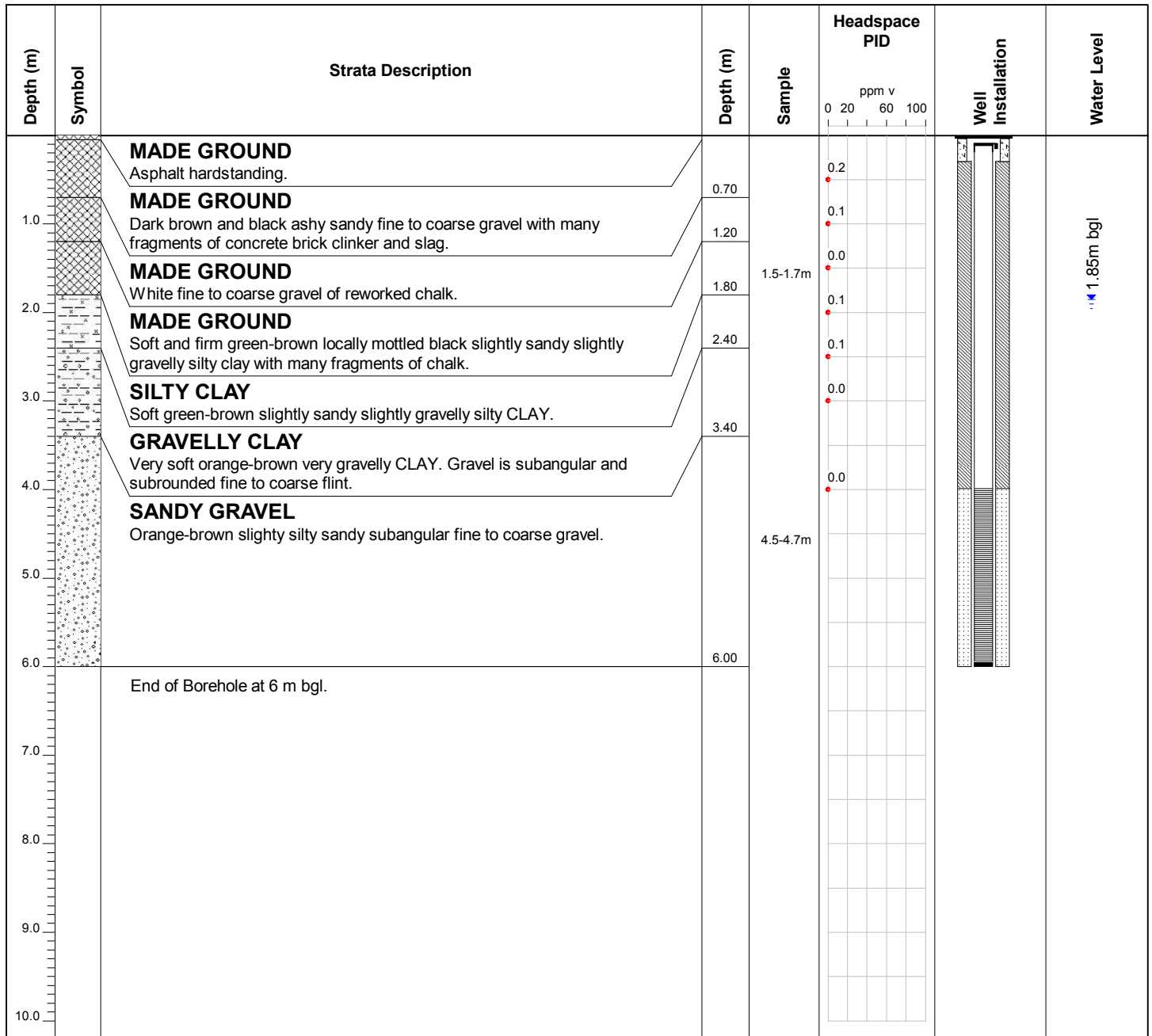
Date: 06/12/2017

Client: Watkin Jones & Son

Equipment: Hollow Stem Rotary Auger Rig

Logged By: RH

Diameter: 150mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes

Temporary casing details: Cased to base of borehole at 6.0m bgl

Groundwater details: Resting groundwater level of 1.85m bgl on 12/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:



Concrete



Bentonite seal



Arisings



Filter pack



Slotted pipe



Plain pipe

Checked by:

Sheet 1 of 1

BOREHOLE SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.57m AOD

ID: BH402

Co-ordinates: 471821E, 173877N

Site: King's Meadow Reading

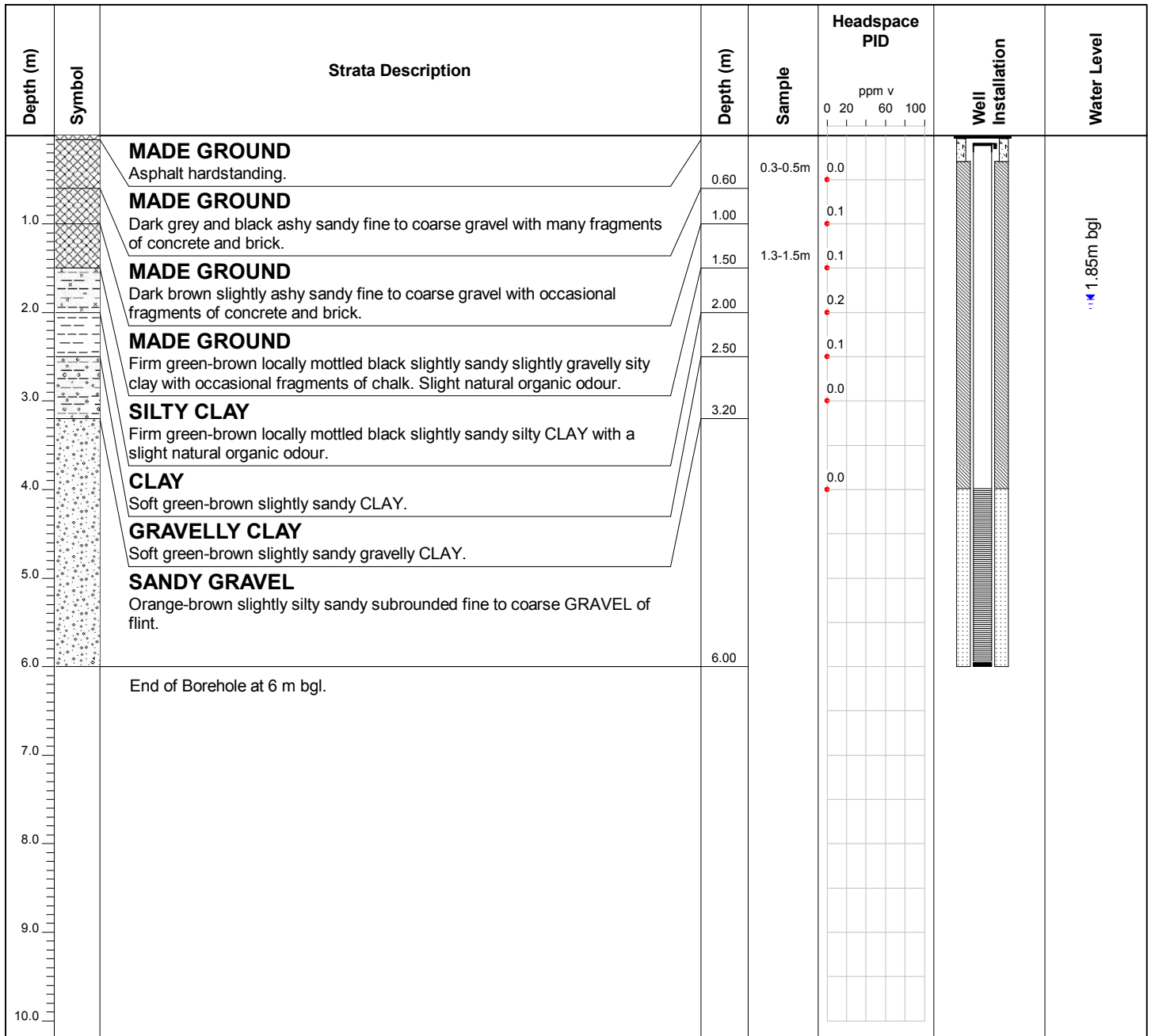
Date: 07/12/2017

Client: Watkin Jones & Son

Equipment: Hollow Stem Rotary Auger Rig

Logged By: RH

Diameter: 150mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes

Temporary casing details: Cased to base of borehole at 6.0m bgl

Groundwater details: Resting groundwater level of 1.85m bgl on 12/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:



Concrete



Bentonite seal



Arisings



Filter pack



Slotted pipe



Plain pipe

Checked by:

Sheet 1 of 1

BOREHOLE SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.73m AOD

ID: BH403

Co-ordinates: 471829E, 173846N

Site: King's Meadow Reading

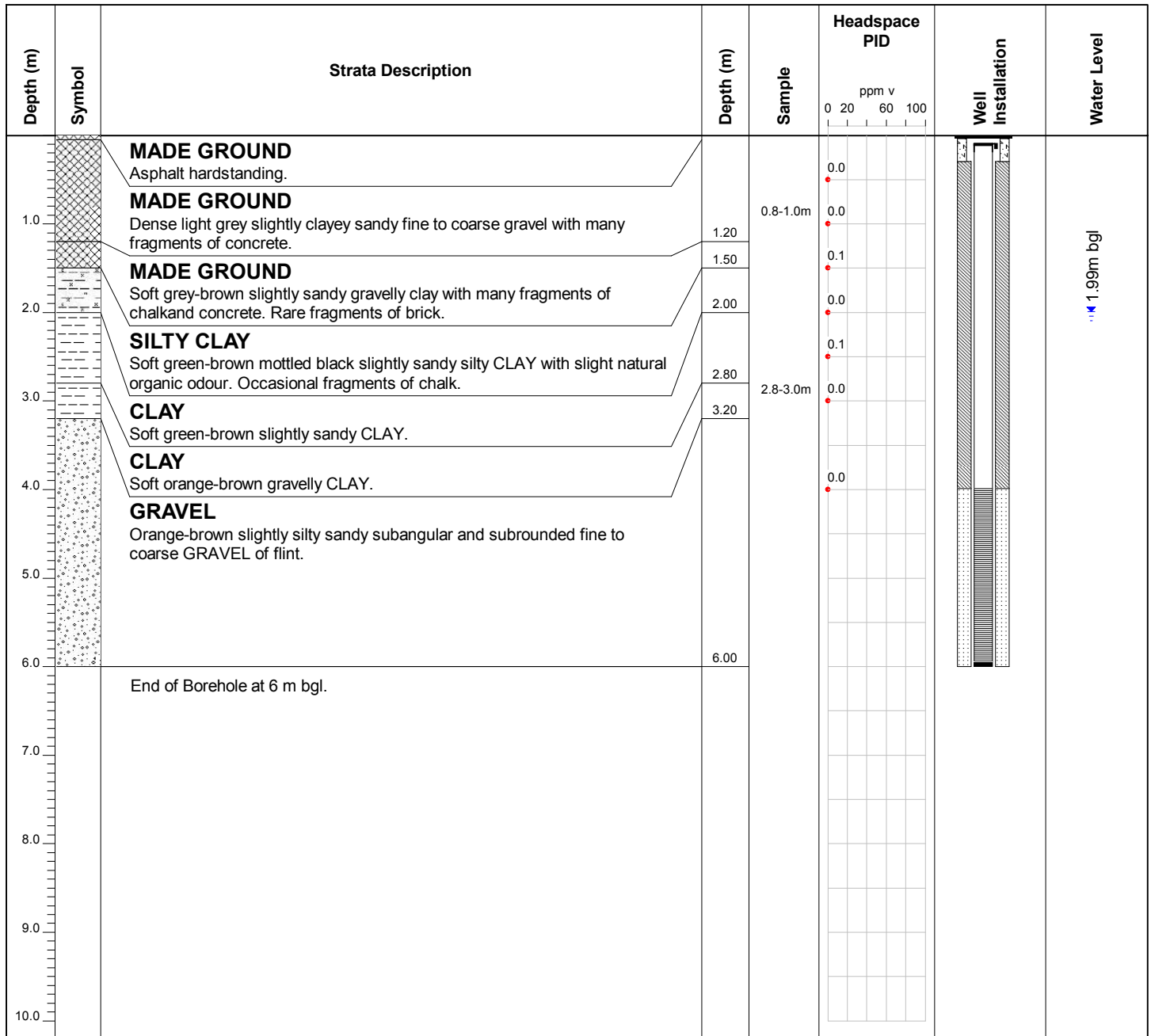
Date: 06/12/2017

Client: Watkin Jones & Son

Equipment: Hollow Stem Rotary Auger Rig

Logged By: RH

Diameter: 150mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes

Temporary casing details: Cased to base of borehole at 6.0m bgl

Groundwater details: Resting groundwater level of 1.99m bgl on 12/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:



Concrete



Bentonite seal



Arisings



Filter pack



Slotted pipe



Plain pipe

Checked by:

Sheet 1 of 1

BOREHOLE SAMPLE LOG

Project Number: 1700001374

Ground Elevation: TBC

ID: BH404

Co-ordinates: 471871E, 173864N

Site: King's Meadow Reading

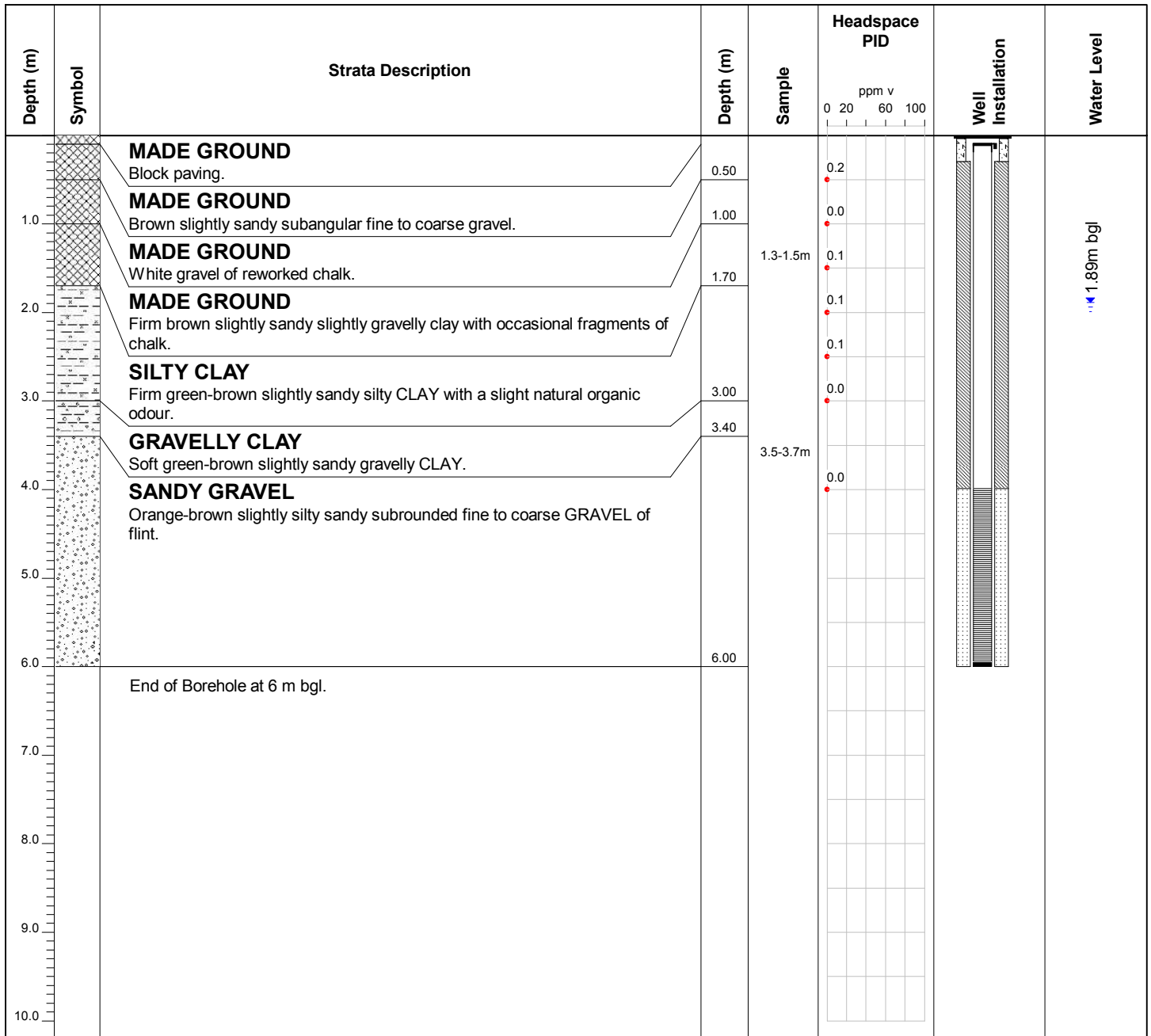
Date: 07/12/2017

Client: Watkin Jones & Son

Equipment: Hollow Stem Rotary Auger Rig

Logged By: RH

Diameter: 150mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes

Temporary casing details: Cased to base of borehole at 6.0m bgl

Groundwater details: Resting groundwater level of 1.89m bgl on 12/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:



Concrete



Bentonite seal



Arisings



Filter pack



Slotted pipe



Plain pipe

Checked by:

Sheet 1 of 1

BOREHOLE SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.93m AOD

ID: BH405

Co-ordinates: 471847E, 173853N

Site: King's Meadow Reading

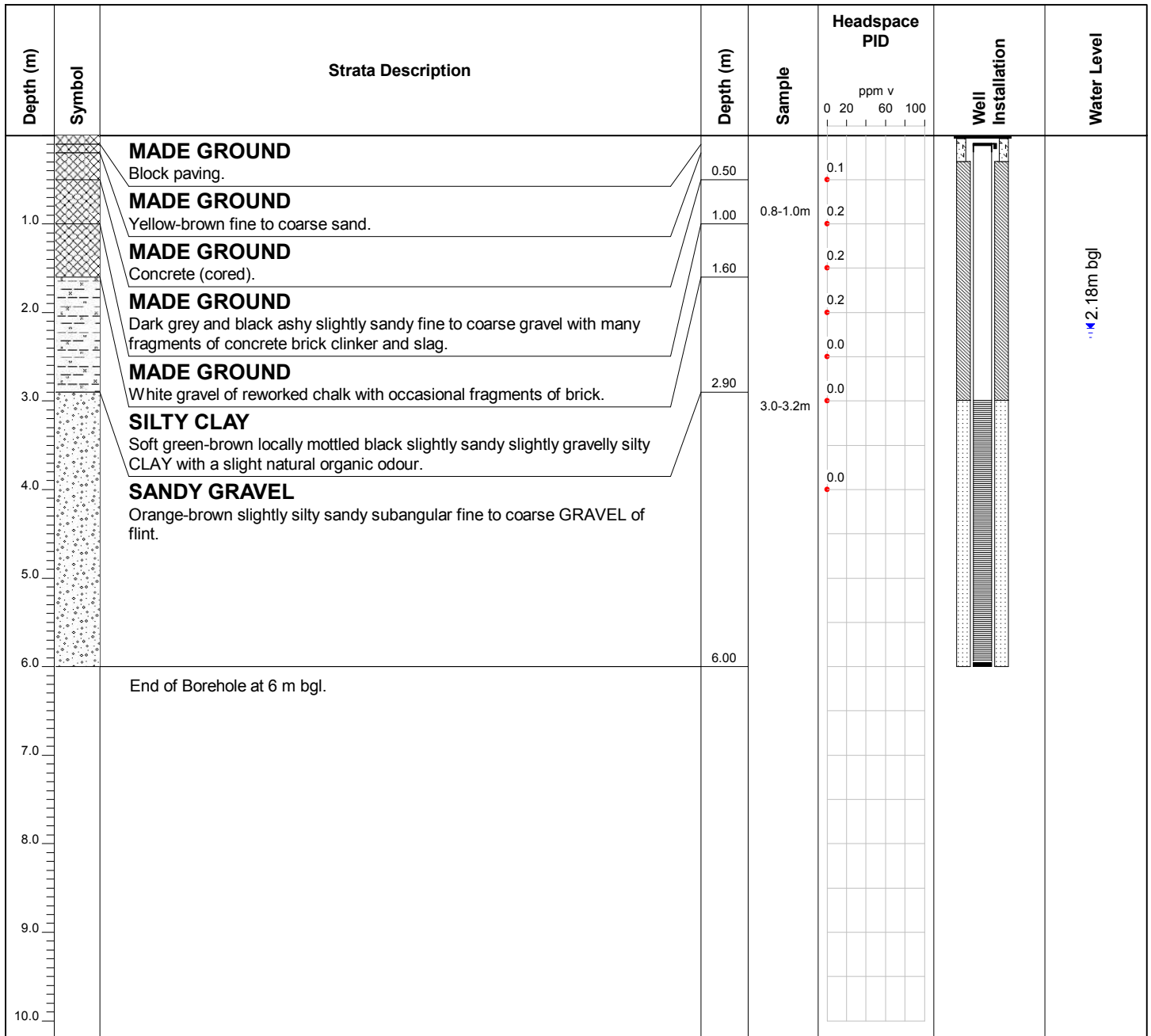
Date: 06/12/2017 to 07/12/2017

Client: Watkin Jones & Son

Equipment: Cable Percussion Rig

Logged By: RH

Diameter: 150mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes

Temporary casing details: Cased to base of borehole at 6.0m bgl

Groundwater details: Resting groundwater level of 2.18m bgl on 12/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:



Concrete



Bentonite seal



Arisings



Filter pack



Slotted pipe



Plain pipe

Checked by:

Sheet 1 of 1

BOREHOLE SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.95m AOD

ID: BH406

Co-ordinates: 471864E, 173851N

Site: King's Meadow Reading

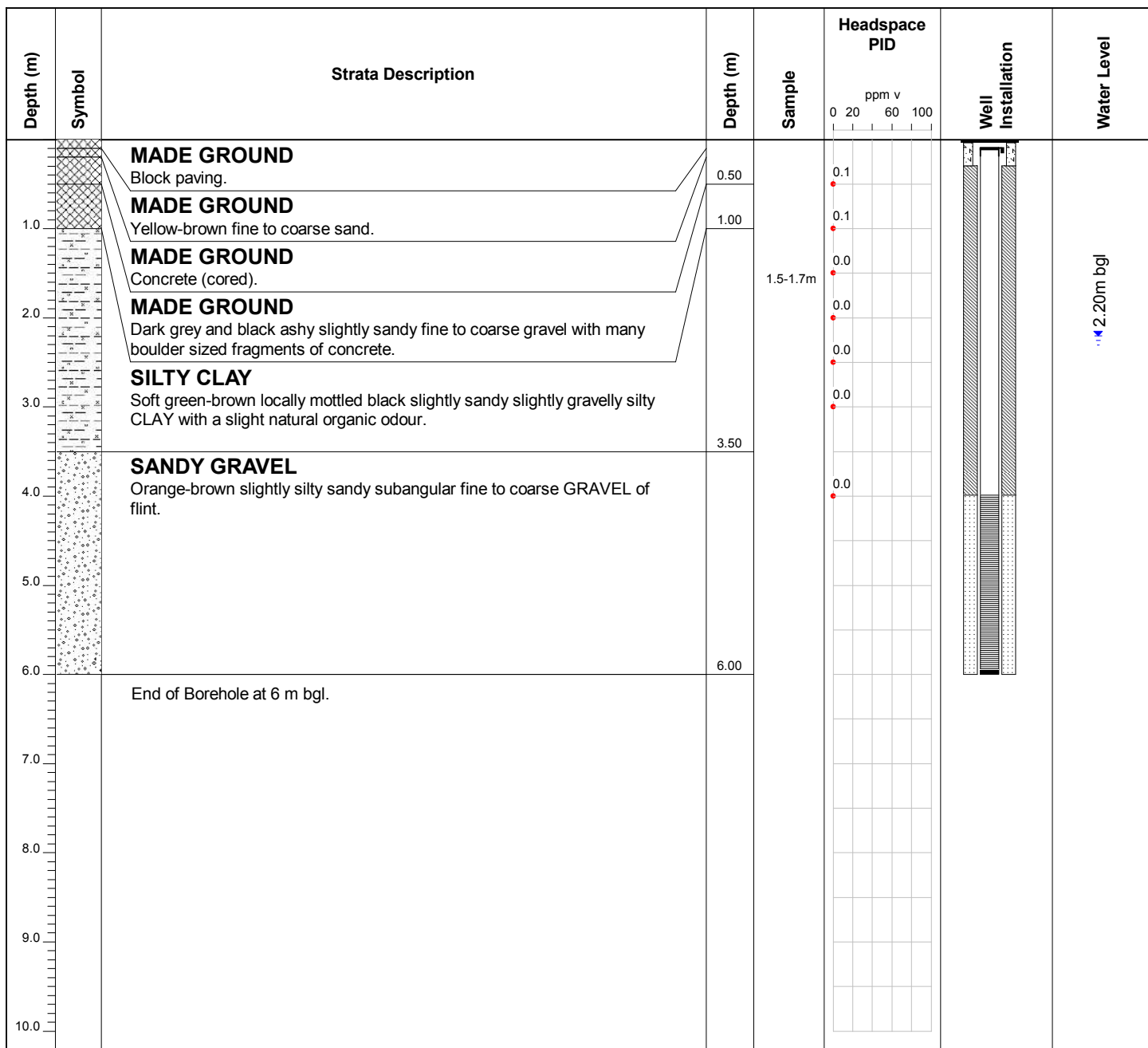
Date: 07/12/2017 to 08/12/2017

Client: Watkin Jones & Son

Equipment: Cable Percussion Rig

Logged By: RH

Diameter: 150mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes

Temporary casing details: Cased to base of borehole at 6.0m bgl

Groundwater details: Resting groundwater level of m bgl on 12/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:



Concrete



Bentonite seal



Arisings



Filter pack



Slotted pipe



Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.76m AOD

ID: WS401

Co-ordinates: 471797E, 173866N

Site: King's Meadow Reading

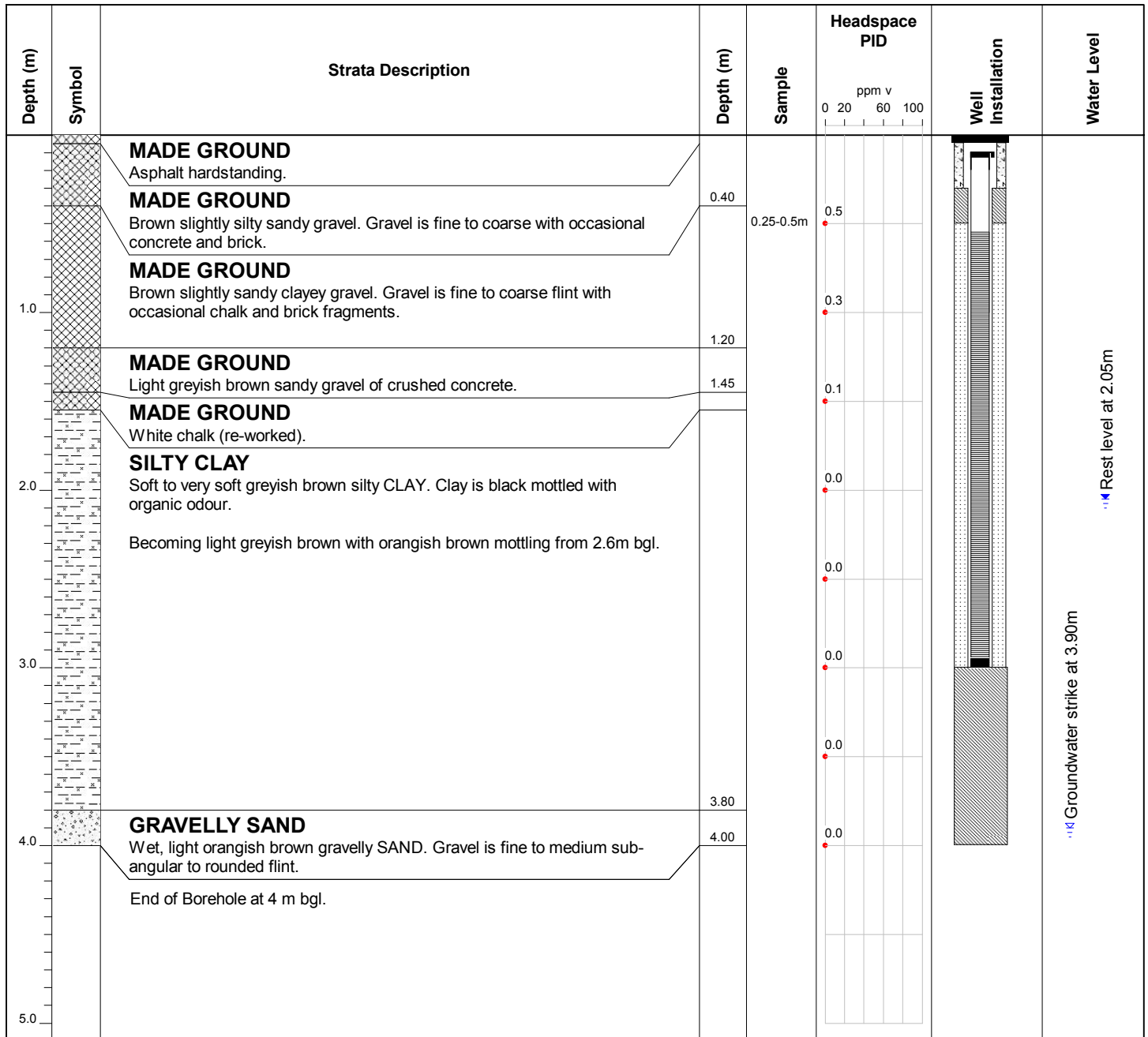
Date: 05/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater strike at 3.90m bgl during drilling. Rest level of 2.05m bgl on 20/12/17.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.62m AOD

ID: WS402

Co-ordinates: 471803E, 173871N

Site: King's Meadow Reading

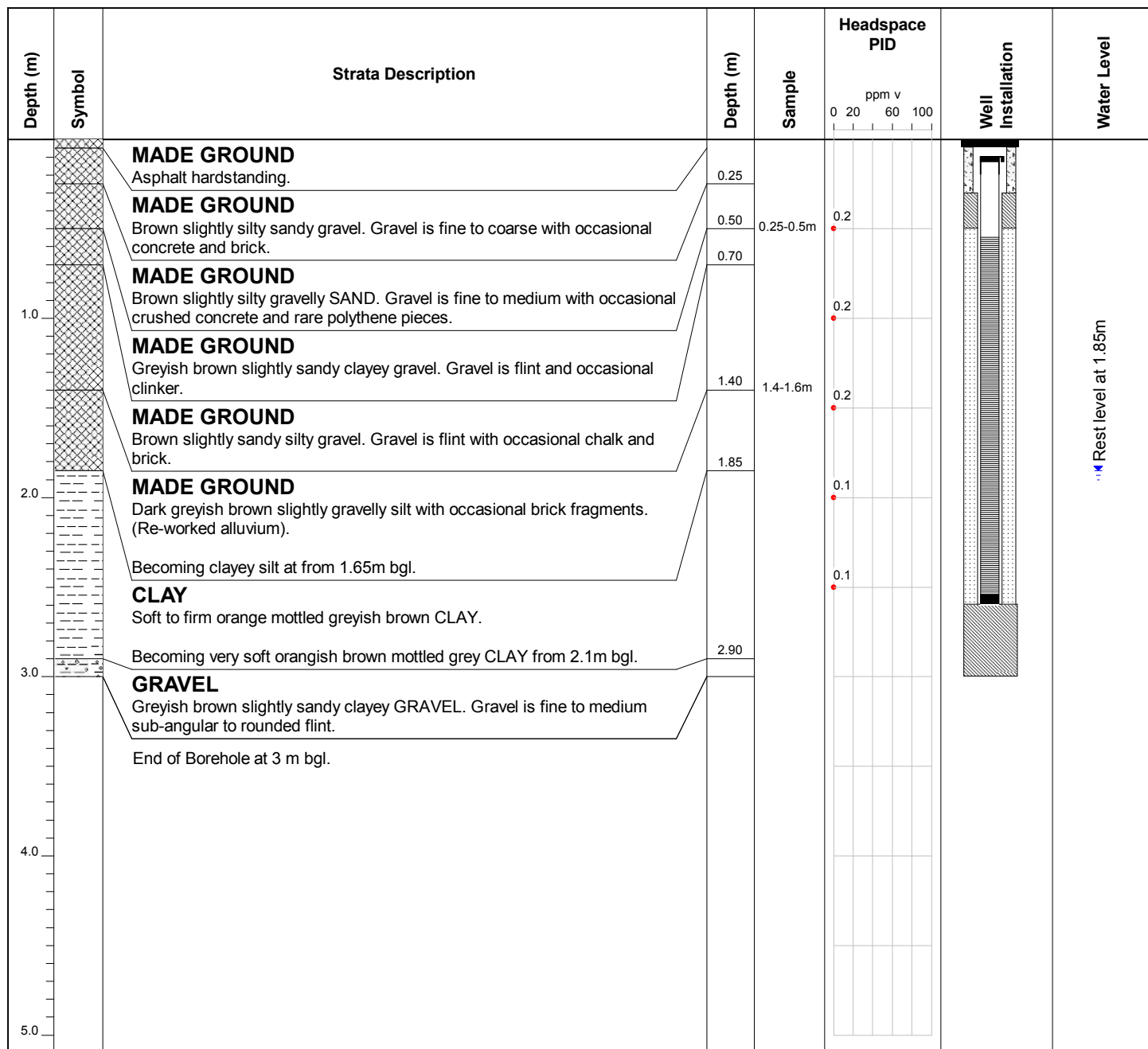
Date: 05/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Rest level of 1.85m bgl on 20/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.79m AOD

ID: WS403

Co-ordinates: 471808E, 173848N

Site: King's Meadow Reading

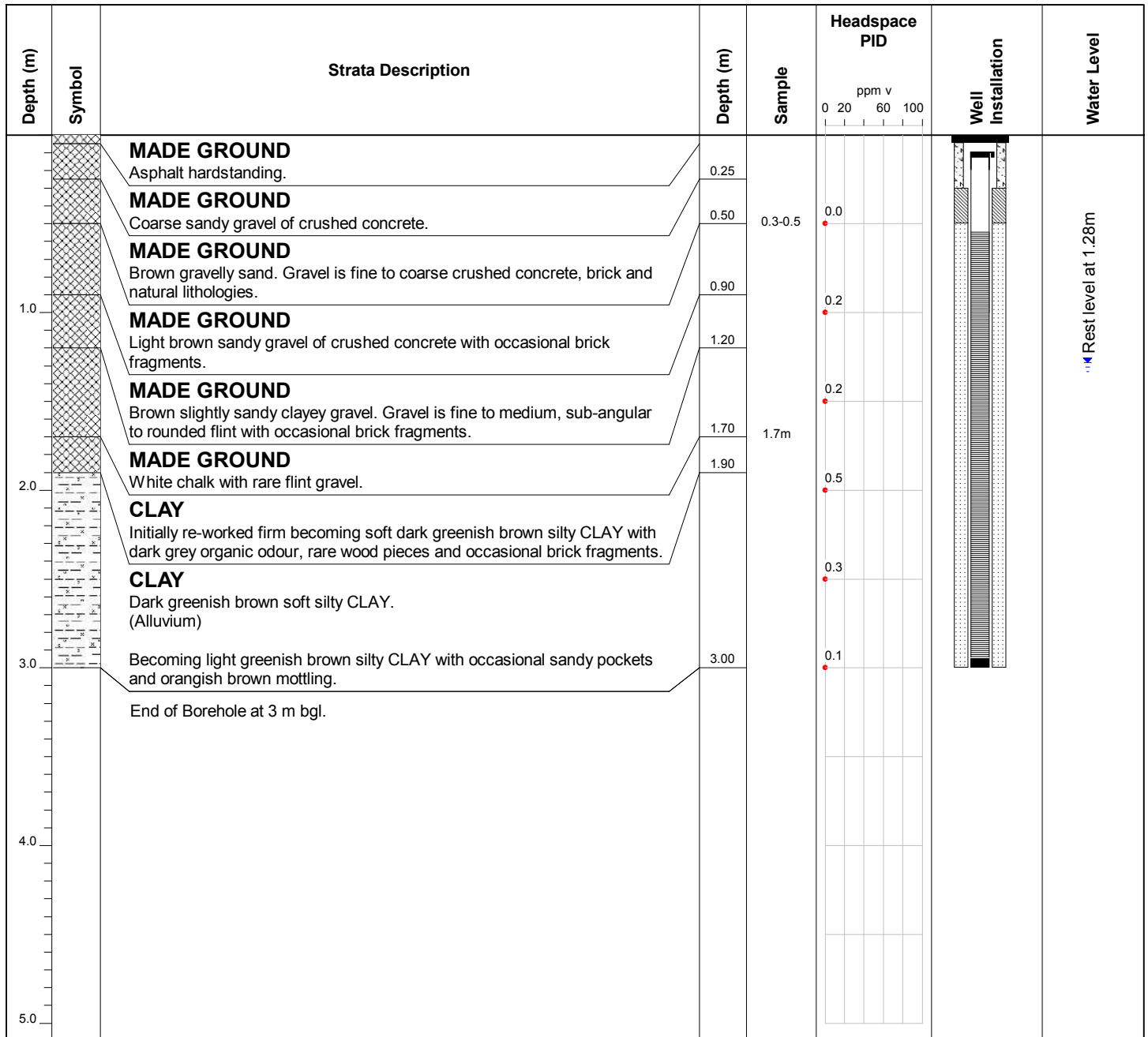
Date: 05/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater was not encountered during drilling. Rest level of 1.28m bgl on 20/12/2017.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.73m AOD

ID: WS404

Co-ordinates: 471818E, 173889N

Site: King's Meadow Reading

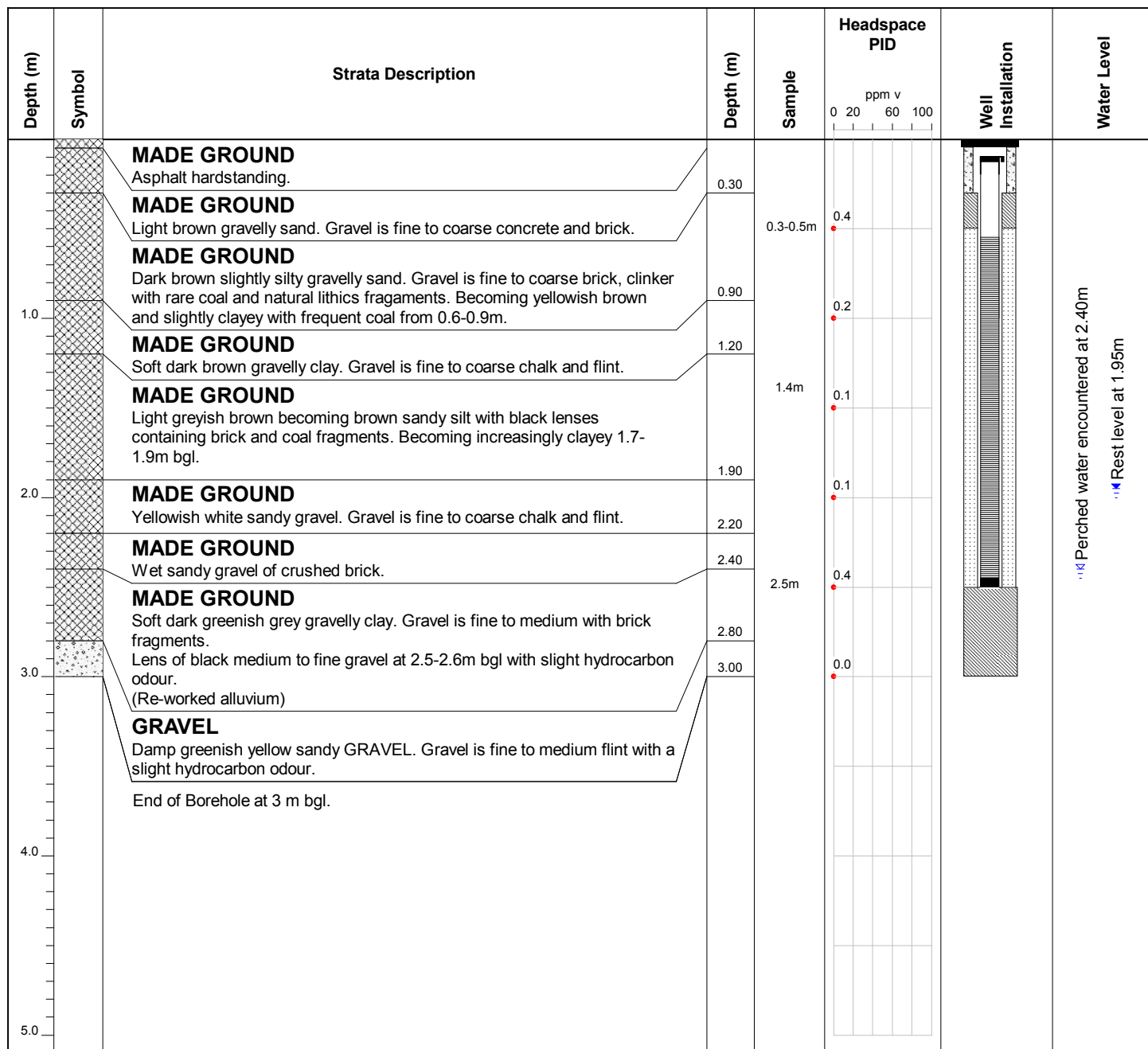
Date: 06/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater was encountered at 2.40m bgl during drilling. Rest level at 1.95m bgl on 20/12/2017.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.58m AOD

ID: WS405

Co-ordinates: 471827E, 173866N

Site: King's Meadow Reading

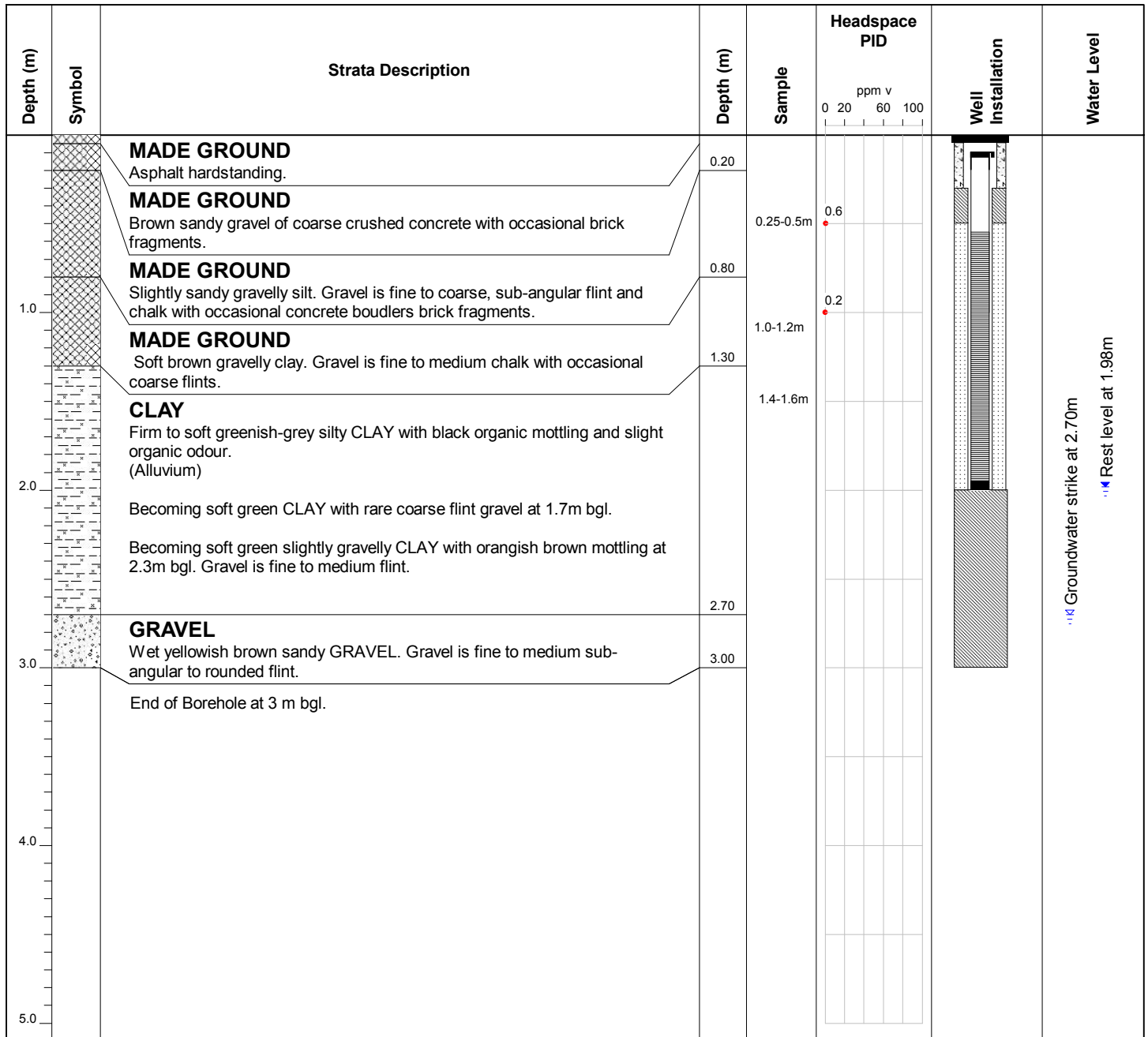
Date: 06/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater strike at 2.70m bgl during drilling. Rest level at 1.98m bgl on 20/12/2017.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete
 Bentonite seal
 Arisings
 Filter pack
 Slotted pipe
 Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.73m AOD

ID: WS406

Co-ordinates: 471826E, 173846N

Site: King's Meadow Reading

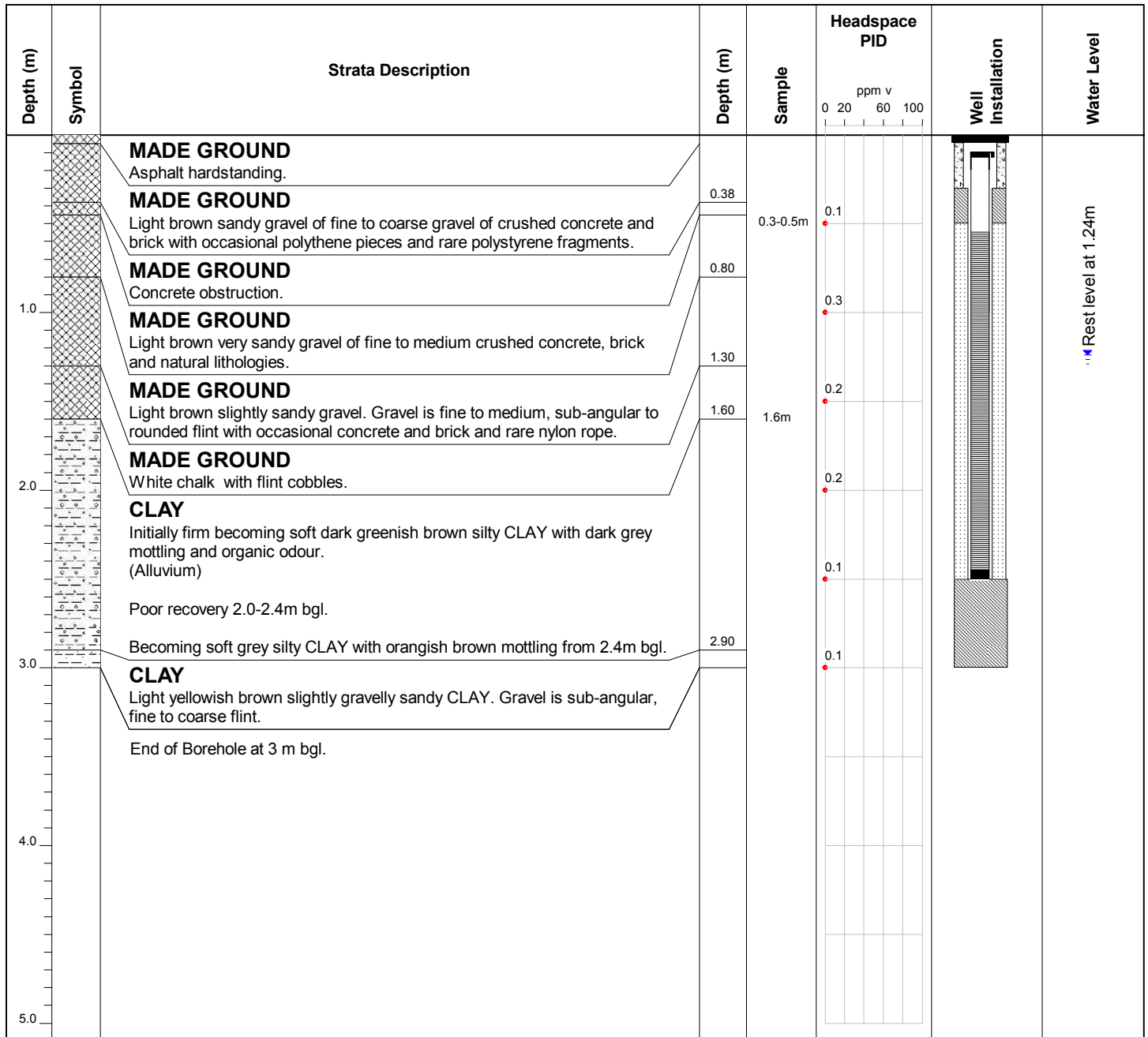
Date: 05/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater was not encountered during drilling. Rest level at 1.24m bgl on 20/12/2017.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.80m AOD

ID: WS407

Co-ordinates: 471835E, 173860N

Site: King's Meadow Reading

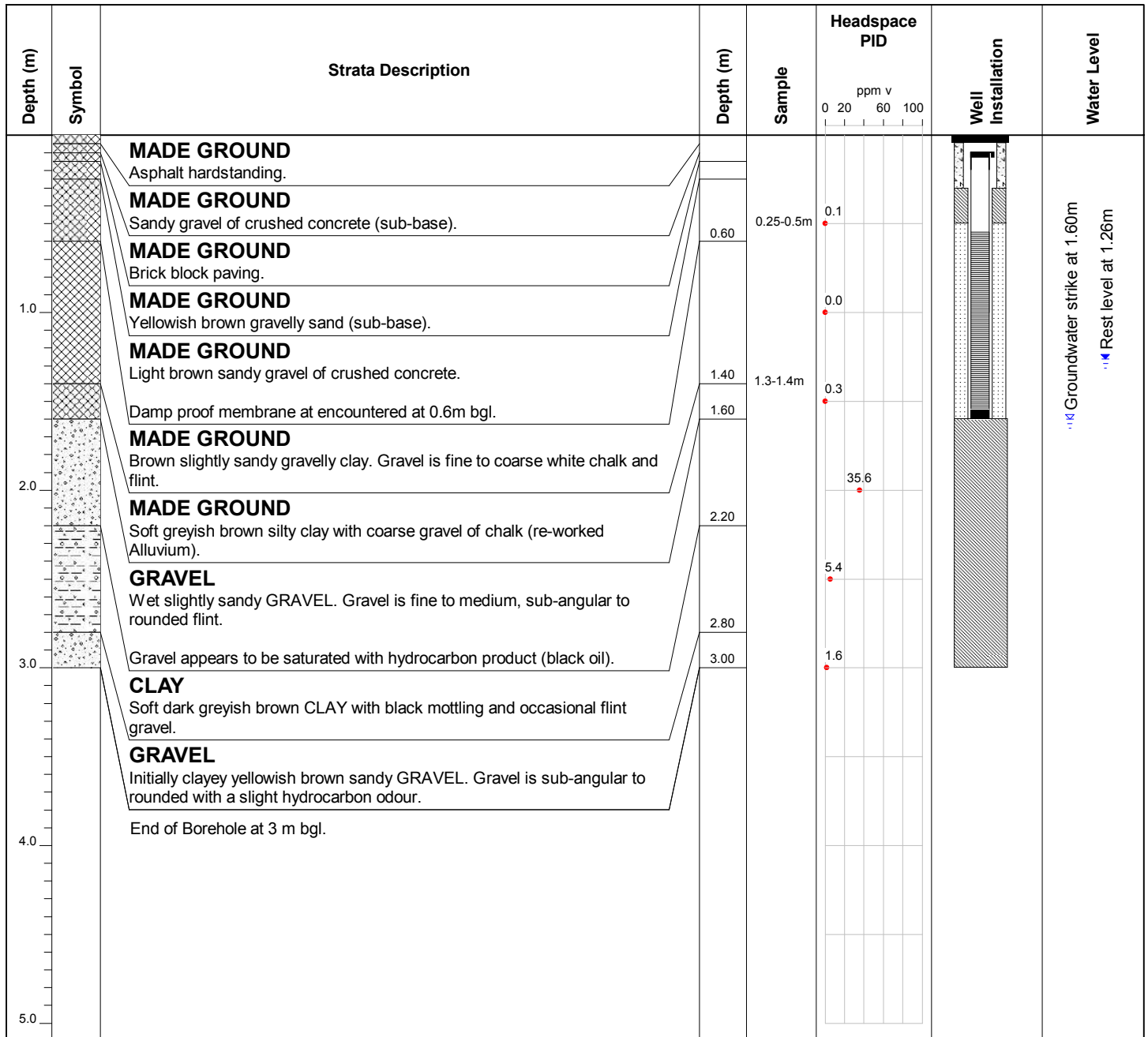
Date: 06/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater encountered at 1.60m bgl during drilling. Rest level at 1.26m bgl on 20/12/2017.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete Bentonite seal Arisings Filter pack Slotted pipe Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.94m AOD

ID: WS408

Co-ordinates: 471876E, 173855N

Site: King's Meadow Reading

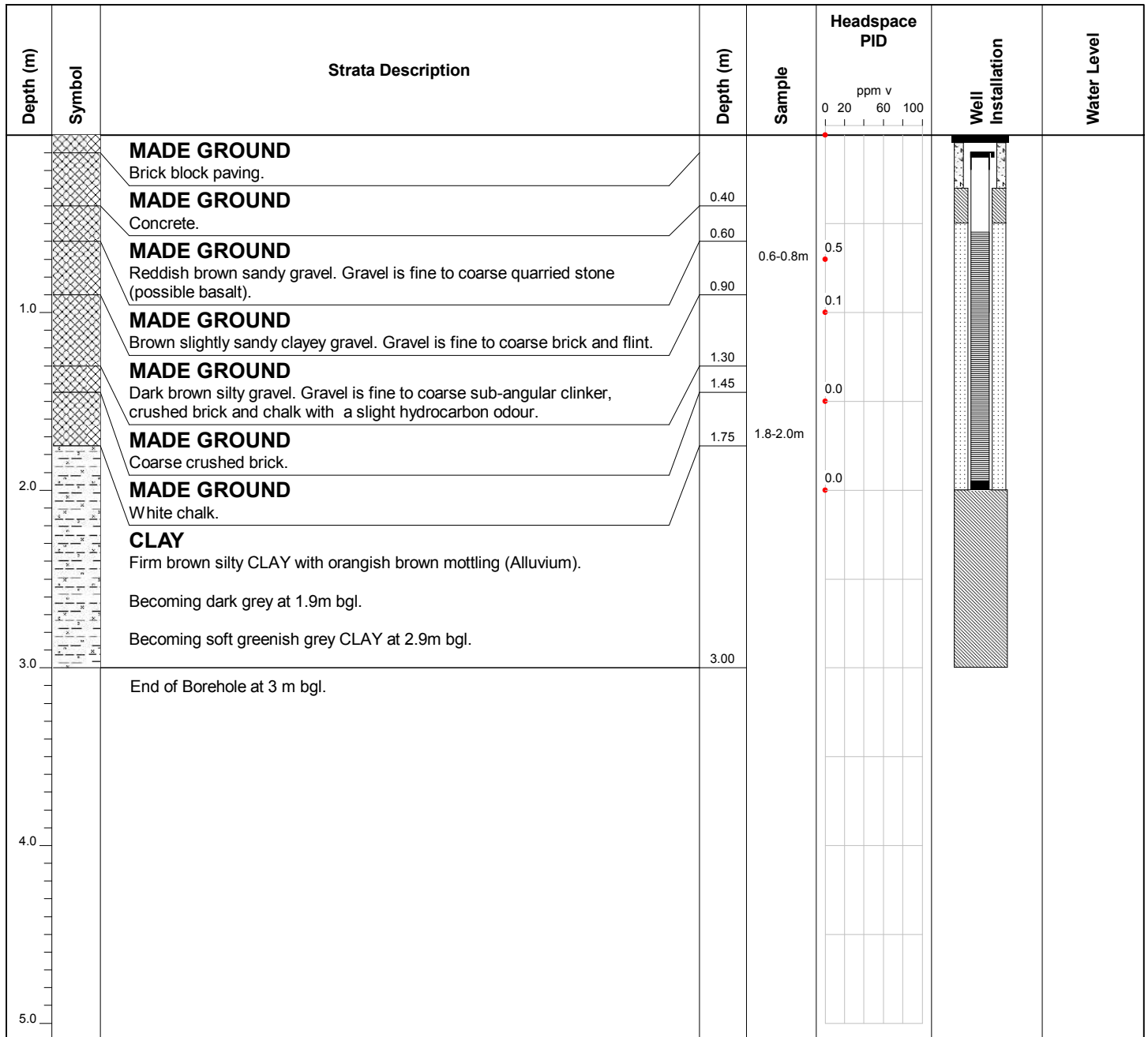
Date: 07/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater not encountered

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.64m AOD

ID: WS409

Co-ordinates: 471845E, 173869N

Site: King's Meadow Reading

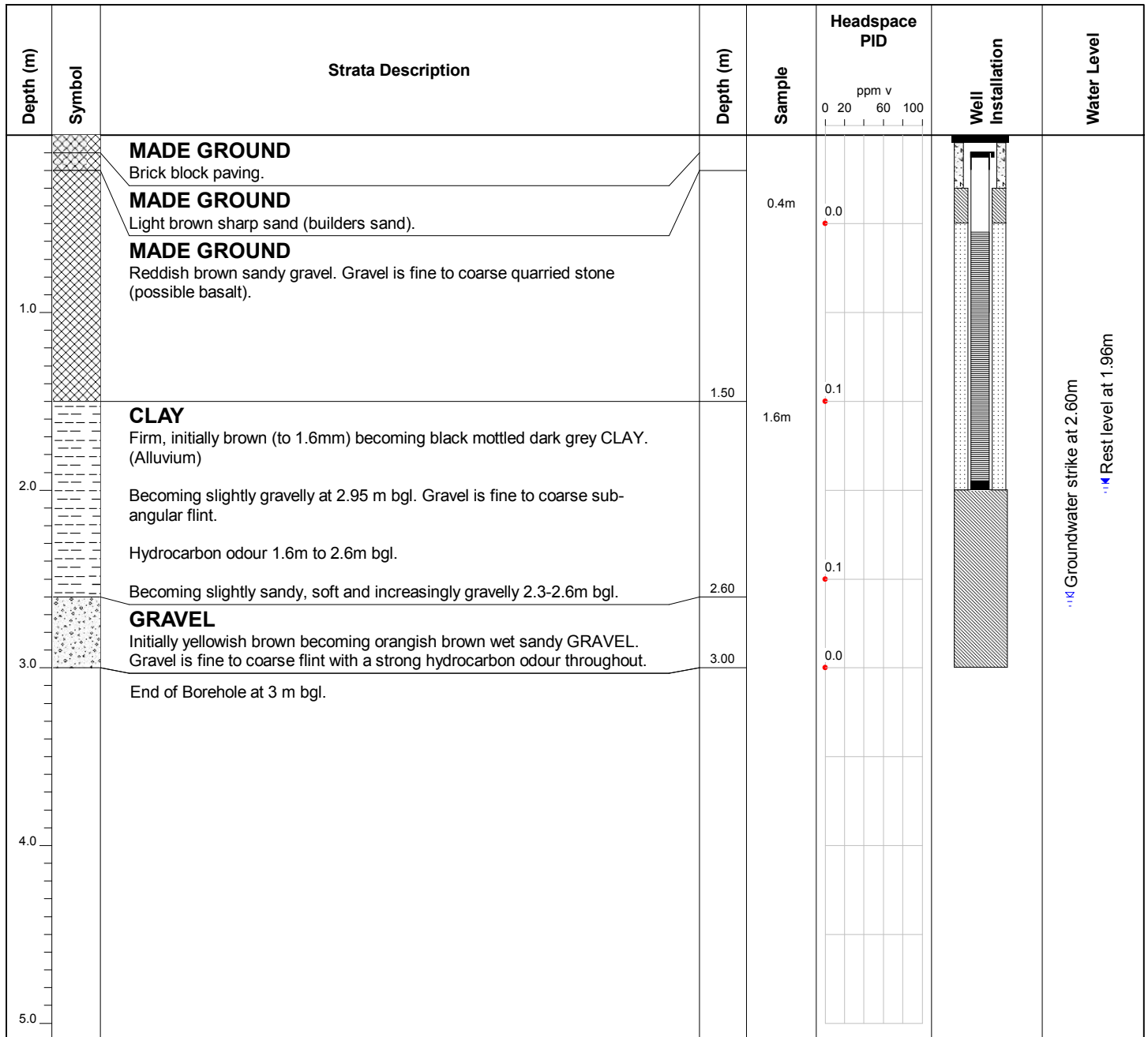
Date: 06/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: CC

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater strike at 2.60m bgl during drilling. Rest level of 1.96m bgl on 20/12/2017.

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.66m AOD

ID: WS410

Co-ordinates: 471845E, 173869N

Site: King's Meadow Reading

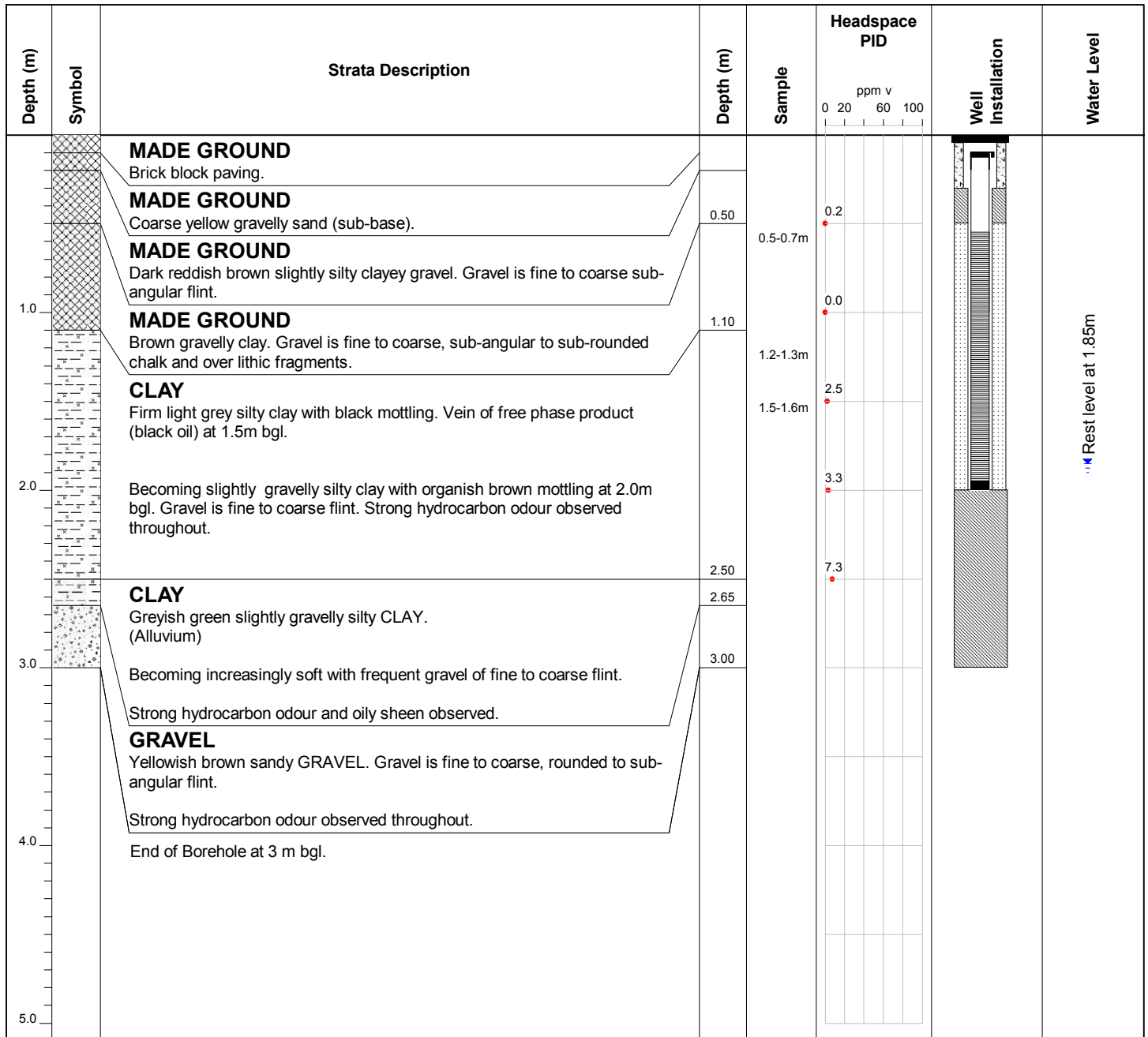
Date: 07/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: FR

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Rest level of 1.85m bgl on 20/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.95m AOD

ID: WS411

Co-ordinates: 471875E, 173851N

Site: King's Meadow Reading

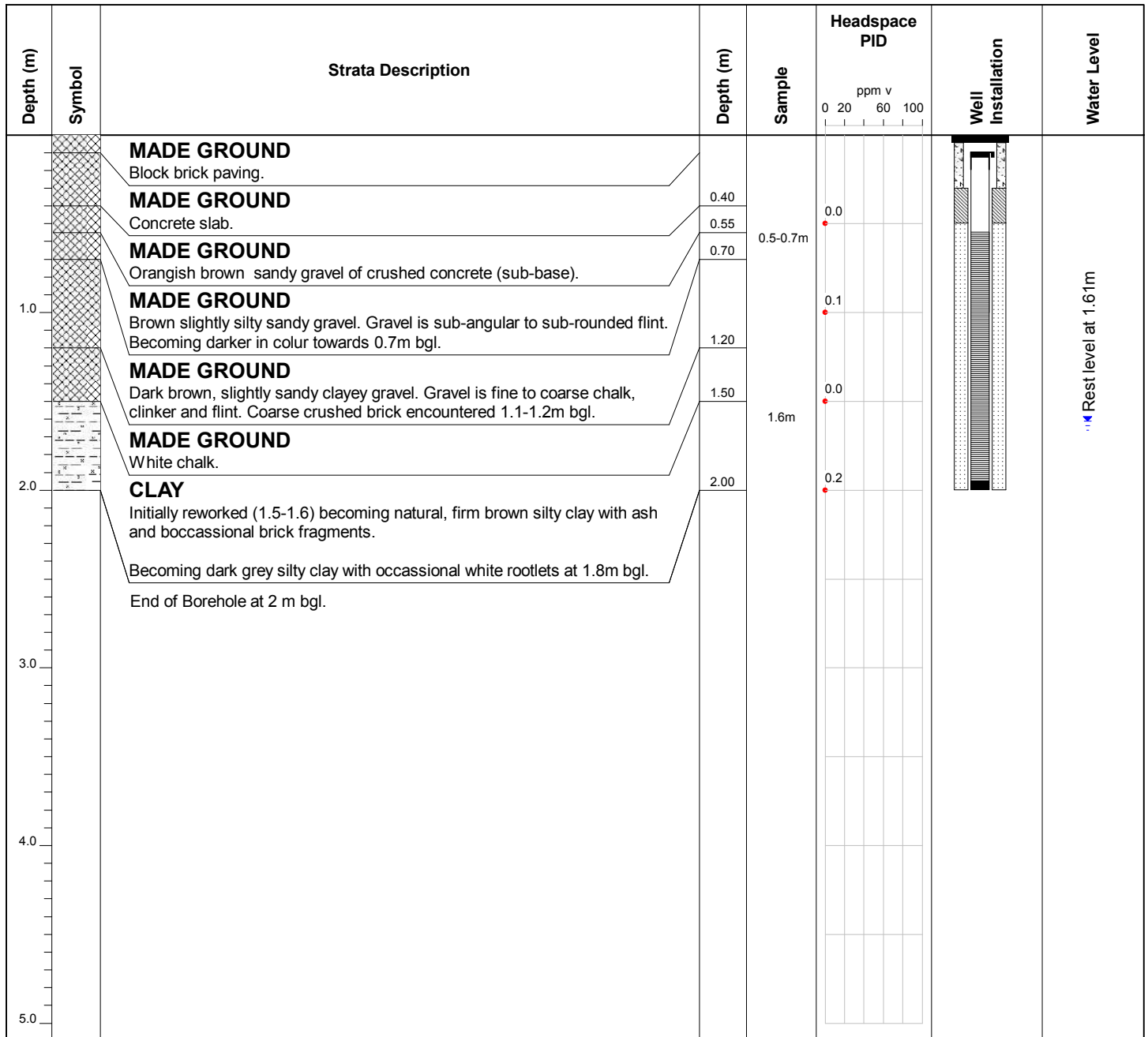
Date: 06/12/2017

Client: Watkins Jones & Sons

Equipment: Premier P110 Window Sample Rig

Logged By: FR

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Rest level of 1.61m bgl on 20/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: TBC

ID: WS412

Co-ordinates: TBC

Site: King's Meadow Reading

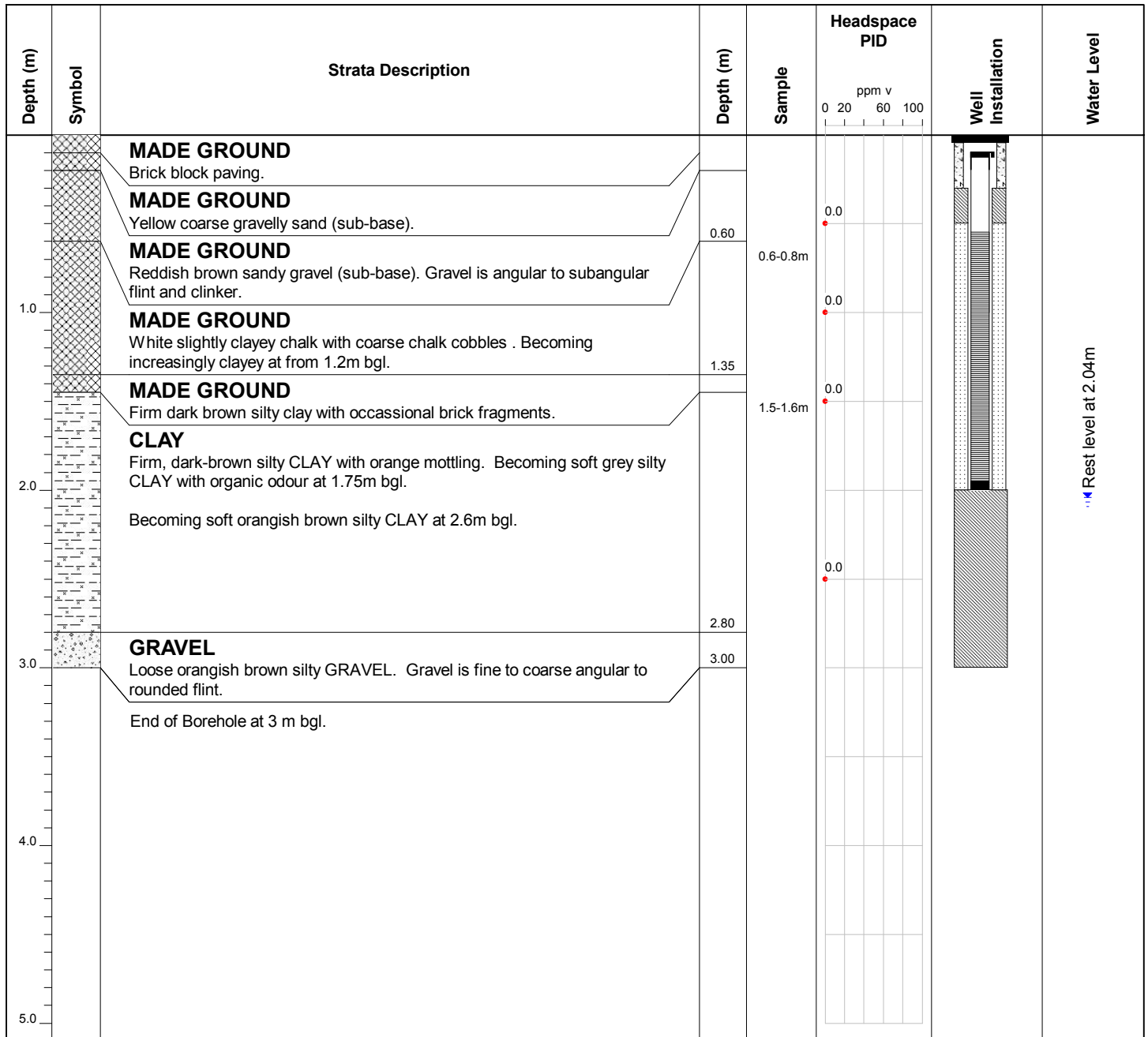
Date: 07/12/2017

Client: Watkin Jones & Son

Equipment: Premier P110 Window Sample Rig

Logged By: FR

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Resting level of 2.04m bgl on 20/12/2017

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

WINDOW SAMPLE LOG

Project Number: 1700001374

Ground Elevation: 37.75m AOD

ID: WS413

Co-ordinates: 471875E, 173873N

Site: King's Meadow Reading

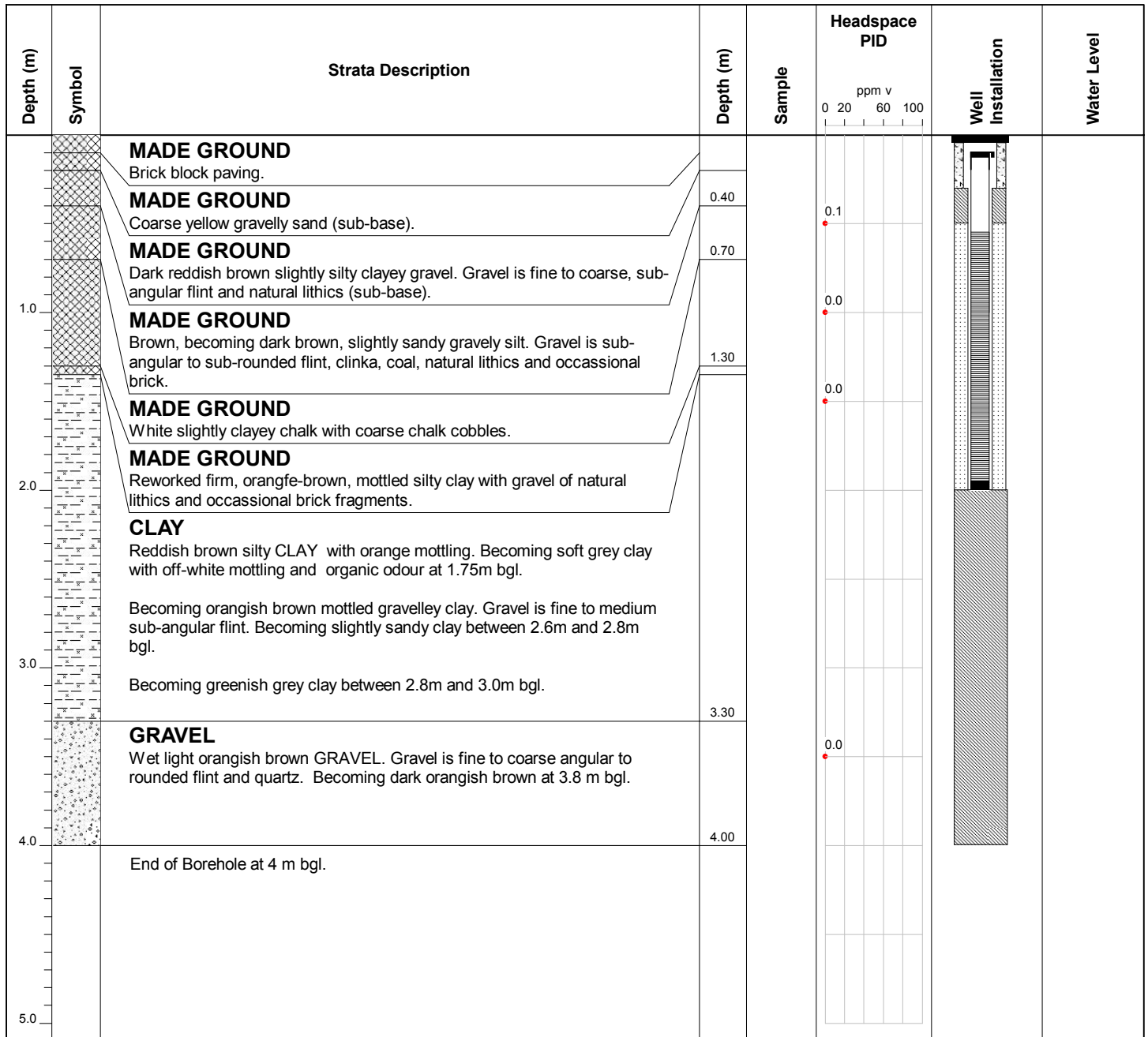
Date: 07/12/2017

Client: Watkins Jones & Sons

Equipment: Premier P110 Window Sample Rig

Logged By: FR

Diameter: 101mm



The information contained on this borehole log is for environmental purposes only and cannot be relied upon for geotechnical or any design purposes.

Temporary casing details:

Groundwater details: Groundwater not encountered

Monitoring well standpipe diameter: 50mm

Other comments:

Well installation key:

Concrete

Bentonite seal

Arisings

Filter pack

Slotted pipe

Plain pipe

Checked by:

Sheet 1 of 1

APPENDIX 3

RAMBOLL ENVIRON GAC

Legislative Background

Under Part 2A of the Environmental Protection Act 1990 Section 78A(2), "contaminated land" is defined as "land which appears... to be in such a condition, by reason of substances in, on or under the land, that –

- a) significant harm is being caused or there is a significant possibility of such harm being caused; or
- b) Significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused"³.

Revised statutory guidance ("the Guidance") for local authorities on how to implement the regime, including the decision-making process on whether land is contaminated land in the legal sense has been published by Defra and entered into force in April 2012. "Significant harm" is defined in the Guidance on risk based criteria and must be the result of one or more relevant 'contaminant linkages' relating to the land. The presence of a contaminant linkage relies on the Source-Pathway-Receptor concept, where all three factors must be present and potentially or actually linked for a potential risk to exist.

The Guidance introduced a new four-category system for classifying land under Part 2A, where Category 1 land poses an unacceptable risk to human health and Category 4 includes land where the level of risk posed is acceptably low. For six common contaminants (benzo(a)pyrene, cadmium, arsenic, benzene, hexavalent chromium and lead), a set of screening values have been developed and endorsed for use by Defra⁴ (the Category 4 Screening Levels, or C4SLs) that describe a level of risk just below the Category 3/4 boundary set in the Statutory Guidance, i.e. where concentrations are below the C4SL, there is no risk or the level of risk is acceptably low.

The pollution of controlled waters is defined in Section 78A(9) of the Act as "the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter". The new Guidance stresses that the Part 2A regime is designed to identify and deal with 'significant pollution' and not lesser levels of pollution.

The risk assessment presented in this report is based on the C4SLs for those contaminants where values are available and a set of generic criteria (the Ramboll GAC) for other contaminants, considered to be threshold-based screening concentrations at which a significant risk is not considered to be present to the relevant receptors.

³ Water Act 2003 (Commencement No. 11) Order 2012

⁴ SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, Defra, March 2014

Derivation of Generic Assessment Criteria

Soil Assessment

In accordance with current UK guidance on legislation including Part 2A of the Environmental Protection Act 1990 and based on the principles of risk assessment, Ramboll has derived generic criteria for interpretation of soil and groundwater chemical analysis (Ramboll Generic Assessment Criteria – Ramboll GAC). The assessment of chemical data from an intrusive investigation is undertaken in a tiered approach, and the first stage is a Generic Quantitative Risk Assessment (GQRA).

The Soil Guideline Values (SGVs) for 11 compounds published in 2009 by the Environment Agency, are based on a sandy loam soil with 6% soil organic matter (SOM). The 6% SOM and sandy loam soil type is not considered by Ramboll to be realistic of 'typical' UK soil conditions, and EA guidance states that at 6% SOM, SGVs may not be sufficiently protective (i.e. the values are too high to be sufficiently certain that they describe land where there is no risk to human health or the risk is negligible). For the Ramboll GAC, all the SGV inputs have been used apart from the SOM and soil type, which were amended to 1% and sand; thereby ensuring a suitably conservative Ramboll GAC appropriate for most soils and Made Ground encountered in the UK. It is noted that none of the screening criteria used in the UK, including the SGVs, have a statutory basis.

The Ramboll GAC for soil assessment are based on the generic scenarios outlined in the Contaminated Land Exposure Assessment (CLEA) methodology and guidance documents, and include inhalation, ingestion, dermal contact of soil and dust as pathways for commercial and residential scenarios; as well as ingestion of home-grown produce for residential with gardens scenario. These have been calculated by use of two proprietary risk assessment models (CLEA Version 1.06 and the ASTM RBCA⁵ Tool Kit Version 2.6 for Chemical Releases) which have been altered, where necessary, to reflect the current UK approach to human health risk assessment as set out in the Contaminated Land Report (CLR) 11 and the CLEA guidance documents (incorporating Science Reports SC050021/SR2 (January 2009), SR3 (January 2009), SR4 (September 2009) and the SGV reports (2009)). The physiochemical data has been taken from or derived using the methodology detailed in SR7 (November 2008) and SGV reports (2009), where feasible. The toxicology data has been taken from the current published EA toxicology documents. We have referred to all publications and guidance issued up until the 10 April 2012.

In the absence of published EA data, reference has been made to the following sources of information in order of priority:

- Chartered Institute of Environmental Health (CIEH) / Land Quality Management (LQM) (Version 2 dated 2009) GAC, including addendums up until 10 April 2012.
- Contaminated Land: Applications in Real Environments (CL:AIRE) and partners GAC, including addendums up until 10 April 2012.
- Other published sources of information, such as the RBCA V2.6 database.

This approach by Ramboll follows the withdrawal of CLR 7-10, CLEA UK (beta), CLEA V1.04 and CLEA V1.05 by the Environment Agency and DEFRA. The approach has been applied to all contaminants with the exception of lead, as the lead SGV has been withdrawn by the Environment Agency.

The Part 2A revised Statutory Guidance created the need for new technical tools and advice to be developed to help regulators and others to conform to the requirements of the Guidance. This led to a Defra-funded research project (SP1010), which developed a methodology to derive Category

⁵ American Society for testing Materials – Risk Based Corrective Action Model

4 Screening Levels (C4SLs) for six contaminants (benzo-a-pyrene, cadmium, arsenic, benzene, hexavalent chromium and lead). The C4SLs are less conservative than GAC as they describe a low risk as opposed to minimal risk scenario. However, consistent with the developed GAC, sites below the C4SLs are within Category 4 (lowest risk category) and therefore suitable for use.

Defra's Policy Companion document ⁶ to the SP1010 project states that where a C4SL value has been derived for a contaminant where an SGV exists, it is anticipated that risk assessors will use the C4SL value in line with Part 2A Statutory Guidance. In the absence of a suitable C4SL, risk assessors should identify and select appropriate generic assessment criteria in accordance with established good practice. On this basis, Ramboll has adopted the use of C4SLs for the six contaminants for which they are available and will apply our in-house GAC for other contaminants of concern within our screening assessments.

Water Assessment

In the absence of relevant published water assessment criteria, the potential risk to human health from contaminated surface and groundwater and the potential risk to the aquatic environment from entry of pollutants (either directly or via a groundwater pathway) has been assessed using commonly accepted UK guidelines including the Water Supply (Water Quality) (England) Regulations 2000 (known as the Drinking Water Standards, or DWS) and the Environmental Quality Standards (EQS) defined in European legislation such as the Water Framework Directive (WFD) (2000/60/EC).

Revised EQS were published in December 2009 under the Priority Substances Directive (PSD) (2008/105/EC), a daughter directive of the WFD. The PSD establishes EQS for Priority Substances which have been set at levels of concentration which are safe for the aquatic environment and for human health. A list of such dangerous substances (including those from other European legislation e.g. the Dangerous Substances Directive (76/464/EC)) and EQS has been established and is listed in the August 2010 Direction to the Environment Agency, the River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Direction 2010. The EQS are detailed in Part 4 (Specific Pollutants) and Part 5 (Priority Substances) of the Directions.

For those determinants included in the analytical suite which do not have a corresponding UK screening criteria derived from the above sources, reference is made to a hierarchy of international guidance in accordance with Environment Agency guidance.

⁶ SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, Defra, March 2014

APPENDIX 4

LABORATORY CERTIFICATES



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
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Deeside
CH5 2UA

Ramboll Environ UK Ltd
8 Village Way
Green Meadow Springs
Cardiff
CF15 7NE

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Jon Eudall
Date :	27th December, 2017
Your reference :	1700001374
Our reference :	Test Report 17/20363 Batch 1
Location :	Kings Meadow
Date samples received :	9th December, 2017
Status :	Final report
Issue :	1

Nineteen samples were received for analysis on 9th December, 2017 of which eleven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

**Paul Boden BSc
Project Manager**

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall
JE Job No.: 17/20363

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-3	4-7	8-11	18-21	25-27	31-33	37-39	44-47	51-54	55-57	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH402	BH402	BH404	WS408	WS411	WS410	WS410	WS413	WS409	WS409			
Depth	0.3-0.5	1.3-1.5	1.3-1.5	0.6-0.8	0.5-0.7	0.5-0.7	1.5-1.6	0.8-0.9	0.4	1.6			
COC No / misc													
Containers	V J	V J B	V J B	V J B	V J	V J	V J	V J B	V J T	V J			
Sample Date	06/12/2017 15:00	07/12/2017 08:45	07/12/2017 12:00	07/12/2017 09:30	07/12/2017 11:05	07/12/2017 12:15	07/12/2017 13:30	07/12/2017 14:30	06/12/2017 15:15	06/12/2017 15:30			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017			
Arsenic #	12.0	-	-	5.7	13.1	5.6	-	5.1	13.8	-	<0.5	mg/kg	TM30/PM15
Beryllium	0.7	-	-	2.4	<0.5	0.7	-	<0.5	<0.5	-	<0.5	mg/kg	TM30/PM15
Cadmium #	<0.1	-	-	0.2	0.4	0.3	-	0.1	0.7	-	<0.1	mg/kg	TM30/PM15
Chromium #	44.1	-	-	121.7	35.7	52.8	-	26.0	12.2	-	<0.5	mg/kg	TM30/PM15
Copper #	22	-	-	20	16	11	-	9	5	-	<1	mg/kg	TM30/PM15
Lead #	26	-	-	26	33	24	-	12	31	-	<5	mg/kg	TM30/PM15
Mercury #	0.3	-	-	<0.1	<0.1	<0.1	-	0.1	<0.1	-	<0.1	mg/kg	TM30/PM15
Nickel #	12.1	-	-	9.1	12.3	12.9	-	9.3	8.8	-	<0.7	mg/kg	TM30/PM15
Selenium #	<1	-	-	5	<1	<1	-	<1	<1	-	<1	mg/kg	TM30/PM15
Vanadium	21	-	-	231	22	23	-	15	10	-	<1	mg/kg	TM30/PM15
Water Soluble Boron #	1.7	-	-	0.6	0.7	0.4	-	0.3	0.3	-	<0.1	mg/kg	TM74/PM32
Zinc #	46	-	-	75	119	61	-	35	99	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	0.12	-	-	0.06	<0.04	<0.04	-	0.06	<0.04	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.04	-	-	0.30	0.04	0.05	-	0.04	<0.03	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	-	0.07	<0.05	0.07	-	<0.05	<0.05	-	<0.05	mg/kg	TM4/PM8
Fluorene #	0.10	-	-	0.06	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.60	-	-	0.79	0.27	0.54	-	0.43	0.07	-	<0.03	mg/kg	TM4/PM8
Anthracene #	0.23	-	-	0.55	0.11	0.19	-	0.14	<0.04	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	0.76	-	-	2.77	0.64	1.36	-	0.74	0.17	-	<0.03	mg/kg	TM4/PM8
Pyrene #	0.62	-	-	2.52	0.50	1.20	-	0.65	0.15	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.45	-	-	1.69	0.36	0.77	-	0.47	0.12	-	<0.06	mg/kg	TM4/PM8
Chrysene #	0.42	-	-	1.64	0.34	0.70	-	0.41	0.09	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.76	-	-	4.49	0.78	1.93	-	0.77	0.17	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.33	-	-	2.66	0.37	1.11	-	0.42	0.09	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.24	-	-	2.28	0.36	1.00	-	0.35	0.08	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.06	-	-	0.26	0.05	0.12	-	<0.04	<0.04	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.23	-	-	2.07	0.34	0.98	-	0.36	0.07	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	5.0	-	-	22.2	4.2	10.0	-	4.8	1.0	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.55	-	-	3.23	0.56	1.39	-	0.55	0.12	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.21	-	-	1.26	0.22	0.54	-	0.22	0.05	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	106	-	-	109	102	101	-	112	111	-	<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2	<2	<2	-	<2	-	<2	-	-	-	<2	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	-	<3	-	<3	-	-	-	<3	ug/kg	TM15/PM10
Toluene #	3	<3	<3	-	<3	-	<3	-	-	-	<3	ug/kg	TM15/PM10
Ethylbenzene #	3	<3	<3	-	<3	-	<3	-	-	-	<3	ug/kg	TM15/PM10
p/m-Xylene #	9	<5	<5	-	<5	-	<5	-	-	-	<5	ug/kg	TM15/PM10
o-Xylene #	3	<3	<3	-	<3	-	<3	-	-	-	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	64	97	100	-	101	-	101	-	-	-	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	59	105	112	-	118	-	111	-	-	-	<0	%	TM15/PM10

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall
JE Job No.: 17/20363

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-3	4-7	8-11	18-21	25-27	31-33	37-39	44-47	51-54	55-57	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH402	BH402	BH404	WS408	WS411	WS410	WS410	WS413	WS409	WS409			
Depth	0.3-0.5	1.3-1.5	1.3-1.5	0.6-0.8	0.5-0.7	0.5-0.7	1.5-1.6	0.8-0.9	0.4	1.6			
COC No / misc													
Containers	V J	V J B	V J B	V J B	V J	V J	V J	V J B	V J T	V J			
Sample Date	06/12/2017 15:00	07/12/2017 08:45	07/12/2017 12:00	07/12/2017 09:30	07/12/2017 11:05	07/12/2017 12:15	07/12/2017 13:30	07/12/2017 14:30	06/12/2017 15:15	06/12/2017 15:30			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	63	<7	<7	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	22	<7	<7	<7	<7	<7	1566	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	22	<19	<19	<19	<19	<19	1629	<19	<19	<19	<19	mg/kg	TM5/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1 ^{SV}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	9	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM16
>EC16-EC21 #	32	<7	<7	<7	<7	<7	12	<7	<7	<7	<7	mg/kg	TM5/PM16
>EC21-EC35 #	117	<7	<7	<7	<7	35	126	<7	<7	<7	<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	158	<19	<19	<19	<19	35	138	<19	<19	<19	<19	mg/kg	TM5/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	180	<38	<38	<38	<38	<38	1767	<38	<38	<38	<38	mg/kg	TM5/PM16/PM12/PM10
MTBE #	-	-	-	<5	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	-	-	-	<5	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	-	-	-	<5	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	-	<5	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	-	<5	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	-	-	-	<5	-	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	-	-	<0.15	<0.15	<0.15	-	<0.15	<0.15	-	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	9.7	30.8	34.3	9.2	14.6	9.7	50.0	17.7	5.1	58.5	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	-	<0.3	<0.3	<0.3	-	<0.3	<0.3	-	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0987	-	-	0.1792	0.0154	0.0425	-	0.0122	0.0200	-	<0.0015	g/l	TM38/PM20
Chromium III	44.1	-	-	121.7	35.7	52.8	-	26.0	12.2	-	<0.5	mg/kg	NONE/NONE
Total Cyanide #	<0.5	-	-	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.5	mg/kg	TM89/PM45
pH #	8.62	-	-	10.34	11.64	9.59	-	8.88	9.10	-	<0.01	pH units	TM73/PM11

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall
JE Job No.: 17/20363

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	58-61										Please see attached notes for all abbreviations and acronyms		
Sample ID	WS412												
Depth	0.6-0.8												
COC No / misc													
Containers	V J B												
Sample Date	08/12/2017 09:00												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	09/12/2017										LOD/LOR	Units	Method No.
Arsenic #	3.2										<0.5	mg/kg	TM30/PM15
Beryllium	<0.5										<0.5	mg/kg	TM30/PM15
Cadmium #	0.3										<0.1	mg/kg	TM30/PM15
Chromium #	13.8										<0.5	mg/kg	TM30/PM15
Copper #	6										<1	mg/kg	TM30/PM15
Lead #	10										<5	mg/kg	TM30/PM15
Mercury #	<0.1										<0.1	mg/kg	TM30/PM15
Nickel #	4.3										<0.7	mg/kg	TM30/PM15
Selenium #	<1										<1	mg/kg	TM30/PM15
Vanadium	9										<1	mg/kg	TM30/PM15
Water Soluble Boron #	0.2										<0.1	mg/kg	TM74/PM32
Zinc #	28										<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	1.31										<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.06										<0.03	mg/kg	TM4/PM8
Acenaphthene #	1.85										<0.05	mg/kg	TM4/PM8
Fluorene #	1.28										<0.04	mg/kg	TM4/PM8
Phenanthrene #	11.66										<0.03	mg/kg	TM4/PM8
Anthracene #	3.15										<0.04	mg/kg	TM4/PM8
Fluoranthene #	13.13										<0.03	mg/kg	TM4/PM8
Pyrene #	11.23										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	10.86										<0.06	mg/kg	TM4/PM8
Chrysene #	4.97										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	7.82										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	4.87										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	3.21										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	0.40										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	3.00										<0.04	mg/kg	TM4/PM8
PAH 16 Total	78.8										<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	5.63										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	2.19										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	109										<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Toluene #	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	<3										<3	ug/kg	TM15/PM10
p/m-Xylene #	<5										<5	ug/kg	TM15/PM10
o-Xylene #	<3										<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	100										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	116										<0	%	TM15/PM10

Client Name: Ramboll Environ UK Ltd
 Reference: 1700001374
 Location: Kings Meadow
 Contact: Jon Eudall
 JE Job No.: 17/20363

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	58-61										Please see attached notes for all abbreviations and acronyms		
Sample ID	WS412												
Depth	0.6-0.8												
COC No / misc													
Containers	V J B												
Sample Date	08/12/2017 09:00												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	09/12/2017										LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1										<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1										<0.1	mg/kg	TM36/PM12
>C8-C10	0.1										<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2										<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4										<4	mg/kg	TM5/PM16
>C16-C21 #	<7										<7	mg/kg	TM5/PM16
>C21-C35 #	<7										<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19										<19	mg/kg	TM5/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1										<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1										<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1										<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	3.1										<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	22										<4	mg/kg	TM5/PM16
>EC16-EC21 #	129										<7	mg/kg	TM5/PM16
>EC21-EC35 #	282										<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	436										<19	mg/kg	TM5/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	436										<38	mg/kg	TM5/PM16/PM12/PM10
MTBE #	-										<5	ug/kg	TM31/PM12
Benzene #	-										<5	ug/kg	TM31/PM12
Toluene #	-										<5	ug/kg	TM31/PM12
Ethylbenzene #	-										<5	ug/kg	TM31/PM12
m/p-Xylene #	-										<5	ug/kg	TM31/PM12
o-Xylene #	-										<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15										<0.15	mg/kg	TM26/PM21
Natural Moisture Content	15.5										<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3										<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.0344										<0.0015	g/l	TM38/PM20
Chromium III	13.8										<0.5	mg/kg	NONE/NONE
Total Cyanide #	<0.5										<0.5	mg/kg	TM89/PM45
pH #	9.18										<0.01	pH units	TM73/PM11

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall
JE Job No.: 17/20363

SVOC Report : Solid

J E Sample No.	1-3	4-7	8-11	25-27	37-39	58-61					Please see attached notes for all abbreviations and acronyms		
Sample ID	BH402	BH402	BH404	WS411	WS410	WS412							
Depth	0.3-0.5	1.3-1.5	1.3-1.5	0.5-0.7	1.5-1.6	0.6-0.8							
COC No / misc													
Containers	V J	V J B	V J B	V J	V J	V J B							
Sample Date	06/12/2017 15:00	07/12/2017 08:45	07/12/2017 12:00	07/12/2017 11:05	07/12/2017 13:30	08/12/2017 09:00							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017					LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Phenol #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	205	<10	<10	<10	<10	767					<10	ug/kg	TM16/PM8
Naphthalene	-	<10	<10	-	<10	-					<10	ug/kg	TM16/PM8
Acenaphthylene	-	<10	<10	-	<10	-					<10	ug/kg	TM16/PM8
Acenaphthene	-	<10	<10	-	<10	-					<10	ug/kg	TM16/PM8
Fluorene	-	<10	<10	-	<10	-					<10	ug/kg	TM16/PM8
Phenanthrene #	-	387	<10	-	167	-					<10	ug/kg	TM16/PM8
Anthracene	-	76	<10	-	20	-					<10	ug/kg	TM16/PM8
Fluoranthene #	-	411	<10	-	53	-					<10	ug/kg	TM16/PM8
Pyrene #	-	323	<10	-	161	-					<10	ug/kg	TM16/PM8
Benzo(a)anthracene	-	198	<10	-	101	-					<10	ug/kg	TM16/PM8
Chrysene	-	212	<10	-	53	-					<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	-	264	<10	-	<10	-					<10	ug/kg	TM16/PM8
Benzo(a)pyrene	-	123	<10	-	<10	-					<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	-	59	<10	-	<10	-					<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	-	21	<10	-	<10	-					<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	-	72	<10	-	71	-					<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	-	190	<10	-	<10	-					<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	-	74	<10	-	<10	-					<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100	<100	<100	<100	<100					<100	ug/kg	TM16/PM8

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall
JE Job No.: 17/20363

SVOC Report : Solid

J E Sample No.	1-3	4-7	8-11	25-27	37-39	58-61					Please see attached notes for all abbreviations and acronyms		
Sample ID	BH402	BH402	BH404	WS411	WS410	WS412							
Depth	0.3-0.5	1.3-1.5	1.3-1.5	0.5-0.7	1.5-1.6	0.6-0.8							
COC No / misc													
Containers	V J	V J B	V J B	V J	V J	V J B							
Sample Date	06/12/2017 15:00	07/12/2017 08:45	07/12/2017 12:00	07/12/2017 11:05	07/12/2017 13:30	08/12/2017 09:00							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1							
Date of Receipt	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017					LOD/LOR	Units	Method No.
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Azobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Carbazole	<10	<10	<10	<10	<10	1036					<10	ug/kg	TM16/PM8
Dibenzofuran #	161	<10	<10	<10	<10	1134					<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Isophorone #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10	<10	<10	<10	<10					<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	101	100	96	99	102	105					<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	97	94	89	100	111	111					<0	%	TM16/PM8

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall
JE Job No.: 17/20363

VOC Report : Solid

J E Sample No.	1-3	4-7	8-11	25-27	37-39	58-61					Please see attached notes for all abbreviations and acronyms		
Sample ID	BH402	BH402	BH404	WS411	WS410	WS412							
Depth	0.3-0.5	1.3-1.5	1.3-1.5	0.5-0.7	1.5-1.6	0.6-0.8							
COC No / misc													
Containers	V J	V J B	V J B	V J	V J	V J B							
Sample Date	06/12/2017 15:00	07/12/2017 08:45	07/12/2017 12:00	07/12/2017 11:05	07/12/2017 13:30	08/12/2017 09:00							
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil							
Batch Number	1	1	1	1	1	1					LOD/LOR	Units	Method No.
Date of Receipt	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017	09/12/2017							
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2					<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2	<2	<2	<2	<2					<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2	<2	<2	<2	<2					<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1	<1	<1	<1	<1					<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2	<2	<2	<2	<2					<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2	<2	<2	<2	<2					<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6	<6	<6	<6	<6					<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	90	<30	<30	<30	<30	<30					<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Chloroform #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
Benzene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6	<6	<6	<6	<6					<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
Toluene #	3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Ethylbenzene #	3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
p/m-Xylene #	9	<5	<5	<5	<5	<5					<5	ug/kg	TM15/PM10
o-Xylene #	3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Styrene	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2	<2	<2	<2	<2					<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3	<3	<3	<3	<3					<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5	<5	<5	<5	<5					<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6	<6	<6	<6	<6					<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7	<7	<7	<7	<7					<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4	<4	<4	<4	<4					<4	ug/kg	TM15/PM10
Naphthalene	<27	<27	<27	<27	<27	1201					<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7	<7	<7	<7	<7					<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	64	97	100	101	101	100					<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	59	105	112	118	111	116					<0	%	TM15/PM10

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
 Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/20363	1	BH402	0.3-0.5	3	14/12/2017	General Description (Bulk Analysis)	Soil/Stones
					14/12/2017	Asbestos Fibres	NAD
					14/12/2017	Asbestos Fibres (2)	NAD
					14/12/2017	Asbestos ACM	NAD
					14/12/2017	Asbestos ACM (2)	NAD
					14/12/2017	Asbestos Type	NAD
					14/12/2017	Asbestos Type (2)	NAD
					14/12/2017	Asbestos Level Screen	NAD
17/20363	1	WS408	0.6-0.8	21	14/12/2017	General Description (Bulk Analysis)	Soil/Stones
					14/12/2017	Asbestos Fibres	NAD
					14/12/2017	Asbestos Fibres (2)	NAD
					14/12/2017	Asbestos ACM	NAD
					14/12/2017	Asbestos ACM (2)	NAD
					14/12/2017	Asbestos Type	NAD
					14/12/2017	Asbestos Type (2)	NAD
					14/12/2017	Asbestos Level Screen	NAD
17/20363	1	WS411	0.5-0.7	27	14/12/2017	General Description (Bulk Analysis)	Soil/Stones
					14/12/2017	Asbestos Fibres	NAD
					14/12/2017	Asbestos Fibres (2)	NAD
					14/12/2017	Asbestos ACM	NAD
					14/12/2017	Asbestos ACM (2)	NAD
					14/12/2017	Asbestos Type	NAD
					14/12/2017	Asbestos Type (2)	NAD
					14/12/2017	Asbestos Level Screen	NAD
17/20363	1	WS413	0.8-0.9	47	14/12/2017	General Description (Bulk Analysis)	Soil/Stones
					14/12/2017	Asbestos Fibres	NAD
					14/12/2017	Asbestos Fibres (2)	NAD
					14/12/2017	Asbestos ACM	NAD
					14/12/2017	Asbestos ACM (2)	NAD
					14/12/2017	Asbestos Type	NAD
					14/12/2017	Asbestos Type (2)	NAD
					14/12/2017	Asbestos Level Screen	NAD
17/20363	1	WS409	0.4	54	14/12/2017	General Description (Bulk Analysis)	Soil/Stones
					14/12/2017	Asbestos Fibres	NAD
					14/12/2017	Asbestos Fibres (2)	NAD

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow
Contact: Jon Eudall

[illegible]

Matrix : Solid

Reference: 1700001374

Location: Kings Meadow

Contact: Jon Eudall

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/20363

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 17/20363

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

JE Job No: 17/20363

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No

JE Job No: 17/20363

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
TM15_A	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes



Exova Jones Environmental

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Attention :	Rob Hodgson
Date :	27th December, 2017
Your reference :	1700001374
Our reference :	Test Report 17/20190 Batch 1
Location :	Kings Meadow, Reading
Date samples received :	7th December, 2017
Status :	Final report
Issue :	1

Twenty two samples were received for analysis on 7th December, 2017 of which twelve were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied. All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

**Paul Boden BSc
Project Manager**

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson
JE Job No.: 17/20190

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	9-11	12-14	21-25	30-33	37-40	45-48	53-56	60-61,78-79	62-65	69-71	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH405	BH405	WS406	WS403	WS401	WS402	WS405	WS404	WS407	WS404			
Depth	0.80-1.00	3.00-3.20	0.30-0.50	0.30-0.50	0.25-0.50	0.25-0.50	0.25-0.50	0.30-0.50	0.25-0.50	2.50			
COC No / misc													
Containers	V J	V J	V J B	V J B	V J T	V J T	V J B	J B V	V J B	V J			
Sample Date	06/12/2017 10:30	06/12/2017 14:30	06/12/2017	05/12/2017	05/12/2017	05/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	LOD/LOR	Units	Method No.
Arsenic [#]	8.9	-	11.5	7.7	9.5	10.2	6.9	3.9	9.0	-	<0.5	mg/kg	TM30/PM15
Beryllium	3.5	-	0.6	0.7	1.1	1.1	1.0	4.0	0.9	-	<0.5	mg/kg	TM30/PM15
Cadmium [#]	0.2	-	0.3	0.3	0.4	0.2	0.3	<0.1	0.3	-	<0.1	mg/kg	TM30/PM15
Chromium [#]	70.4	-	60.7	75.6	46.4	56.9	42.5	67.5	63.0	-	<0.5	mg/kg	TM30/PM15
Copper [#]	49	-	15	29	16	11	14	15	12	-	<1	mg/kg	TM30/PM15
Lead [#]	62	-	12	23	29	21	30	<5	16	-	<5	mg/kg	TM30/PM15
Mercury [#]	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	mg/kg	TM30/PM15
Nickel [#]	14.3	-	15.2	17.4	16.1	17.3	13.1	13.2	17.8	-	<0.7	mg/kg	TM30/PM15
Selenium [#]	6	-	<1	<1	<1	<1	<1	5	<1	-	<1	mg/kg	TM30/PM15
Vanadium	124	-	28	34	44	41	36	119	36	-	<1	mg/kg	TM30/PM15
Water Soluble Boron [#]	2.2	-	4.8	1.7	1.2	1.5	1.5	1.3	1.8	-	<0.1	mg/kg	TM74/PM32
Zinc [#]	95	-	65	93	96	56	70	33	69	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene [#]	0.37	-	<0.04	0.54	0.78	0.31	<0.80 _{AA}	<0.04	0.11	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.58	-	0.04	1.05	0.76	0.83	0.86 _{AA}	<0.03	0.26	-	<0.03	mg/kg	TM4/PM8
Acenaphthene [#]	0.20	-	<0.05	1.07	0.89	0.60	<1.00 _{AA}	<0.05	0.18	-	<0.05	mg/kg	TM4/PM8
Fluorene [#]	0.20	-	<0.04	1.28	0.84	0.46	1.11 _{AA}	<0.04	0.20	-	<0.04	mg/kg	TM4/PM8
Phenanthrene [#]	3.81	-	0.47	27.15 ⁺⁺	7.04	8.85	7.30 _{AA}	0.05	4.34	-	<0.03	mg/kg	TM4/PM8
Anthracene [#]	1.59	-	0.17	9.06	2.85	3.21	2.65 _{AA}	<0.04	1.25	-	<0.04	mg/kg	TM4/PM8
Fluoranthene [#]	7.98	-	0.91	32.16 ⁺⁺	13.13	16.20	12.28 _{AA}	0.08	4.91	-	<0.03	mg/kg	TM4/PM8
Pyrene [#]	7.56	-	0.79	25.84 ⁺⁺	11.29	13.52	9.95 _{AA}	0.08	4.16	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	3.75	-	0.41	13.83	5.63	7.04	5.25 _{AA}	0.08	1.96	-	<0.06	mg/kg	TM4/PM8
Chrysene [#]	4.19	-	0.39	12.26	5.47	6.58	5.19 _{AA}	0.06	1.92	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene [#]	8.63	-	0.75	21.26	12.17	12.26	10.20 _{AA}	0.13	3.52	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	4.64	-	0.40	12.44	6.82	6.99	5.44 _{AA}	0.06	1.98	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene [#]	3.58	-	0.30	8.14	4.91	5.23	4.13 _{AA}	0.04	1.51	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	0.83	-	0.08	2.11	1.20	1.05	0.92 _{AA}	<0.04	0.36	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	3.35	-	0.33	7.39	4.37	4.60	3.66 _{AA}	0.04	1.34	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	51.3	-	5.0	175.6	78.2	87.7	68.9 _{AA}	0.6	28.0	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	6.21	-	0.54	15.31	8.76	8.83	7.34 _{AA}	0.09	2.53	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	2.42	-	0.21	5.95	3.41	3.43	2.86 _{AA}	0.04	0.99	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	111	-	113	113	114	111	115 _{AA}	113	114	-	<0	%	TM4/PM8
Methyl Tertiary Butyl Ether [#]	<2	<2	-	-	-	-	-	-	-	-	<2	ug/kg	TM15/PM10
Benzene [#]	<3	<3	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
Toluene [#]	6	<3	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
Ethylbenzene [#]	<3	<3	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
p/m-Xylene [#]	7	<5	-	-	-	-	-	-	-	-	<5	ug/kg	TM15/PM10
o-Xylene [#]	<3	<3	-	-	-	-	-	-	-	-	<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	91	105	-	-	-	-	-	-	-	-	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	81	128	-	-	-	-	-	-	-	-	<0	%	TM15/PM10

Client Name: Ramboll Environ UK Ltd
 Reference: 1700001374
 Location: Kings Meadow, Reading
 Contact: Rob Hodgson
 JE Job No.: 17/20190

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	9-11	12-14	21-25	30-33	37-40	45-48	53-56	60-61,78-79	62-65	69-71	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH405	BH405	WS406	WS403	WS401	WS402	WS405	WS404	WS407	WS404			
Depth	0.80-1.00	3.00-3.20	0.30-0.50	0.30-0.50	0.25-0.50	0.25-0.50	0.25-0.50	0.30-0.50	0.25-0.50	2.50			
COC No / misc													
Containers	V J	V J	V J B	V J B	V J T	V J T	V J B	J B V	V J B	V J			
Sample Date	06/12/2017 10:30	06/12/2017 14:30	06/12/2017	05/12/2017	05/12/2017	05/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	2.8	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	<4	6	<4	12	5	19	<4	<4	<4	<4	mg/kg	TM5/PM16
>C16-C21 #	<7	<7	48	47	47	23	56	<7	9	<7	<7	mg/kg	TM5/PM16
>C21-C35 #	75	<7	709	444	489	53	553	<7	68	<7	<7	mg/kg	TM5/PM16
Total aliphatics C5-35	75	<19	763	491	548	81	631	<19	77	<19	<19	mg/kg	TM5/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	2.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	6	<4	<4	<4	22	<4	10	<4	<4	7	<4	mg/kg	TM5/PM16
>EC16-EC21 #	52	<7	12	11	158	18	91	<7	15	20	<7	mg/kg	TM5/PM16
>EC21-EC35 #	256	<7	114	134	1207	73	909	<7	101	98	<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	314	<19	126	145	1389	91	1010	<19	116	125	<19	mg/kg	TM5/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	389	<38	889	636	1937	172	1641	<38	193	125	<38	mg/kg	TM5/PM16/PM12/PM10
MTBE #	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Total Phenols HPLC	<0.15	-	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	-	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	11.0	19.0	10.2	12.7	9.9	13.0	10.9	9.4	12.8	31.0	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.2076	-	0.0470	0.1448	0.1590	0.0393	0.2134	0.1135	0.0965	-	<0.0015	g/l	TM38/PM20
Chromium III	70.4	-	60.7	75.6	46.4	56.9	42.5	67.5	63.0	-	<0.5	mg/kg	NONE/NONE
Total Cyanide #	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	mg/kg	TM89/PM45
pH #	8.53	-	11.13	10.81	11.17	12.18	10.97	8.89	11.83	-	<0.01	pH units	TM73/PM11

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson
JE Job No.: 17/20190

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	72-74	75-77									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS404	WS407											
Depth	1.40	1.30-1.40											
COC No / misc													
Containers	V J	V J											
Sample Date	06/12/2017	06/12/2017											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	07/12/2017	07/12/2017									LOD/LOR	Units	Method No.
Arsenic #	-	-									<0.5	mg/kg	TM30/PM15
Beryllium	-	-									<0.5	mg/kg	TM30/PM15
Cadmium #	-	-									<0.1	mg/kg	TM30/PM15
Chromium #	-	-									<0.5	mg/kg	TM30/PM15
Copper #	-	-									<1	mg/kg	TM30/PM15
Lead #	-	-									<5	mg/kg	TM30/PM15
Mercury #	-	-									<0.1	mg/kg	TM30/PM15
Nickel #	-	-									<0.7	mg/kg	TM30/PM15
Selenium #	-	-									<1	mg/kg	TM30/PM15
Vanadium	-	-									<1	mg/kg	TM30/PM15
Water Soluble Boron #	-	-									<0.1	mg/kg	TM74/PM32
Zinc #	-	-									<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	-									<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-									<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	-									<0.05	mg/kg	TM4/PM8
Fluorene #	-	-									<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	-									<0.03	mg/kg	TM4/PM8
Anthracene #	-	-									<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	-									<0.03	mg/kg	TM4/PM8
Pyrene #	-	-									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-									<0.06	mg/kg	TM4/PM8
Chrysene #	-	-									<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene #	-	-									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	-									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	-									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	-									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-									<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	-									<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	-									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	-									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-									<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	-	-									<2	ug/kg	TM15/PM10
Benzene #	-	-									<3	ug/kg	TM15/PM10
Toluene #	-	-									<3	ug/kg	TM15/PM10
Ethylbenzene #	-	-									<3	ug/kg	TM15/PM10
p/m-Xylene #	-	-									<5	ug/kg	TM15/PM10
o-Xylene #	-	-									<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	-	-									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	-	-									<0	%	TM15/PM10

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson
JE Job No.: 17/20190

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	72-74	75-77									Please see attached notes for all abbreviations and acronyms		
Sample ID	WS404	WS407											
Depth	1.40	1.30-1.40											
COC No / misc													
Containers	V J	V J											
Sample Date	06/12/2017	06/12/2017											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	07/12/2017	07/12/2017									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	0.6 ^{SV}									<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	1.5 ^{SV}									<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	16.6									<0.2	mg/kg	TM5/PM16
>C12-C16 #	<4	35									<4	mg/kg	TM5/PM16
>C16-C21 #	<7	108									<7	mg/kg	TM5/PM16
>C21-C35 #	<7	4674									<7	mg/kg	TM5/PM16
Total aliphatics C5-35	<19	4836									<19	mg/kg	TM5/PM16/PM12/PM10
Aromatics													
>C5-EC7 #	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	0.6 ^{SV}									<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	0.6	21.3									<0.2	mg/kg	TM5/PM16
>EC12-EC16 #	<4	46									<4	mg/kg	TM5/PM16
>EC16-EC21 #	<7	161									<7	mg/kg	TM5/PM16
>EC21-EC35 #	75	1769									<7	mg/kg	TM5/PM16
Total aromatics C5-35 #	76	1998									<19	mg/kg	TM5/PM16/PM12/PM10
Total aliphatics and aromatics(C5-35)	76	6834									<38	mg/kg	TM5/PM16/PM12/PM10
MTBE #	<5	<5 ^{SV}									<5	ug/kg	TM31/PM12
Benzene #	<5	19 ^{SV}									<5	ug/kg	TM31/PM12
Toluene #	<5	19 ^{SV}									<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	10 ^{SV}									<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	367 ^{SV}									<5	ug/kg	TM31/PM12
o-Xylene #	<5	191 ^{SV}									<5	ug/kg	TM31/PM12
Total Phenols HPLC	-	-									<0.15	mg/kg	TM26/PM21
Natural Moisture Content	12.9	39.1									<0.1	%	PM4/PM0
Hexavalent Chromium #	-	-									<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	-									<0.0015	g/l	TM38/PM20
Chromium III	-	-									<0.5	mg/kg	NONE/NONE
Total Cyanide #	-	-									<0.5	mg/kg	TM89/PM45
pH #	-	-									<0.01	pH units	TM73/PM11

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson
JE Job No.: 17/20190

SVOC Report : Solid

J E Sample No.	9-11	12-14									Please see attached notes for all abbreviations and acronyms		
Sample ID	BH405	BH405											
Depth	0.80-1.00	3.00-3.20											
COC No / misc													
Containers	V J	V J											
Sample Date	06/12/2017 10:30	06/12/2017 14:30											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	07/12/2017	07/12/2017									LOD/LOR	Units	Method No.
SVOC MS													
Phenols													
2-Chlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
2-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dichlorophenol #	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dimethylphenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,5-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
2,4,6-Trichlorophenol	<10	<10									<10	ug/kg	TM16/PM8
4-Chloro-3-methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Methylphenol	<10	<10									<10	ug/kg	TM16/PM8
4-Nitrophenol	<10	<10									<10	ug/kg	TM16/PM8
Pentachlorophenol	<10	<10									<10	ug/kg	TM16/PM8
Phenol #	<10	<10									<10	ug/kg	TM16/PM8
PAHs													
2-Chloronaphthalene #	<10	<10									<10	ug/kg	TM16/PM8
2-Methylnaphthalene #	196	<10									<10	ug/kg	TM16/PM8
Naphthalene	-	<10									<10	ug/kg	TM16/PM8
Acenaphthylene	-	<10									<10	ug/kg	TM16/PM8
Acenaphthene	-	<10									<10	ug/kg	TM16/PM8
Fluorene	-	<10									<10	ug/kg	TM16/PM8
Phenanthrene #	-	<10									<10	ug/kg	TM16/PM8
Anthracene	-	<10									<10	ug/kg	TM16/PM8
Fluoranthene #	-	<10									<10	ug/kg	TM16/PM8
Pyrene #	-	<10									<10	ug/kg	TM16/PM8
Benzo(a)anthracene	-	<10									<10	ug/kg	TM16/PM8
Chrysene	-	<10									<10	ug/kg	TM16/PM8
Benzo(bk)fluoranthene	-	<10									<10	ug/kg	TM16/PM8
Benzo(a)pyrene	-	<10									<10	ug/kg	TM16/PM8
Indeno(123cd)pyrene	-	<10									<10	ug/kg	TM16/PM8
Dibenzo(ah)anthracene	-	<10									<10	ug/kg	TM16/PM8
Benzo(ghi)perylene	-	<10									<10	ug/kg	TM16/PM8
Benzo(b)fluoranthene	-	<10									<10	ug/kg	TM16/PM8
Benzo(k)fluoranthene	-	<10									<10	ug/kg	TM16/PM8
Phthalates													
Bis(2-ethylhexyl) phthalate	<100	<100									<100	ug/kg	TM16/PM8
Butylbenzyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-butyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Di-n-Octyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Diethyl phthalate	<100	<100									<100	ug/kg	TM16/PM8
Dimethyl phthalate #	<100	<100									<100	ug/kg	TM16/PM8

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson
JE Job No.: 17/20190

SVOC Report : Solid

J E Sample No.	9-11	12-14									Please see attached notes for all abbreviations and acronyms		
Sample ID	BH405	BH405											
Depth	0.80-1.00	3.00-3.20											
COC No / misc													
Containers	V J	V J											
Sample Date	06/12/2017 10:30	06/12/2017 14:30											
Sample Type	Soil	Soil											
Batch Number	1	1									LOD/LOR	Units	Method No.
Date of Receipt	07/12/2017	07/12/2017											
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,2,4-Trichlorobenzene #	<10	<10									<10	ug/kg	TM16/PM8
1,3-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
1,4-Dichlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
2-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
2,4-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
2,6-Dinitrotoluene	<10	<10									<10	ug/kg	TM16/PM8
3-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Bromophenylphenylether #	<10	<10									<10	ug/kg	TM16/PM8
4-Chloroaniline	<10	<10									<10	ug/kg	TM16/PM8
4-Chlorophenylphenylether	<10	<10									<10	ug/kg	TM16/PM8
4-Nitroaniline	<10	<10									<10	ug/kg	TM16/PM8
Azobenzene	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethoxy)methane	<10	<10									<10	ug/kg	TM16/PM8
Bis(2-chloroethyl)ether	<10	<10									<10	ug/kg	TM16/PM8
Carbazole	309	<10									<10	ug/kg	TM16/PM8
Dibenzofuran #	142	<10									<10	ug/kg	TM16/PM8
Hexachlorobenzene	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorobutadiene #	<10	<10									<10	ug/kg	TM16/PM8
Hexachlorocyclopentadiene	<10	<10									<10	ug/kg	TM16/PM8
Hexachloroethane	<10	<10									<10	ug/kg	TM16/PM8
Isophorone #	<10	<10									<10	ug/kg	TM16/PM8
N-nitrosodi-n-propylamine #	<10	<10									<10	ug/kg	TM16/PM8
Nitrobenzene #	<10	<10									<10	ug/kg	TM16/PM8
Surrogate Recovery 2-Fluorobiphenyl	94	99									<0	%	TM16/PM8
Surrogate Recovery p-Terphenyl-d14	105	104									<0	%	TM16/PM8

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson
JE Job No.: 17/20190

VOC Report : Solid

J E Sample No.	9-11	12-14									Please see attached notes for all abbreviations and acronyms		
Sample ID	BH405	BH405											
Depth	0.80-1.00	3.00-3.20											
COC No / misc													
Containers	V J	V J											
Sample Date	06/12/2017 10:30	06/12/2017 14:30											
Sample Type	Soil	Soil									LOD/LOR	Units	Method No.
Batch Number	1	1											
Date of Receipt	07/12/2017	07/12/2017											
VOC MS													
Dichlorodifluoromethane	<2	<2									<2	ug/kg	TM15/PM10
Methyl Tertiary Butyl Ether #	<2	<2									<2	ug/kg	TM15/PM10
Chloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Vinyl Chloride	<2	<2									<2	ug/kg	TM15_A/PM10
Bromomethane	<1	<1									<1	ug/kg	TM15/PM10
Chloroethane #	<2	<2									<2	ug/kg	TM15/PM10
Trichlorofluoromethane #	<2	<2									<2	ug/kg	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<6	<6									<6	ug/kg	TM15/PM10
Dichloromethane (DCM) #	80	<30									<30	ug/kg	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3									<3	ug/kg	TM15/PM10
2,2-Dichloropropane	<4	<4									<4	ug/kg	TM15/PM10
Bromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
Chloroform #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
1,1-Dichloropropene #	<3	<3									<3	ug/kg	TM15/PM10
Carbon tetrachloride #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichloroethane #	<4	<4									<4	ug/kg	TM15/PM10
Benzene #	<3	<3									<3	ug/kg	TM15/PM10
Trichloroethene (TCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dichloropropane #	<6	<6									<6	ug/kg	TM15/PM10
Dibromomethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromodichloromethane #	<3	<3									<3	ug/kg	TM15/PM10
cis-1,3-Dichloropropene	<4	<4									<4	ug/kg	TM15/PM10
Toluene #	6	<3									<3	ug/kg	TM15/PM10
trans-1,3-Dichloropropene	<3	<3									<3	ug/kg	TM15/PM10
1,1,2-Trichloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3									<3	ug/kg	TM15/PM10
1,3-Dichloropropane #	<3	<3									<3	ug/kg	TM15/PM10
Dibromochloromethane #	<3	<3									<3	ug/kg	TM15/PM10
1,2-Dibromoethane #	<3	<3									<3	ug/kg	TM15/PM10
Chlorobenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,1,2-Tetrachloroethane	<3	<3									<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
p/m-Xylene #	7	<5									<5	ug/kg	TM15/PM10
o-Xylene #	<3	<3									<3	ug/kg	TM15/PM10
Styrene	<3	<3									<3	ug/kg	TM15_A/PM10
Bromoform	<3	<3									<3	ug/kg	TM15/PM10
Isopropylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
1,1,2,2-Tetrachloroethane #	<3	<3									<3	ug/kg	TM15/PM10
Bromobenzene	<2	<2									<2	ug/kg	TM15/PM10
1,2,3-Trichloropropane #	<4	<4									<4	ug/kg	TM15/PM10
Propylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
2-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3									<3	ug/kg	TM15/PM10
4-Chlorotoluene	<3	<3									<3	ug/kg	TM15/PM10
tert-Butylbenzene #	<5	<5									<5	ug/kg	TM15/PM10
1,2,4-Trimethylbenzene #	<6	<6									<6	ug/kg	TM15/PM10
sec-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
4-Isopropyltoluene #	<4	<4									<4	ug/kg	TM15/PM10
1,3-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,4-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
n-Butylbenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dichlorobenzene #	<4	<4									<4	ug/kg	TM15/PM10
1,2-Dibromo-3-chloropropane #	<4	<4									<4	ug/kg	TM15/PM10
1,2,4-Trichlorobenzene #	<7	<7									<7	ug/kg	TM15/PM10
Hexachlorobutadiene	<4	<4									<4	ug/kg	TM15/PM10
Naphthalene	42	<27									<27	ug/kg	TM15/PM10
1,2,3-Trichlorobenzene #	<7	<7									<7	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	91	105									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	81	128									<0	%	TM15/PM10

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
 Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/20190	1	BH405	0.80-1.00	11	13/12/2017	General Description (Bulk Analysis)	soil.stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS406	0.30-0.50	25	13/12/2017	General Description (Bulk Analysis)	soil.stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS403	0.30-0.50	33	13/12/2017	General Description (Bulk Analysis)	soil.stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS401	0.25-0.50	40	13/12/2017	General Description (Bulk Analysis)	soil/stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS402	0.25-0.50	48	13/12/2017	General Description (Bulk Analysis)	soil/stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Rob Hodgson

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
17/20190	1	WS402	0.25-0.50	48	13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS405	0.25-0.50	56	13/12/2017	General Description (Bulk Analysis)	soil/stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS404	0.30-0.50	61	13/12/2017	General Description (Bulk Analysis)	soil.stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD
17/20190	1	WS407	0.25-0.50	65	13/12/2017	General Description (Bulk Analysis)	soil.stones
					13/12/2017	Asbestos Fibres	NAD
					13/12/2017	Asbestos Fibres (2)	NAD
					13/12/2017	Asbestos ACM	NAD
					13/12/2017	Asbestos ACM (2)	NAD
					13/12/2017	Asbestos Type	NAD
					13/12/2017	Asbestos Type (2)	NAD
					13/12/2017	Asbestos Level Screen	NAD

Matrix : Solid

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/20190

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x20 Dilution

JE Job No: 17/20190

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis./Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

JE Job No: 17/20190

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No

JE Job No: 17/20190

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes		AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
TM15_A	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

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Attention : Jon Eudall
Date : 23rd January, 2018
Your reference : 1700001374
Our reference : Test Report 17/20663 Batch 1 17/20663 Batch 2
Location : Kings Meadow, Reading
Date samples received :
Status : Final report
Issue : 3

Compiled By:

Simon Gomery BSc
Project Manager

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Jon Eudall
JE Job No.: 17/20663

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-7	8-14	15-21	22-28	29	30	31-37	38	39-45	46-52	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS403	WS404	WS407	WS401	WS410	WS412	WS402	WS406	WS405	BH402			
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	G	G	V H H N N P G	G	V H H N N P G	V H H N N P G			
Sample Date	12/12/2017 12:30	12/12/2017 13:00	12/12/2017 15:00	12/12/2017 13:00	12/12/2017 15:20	12/12/2017 15:30	13/12/2017 09:10	13/12/2017 09:10	13/12/2017 09:34	13/12/2017 10:50			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5	9.8	<2.5	-	-	-	-	12.1	<2.5	<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Dissolved Boron	2664	266	476	115	-	-	-	-	152	40	<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	<0.5	<0.5	ug/l	TM30/PM14
Dissolved Calcium #	170.7	244.1 ^{AA}	115.3	169.3	-	-	-	-	79.3	59.7	<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	2.0	4.0	-	-	-	-	10.3	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	-	-	-	-	43	<7	<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	-	-	-	-	<5	<5	<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	-	-	-	-	<1	<1	<1	ug/l	TM30/PM14
Dissolved Nickel #	2	4	6	<2	-	-	-	-	8	<2	<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	-	-	-	-	<3	<3	<3	ug/l	TM30/PM14
Dissolved Vanadium #	2.1	<1.5	4.6	4.2	-	-	-	-	43.1	<1.5	<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	<3	24	<3	-	-	-	-	<3	25	<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	481	687	331	448	-	-	-	-	198	161	<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	-	-	-	-	0.5	<0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	0.019	0.028	<0.013	-	-	-	-	0.030	<0.013	<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	0.018	0.028	0.072	-	-	-	-	0.518	<0.013	<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	0.023	0.060	0.018	-	-	-	-	0.217	<0.014	<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	0.049	0.074	0.032	-	-	-	-	0.499	<0.011	<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	0.027	0.089	0.025	-	-	-	-	0.129	<0.013	<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	0.186	0.140	0.136	-	-	-	-	0.293	0.085	<0.012	ug/l	TM4/PM30
Pyrene #	<0.013	0.162	0.398	0.122	-	-	-	-	0.207	0.057	<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	0.098	0.123	0.033	-	-	-	-	0.070	0.016	<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	0.097	0.091	0.040	-	-	-	-	0.063	0.012	<0.011	ug/l	TM4/PM30
Benzo(b)fluoranthene #	<0.018	0.146	0.240	0.072	-	-	-	-	0.102	0.019	<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	0.077	0.209	0.034	-	-	-	-	0.051	<0.016	<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	0.049	0.086	0.029	-	-	-	-	0.039	<0.011	<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	0.01	<0.01	<0.01	-	-	-	-	0.02	<0.01	<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	0.040	0.251	0.032	-	-	-	-	0.038	<0.011	<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	1.001	1.817	0.645	-	-	-	-	2.776	<0.195	<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	0.11	0.17	0.05	-	-	-	-	0.07	0.01	<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	0.04	0.07	0.02	-	-	-	-	0.03	<0.01	<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	70	75	91	71	-	-	-	-	71	71	<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	<0.1	0.8	<0.1	0.8	<0.1	<0.1	6.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
p/m-Xylene #	<2	<2	5	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	22	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	107	111	112	113	109	107	110	109	99	99	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	112	110	111	114	113	108	111	111	99	98	<0	%	TM15/PM10

Please include all sections of this report if it is reproduced

Client Name: Ramboll Environ UK Ltd
 Reference: 1700001374
 Location: Kings Meadow, Reading
 Contact: Jon Eudall
 JE Job No.: 17/20663

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-7	8-14	15-21	22-28	29	30	31-37	38	39-45	46-52	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS403	WS404	WS407	WS401	WS410	WS412	WS402	WS406	WS405	BH402			
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	G	G	V H H N N P G	G	V H H N N P G	V H H N N P G			
Sample Date	12/12/2017 12:30	12/12/2017 13:00	12/12/2017 15:00	12/12/2017 13:00	12/12/2017 15:20	12/12/2017 15:30	13/12/2017 09:10	13/12/2017 09:10	13/12/2017 09:34	13/12/2017 10:50			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	82	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	60	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	460	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	27050	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	27682	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	144	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	140	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	440	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	6770	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	7524	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) #	<10	<10	35206	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM30/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	-	-	-	-	<0.1	<0.1	<0.1	mg/l	TM26/PM0
Sulphate as SO ₄ #	248.7	526.3	64.7	131.5	-	-	-	-	54.6	56.8	<0.5	mg/l	TM38/PM0
Total Cyanide #	<0.01	0.12	0.01	<0.01	-	-	-	-	<0.01	<0.01	<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.23	0.17	2.29	1.31	-	-	-	-	2.92	0.05	<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6	<6	<6	-	-	-	-	53	<6	<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	-	-	-	-	<6	<6	<6	ug/l	NONE/NONE
Dissolved Organic Carbon #	9	4	35	3	-	-	-	-	18	<2	<2	mg/l	TM60/PM0
pH #	7.56	7.20	7.44	7.69	-	-	-	-	12.27	8.03	<0.01	pH units	TM73/PM0

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Jon Eudall
JE Job No.: 17/20663

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	53-59	60-66	67-73	74-80	82-87	88-94	95-101	102-108	109-115		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH406	BH403	BH401	BH405	BH201	BH305	BH404	1i	C				
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G				
Sample Date	13/12/2017 11:20	13/12/2017 09:45	13/12/2017 10:30	13/12/2017 11:15	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	2	2	2	2	2				
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017				
											LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5	<2.5	<2.5	-	-	<2.5	-	-		<2.5	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	-		<0.5	ug/l	TM30/PM14
Dissolved Boron	153	233	77	97	-	-	73	-	-		<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5	-	-	<0.5	-	-		<0.5	ug/l	TM30/PM14
Dissolved Calcium #	125.1	80.9	95.7	-	-	-	98.9	-	-		<0.2	mg/l	TM30/PM14
Total Dissolved Chromium #	<1.5	5.5	<1.5	<1.5	-	-	<1.5	-	-		<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7	-	-	<7	-	-		<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5	-	-	<5	-	-		<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1	-	-	<1	-	-		<1	ug/l	TM30/PM14
Dissolved Nickel #	3	2	<2	<2	-	-	<2	-	-		<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3	-	-	<3	-	-		<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	1.7	<1.5	<1.5	-	-	1.5	-	-		<1.5	ug/l	TM30/PM14
Dissolved Zinc #	<3	<3	<3	4	-	-	29	-	-		<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	340	222	258	318	-	-	268	-	-		<1	mg/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-	-		<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	<0.013	-	-	<0.013	-	-		<0.013	ug/l	TM4/PM30
Acenaphthene #	0.024	<0.013	<0.013	<0.013	-	-	<0.013	-	-		<0.013	ug/l	TM4/PM30
Fluorene #	0.019	<0.014	<0.014	<0.014	-	-	<0.014	-	-		<0.014	ug/l	TM4/PM30
Phenanthrene #	0.058	<0.011	0.025	0.017	-	-	<0.011	-	-		<0.011	ug/l	TM4/PM30
Anthracene #	0.013	<0.013	<0.013	<0.013	-	-	<0.013	-	-		<0.013	ug/l	TM4/PM30
Fluoranthene #	0.031	<0.012	0.021	<0.012	-	-	0.047	-	-		<0.012	ug/l	TM4/PM30
Pyrene #	0.028	<0.013	0.014	<0.013	-	-	0.035	-	-		<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	0.019	<0.015	<0.015	<0.015	-	-	<0.015	-	-		<0.015	ug/l	TM4/PM30
Chrysene #	0.016	<0.011	<0.011	<0.011	-	-	<0.011	-	-		<0.011	ug/l	TM4/PM30
Benzo(b)fluoranthene #	0.027	<0.018	<0.018	<0.018	-	-	<0.018	-	-		<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	0.021	<0.016	<0.016	<0.016	-	-	<0.016	-	-		<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.012	<0.011	<0.011	<0.011	-	-	<0.011	-	-		<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	-		<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	<0.011	-	-	<0.011	-	-		<0.011	ug/l	TM4/PM30
PAH 16 Total #	0.268	<0.195	<0.195	<0.195	-	-	<0.195	-	-		<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.02	<0.01	<0.01	<0.01	-	-	<0.01	-	-		<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	-		<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	71	92	74	70	-	-	92	-	-		<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4		<0.1	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM15/PM10
p/m-Xylene #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	98	98	99	99	105	110	107	106	107		<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	99	99	99	106	108	107	105	107		<0	%	TM15/PM10

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Client Name: Ramboll Environ UK Ltd
 Reference: 1700001374
 Location: Kings Meadow, Reading
 Contact: Jon Eudall
 JE Job No.: 17/20663

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	53-59	60-66	67-73	74-80	82-87	88-94	95-101	102-108	109-115		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH406	BH403	BH401	BH405	BH201	BH305	BH404	1i	C				
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G				
Sample Date	13/12/2017 11:20	13/12/2017 09:45	13/12/2017 10:30	13/12/2017 11:15	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	2	2	2	2	2				
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017				
											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM30/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-	-		<0.1	mg/l	TM26/PM0
Sulphate as SO ₄ #	68.9	104.8	59.9	71.8	-	-	53.4	-	-		<0.5	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	-	-		<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.06	0.05	0.04	<0.03	-	-	0.05	-	-		<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6	<6	<6	-	-	<6	-	-		<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	-	-	<6	-	-		<6	ug/l	NONE/NONE
Dissolved Organic Carbon #	3	10	2	-	-	-	<2	-	-		<2	mg/l	TM60/PM0
pH #	7.85	7.30	7.37	7.34	-	-	7.60	-	-		<0.01	pH units	TM73/PM0

J E Sample No.	1-7	8-14	15-21	22-28	29	30	31-37	38	39-45	46-52	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS403	WS404	WS407	WS401	WS410	WS412	WS402	WS406	WS405	BH402			
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	G	G	V H H N N P G	G	V H H N N P G	V H H N N P G			
Sample Date	12/12/2017 12:30	12/12/2017 13:00	12/12/2017 15:00	12/12/2017 13:00	12/12/2017 15:20	12/12/2017 15:30	13/12/2017 09:10	13/12/2017 09:10	13/12/2017 09:34	13/12/2017 10:50			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1	LOD/LOR	Units	Method No.
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017			
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<5.0 _{AB}	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<10 _{AB}	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	124	115	99 _{AB}	125	76	121	123	120	101	129	<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	128	114	108 _{AB}	106	85	127	127	128	107	130	<0	%	TM16/PM30

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Jon Eudall
JE Job No.: 17/20663

SVOC Report : Liquid

J E Sample No.	53-59	60-66	67-73	74-80	82-87	88-94	95-101	102-108	109-115		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH406	BH403	BH401	BH405	BH201	BH305	BH404	1i	C				
Depth													
COC No / misc													
Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G				
Sample Date	13/12/2017 11:20	13/12/2017 09:45	13/12/2017 10:30	13/12/2017 11:15	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	2	2	2	2	2		LOD/LOR	Units	Method No.
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017				
SVOC MS													
Other SVOCs													
1,2-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
1,2,4-Trichlorobenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
1,3-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
1,4-Dichlorobenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
2-Nitroaniline	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
2,4-Dinitrotoluene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
3-Nitroaniline	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
4-Bromophenylphenylether #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
4-Chloroaniline	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
4-Chlorophenylphenylether #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
4-Nitroaniline	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
Azobenzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
Bis(2-chloroethoxy)methane #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
Bis(2-chloroethyl)ether #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
Carbazole #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
Dibenzofuran #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
Hexachlorobenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
Hexachlorobutadiene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
Hexachlorocyclopentadiene	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
Hexachloroethane #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
Isophorone #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
N-nitrosodi-n-propylamine #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM16/PM30
Nitrobenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	114	101	117	108	127	125	109	125	116		<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	126	109	119	123	130	99	123	100	124		<0	%	TM16/PM30

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Jon Eudall
JE Job No.: 17/20663

VOC Report : Liquid

J E Sample No.	1-7	8-14	15-21	22-28	29	30	31-37	38	39-45	46-52	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS403	WS404	WS407	WS401	WS410	WS412	WS402	WS406	WS405	BH402			
Depth													
COC No / misc Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	G	G	V H H N N P G	G	V H H N N P G	V H H N N P G			
Sample Date	12/12/2017 12:30	12/12/2017 13:00	12/12/2017 15:00	12/12/2017 13:00	12/12/2017 15:20	12/12/2017 15:30	13/12/2017 09:10	13/12/2017 09:10	13/12/2017 09:34	13/12/2017 10:50			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	14/12/2017	LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	<0.1	<0.1	0.8	<0.1	0.8	<0.1	<0.1	6.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
cis-1,3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM15/PM10
trans-1,3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
p/m-Xylene #	<2	<2	5	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	22	<1	<1	<1	<1	<1	<1	<1	<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	8	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	107	111	112	113	109	107	110	109	99	99	<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	112	110	111	114	113	108	111	111	99	98	<0	%	TM15/PM10

Please include all sections of this report if it is reproduced

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Jon Eudall
JE Job No.: 17/20663

VOC Report : Liquid

J E Sample No.	53-59	60-66	67-73	74-80	82-87	88-94	95-101	102-108	109-115		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH406	BH403	BH401	BH405	BH201	BH305	BH404	1i	C				
Depth													
COC No / misc Containers	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N G	V H H N N P G	V H H N N P G	V H H N N P G	V H H N N P G				
Sample Date	13/12/2017 11:20	13/12/2017 09:45	13/12/2017 10:30	13/12/2017 11:15	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	2	2	2	2	2				
Date of Receipt	14/12/2017	14/12/2017	14/12/2017	14/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017		LOD/LOR	Units	Method No.
VOC MS													
Dichlorodifluoromethane	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Methyl Tertiary Butyl Ether #	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4		<0.1	ug/l	TM15/PM10
Chloromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Vinyl Chloride #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	ug/l	TM15/PM10
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM15/PM10
Chloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Trichlorofluoromethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,1-Dichloroethene (1,1 DCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Dichloromethane (DCM) #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM15/PM10
trans-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,1-Dichloroethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
cis-1,2-Dichloroethene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM15/PM10
Bromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Chloroform #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,1,1-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,1-Dichloropropene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Carbon tetrachloride #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,2-Dichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Benzene #	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	ug/l	TM15/PM10
Trichloroethene (TCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,2-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Dibromomethane #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Bromodichloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
cis-1,3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM15/PM10
trans-1,3-Dichloropropene	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,1,2-Trichloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Tetrachloroethene (PCE) #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,3-Dichloropropane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Dibromochloromethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,2-Dibromoethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Chlorobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,1,1,2-Tetrachloroethane #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Ethylbenzene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM15/PM10
p/m-Xylene #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
o-Xylene #	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	ug/l	TM15/PM10
Styrene	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Bromoform #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
Isopropylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,1,2,2-Tetrachloroethane	<4	<4	<4	<4	<4	<4	<4	<4	<4		<4	ug/l	TM15/PM10
Bromobenzene #	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,2,3-Trichloropropane #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Propylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
2-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,3,5-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
4-Chlorotoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
tert-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,2,4-Trimethylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
sec-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
4-Isopropyltoluene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,3-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,4-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
n-Butylbenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,2-Dichlorobenzene #	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
1,2-Dibromo-3-chloropropane	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,2,4-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Hexachlorobutadiene	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Naphthalene	<2	<2	<2	<2	<2	<2	<2	<2	<2		<2	ug/l	TM15/PM10
1,2,3-Trichlorobenzene	<3	<3	<3	<3	<3	<3	<3	<3	<3		<3	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	98	98	99	99	105	110	107	106	107		<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	98	99	99	99	106	108	107	105	107		<0	%	TM15/PM10

Please include all sections of this report if it is reproduced

Client Name: Ramboll Environ UK Ltd

Matrix : Liquid

Reference: 1700001374

Location: Kings Meadow, Reading

Contact: Jon Eudall

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/20663

SOILS

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It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

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Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x5 Dilution
AB	x10 Dilution

JE Job No: 17/20663

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM30/PM12	CWG GC-FID	Yes			
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				

JE Job No: 17/20663

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO2 and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Ramboll Environ UK Ltd
Artillery House
11-19 Artillery Row
London
SW1P 1RT

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention : Fiona Rea
Date : 2nd February, 2018
Your reference : 1700001374
Our reference : Test Report 18/1175 Batch 1
Location : Kings Meadow, Reading
Date samples received : 27th January, 2018
Status : Final report
Issue : 1

One sample were received for analysis on 27th January, 2018 of which one were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Simon Gomery BSc
Project Manager

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Kings Meadow, Reading
Contact: Fiona Rea
JE Job No.: 18/1175

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-8										Please see attached notes for all abbreviations and acronyms		
Sample ID	CP03												
Depth	14.5												
COC No / misc													
Containers	V H H N P G												
Sample Date	26/01/2018 11:30												
Sample Type	Ground Water												
Batch Number	1												
Date of Receipt	27/01/2018										LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10										<10	ug/l	TM36/PM12
>C6-C8 #	<10										<10	ug/l	TM36/PM12
>C8-C10 #	<10										<10	ug/l	TM36/PM12
>C10-C12 #	<5										<5	ug/l	TM5/PM30
>C12-C16 #	<10										<10	ug/l	TM5/PM30
>C16-C21 #	<10										<10	ug/l	TM5/PM30
>C21-C35 #	<10										<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10										<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7 #	<10										<10	ug/l	TM36/PM12
>EC7-EC8 #	<10										<10	ug/l	TM36/PM12
>EC8-EC10 #	<10										<10	ug/l	TM36/PM12
>EC10-EC12 #	<5										<5	ug/l	TM5/PM30
>EC12-EC16 #	<10										<10	ug/l	TM5/PM30
>EC16-EC21 #	<10										<10	ug/l	TM5/PM30
>EC21-EC35 #	<10										<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10										<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) #	<10										<10	ug/l	TM5/PM30/PM12
MTBE #	<5										<5	ug/l	TM31/PM12
Benzene #	<5										<5	ug/l	TM31/PM12
Toluene #	<5										<5	ug/l	TM31/PM12
Ethylbenzene #	<5										<5	ug/l	TM31/PM12
m/p-Xylene #	<5										<5	ug/l	TM31/PM12
o-Xylene #	<5										<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1										<0.1	mg/l	TM26/PM0
Sulphate as SO4 #	71.4										<0.5	mg/l	TM38/PM0
Total Cyanide #	<0.01										<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.08										<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6										<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6										<6	ug/l	NONE/NONE
pH #	7.25										<0.01	pH units	TM73/PM0
Total Organic Carbon #	<2										<2	mg/l	TM60/PM0

Client Name: Ramboll Environ UK Ltd

Reference: 1700001374

Location: Kings Meadow, Reading

Contact: Fiona Rea

[illegible]

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NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/1175

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Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/1175

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM30/PM12	CWG GC-FID	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				

JE Job No: 18/1175

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO ₂ and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

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Ramboll Environ UK Ltd
Artillery House
11-19 Artillery Row
London
SW1P 1RT

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Fiona Rea
Date :	29th January, 2018
Your reference :	1700001374
Our reference :	Test Report 18/1006 Batch 1
Location :	BMW Dealership Naper Rd Reading
Date samples received :	25th January, 2018
Status :	Final report
Issue :	1

Two samples were received for analysis on 25th January, 2018 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Simon Gomery BSc
Project Manager

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: BMW Dealership Naper Rd Reading
Contact: Fiona Rea
JE Job No.: 18/1006

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-8	9-16									Please see attached notes for all abbreviations and acronyms		
Sample ID	CP02	BH2											
Depth	10.0	12.0											
COC No / misc													
Containers	V H H N N P G	V H H N N P G											
Sample Date	24/01/2018 10:30	24/01/2018 12:40											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	25/01/2018	25/01/2018									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10									<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5									<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10									<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10									<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5									<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10									<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10									<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10									<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) #	<10	<10									<10	ug/l	TM5/PM30/PM12
MTBE #	<5	<5									<5	ug/l	TM31/PM12
Benzene #	<5	<5									<5	ug/l	TM31/PM12
Toluene #	<5	<5									<5	ug/l	TM31/PM12
Ethylbenzene #	<5	<5									<5	ug/l	TM31/PM12
m/p-Xylene #	<5	<5									<5	ug/l	TM31/PM12
o-Xylene #	<5	<5									<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1									<0.1	mg/l	TM26/PM0
Sulphate as SO4 #	99.2	59.7									<0.5	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01									<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	<0.03	<0.03									<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6									<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6									<6	ug/l	NONE/NONE
pH #	7.27	7.39									<0.01	pH units	TM73/PM0
Total Organic Carbon #	2	<2									<2	mg/l	TM60/PM0

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: BMW Dealership Naper Rd Reading
Contact: Fiona Rea

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/1006

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/1006

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM30/PM12	CWG GC-FID	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				

JE Job No: 18/1006

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO ₂ and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

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SW1P 1RT

Tel: +44 (0) 1244 833780
Fax: +44 (0) 1244 833781



Attention :	Fiona Rea
Date :	31st January, 2018
Your reference :	1700001374
Our reference :	Test Report 18/1072 Batch 1
Location :	Former BMW, Reading
Date samples received :	26th January, 2018
Status :	Final report
Issue :	1

Two samples were received for analysis on 26th January, 2018 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Paul Boden BSc
Project Manager

Please see attached notes for all abbreviations and acronyms

Client Name: Ramboll Environ UK Ltd
Reference: 1700001374
Location: Former BMW, Reading
Contact: Fiona Rea
JE Job No.: 18/1072

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

J E Sample No.	1-8	9-16									Please see attached notes for all abbreviations and acronyms		
Sample ID	CP01	BH1											
Depth	8.00	6.50											
COC No / misc													
Containers	V H H N N P G	V H H N N P G											
Sample Date	25/01/2018 09:00	25/01/2018 11:30											
Sample Type	Ground Water	Ground Water											
Batch Number	1	1											
Date of Receipt	26/01/2018	26/01/2018									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10									<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10									<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10									<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5									<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10									<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10									<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10									<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10									<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7 #	<10	<10									<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10									<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10									<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5									<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10									<10	ug/l	TM5/PM30
>EC16-EC21 #	170	<10									<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10									<10	ug/l	TM5/PM30
Total aromatics C5-35 #	170	<10									<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) #	170	<10									<10	ug/l	TM5/PM30/PM12
MTBE #	<5	<5									<5	ug/l	TM31/PM12
Benzene #	<5	<5									<5	ug/l	TM31/PM12
Toluene #	<5	<5									<5	ug/l	TM31/PM12
Ethylbenzene #	<5	<5									<5	ug/l	TM31/PM12
m/p-Xylene #	<5	<5									<5	ug/l	TM31/PM12
o-Xylene #	<5	<5									<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1									<0.1	mg/l	TM26/PM0
Sulphate as SO4 #	109.2	65.2									<0.5	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01									<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as N #	0.03	<0.03									<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<6	<6									<6	ug/l	TM38/PM0
Total Dissolved Chromium III	<6	<6									<6	ug/l	NONE/NONE
pH #	7.44	7.66									<0.01	pH units	TM73/PM0
Total Organic Carbon #	<2	<2									<2	mg/l	TM60/PM0

Client Name: Ramboll Environ UK Ltd

Reference: 1700001374

Location: Former BMW, Reading

Contact: Fiona Rea

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/1072

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/1072

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM30/PM12	CWG GC-FID	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.				

JE Job No: 18/1072

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes			
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO ₂ and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				

APPENDIX 5

HUMAN HEALTH GAC SCREENING TABLES



Soil Lab Results for 1700001374, Kings Meadow, Reading

Lab Certificate			Strata																				
Lab Sample Number	Tier 2 Screening Value			17/20363	17/20363	17/20363	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20363	17/20363	17/20363	17/20363	17/20363
Sample Reference				BH402	BH402	BH404	BH405	WS401	WS402	WS403	WS404	WS404	WS404	WS404	WS405	WS406	WS407	WS407	WS408	WS409	WS409	WS410	WS410
Depth (m)				0.3-0.5	1.3-1.5	1.3-1.5	0.80-1.00	3.00-3.20	0.25-0.50	0.25-0.50	0.30-0.50	0.30-0.50	1.40	2.50	0.25-0.50	0.30-0.50	0.25-0.50	1.30-1.40	0.6-0.8	0.4	1.6	0.5-0.7	1.5-1.6
Strata																							
Date Sampled				06/12/2017	07/12/2017	07/12/2017	06/12/2017	06/12/2017	05/12/2017	05/12/2017	05/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	07/12/2017	06/12/2017	06/12/2017	07/12/2017	07/12/2017
Analytical Parameter	Units	Limit of Detection																					
Asbestos																							
Asbestos Containing Material	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
Asbestos Containing Material (2)	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
Asbestos Fibres	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
Asbestos Fibres (2)	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
Asbestos Level Screen	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
Asbestos Type #	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
Asbestos Type (2) #	None		NAD			NAD		NAD	NAD	NAD	NAD				NAD	NAD	NAD		NAD	NAD			
General Description (Bulk Analysis)	None		Soil/Stones			soil.stones		soil/stones	soil/stones	soil.stones	soil.stones				soil/stones	soil.stones	soil.stones		Soil/Stones	Soil/Stones			
BTEX, MTBE																							
Benzene (TPH Aromatic C5-7)	ug/kg	<5	370	<3	<3	<3	<3	<3	<5	<5	<5	<5	<5	<5	<5	<5	<5	19	<5	<5	<5	<5	<3
Ethylbenzene	ug/kg	<5	34,000	3	<3	<3	<3	<3	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	<5	<5	<5	<5	<3
Methyl tert-butyl ether	ug/kg	<5	39,000	<2	<2	<2	<2	<2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<2
Toluene (TPH Aromatic C7-8)	ug/kg	<5	370,000	3	<3	<3	6	<3	<5	<5	<5	<5	<5	<5	<5	<5	<5	19	<5	<5	<5	<5	<3
Xylene, m & p -	ug/kg	<5	33,000	9	<5	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	367	<5	<5	<5	<5	<5
Xylene-o	ug/kg	<5	37,000	3	<3	<3	<3	<3	<5	<5	<5	<5	<5	<5	<5	<5	<5	191	<5	<5	<5	<5	<3
Inorganics																							
Cyanide	mg/kg	<0.5	49	<0.5			<0.5		<0.5	<0.5	<0.5	<0.5			<0.5	<0.5	<0.5		<0.5	<0.5		<0.5	
Moisture Content dry weight	%	<0.1		9.7	30.8	34.3	11	19	9.9	13	12.7	9.4	12.9	31	10.9	10.2	12.8	39.1	9.2	5.1	58.5	9.7	50
pH	pH units	<0.01		8.62			8.53		11.17	12.18	10.81	8.89			10.97	11.13	11.83		10.34	9.1		9.59	
Sulphate (SO4)	g/l	<0.0015		0.0987			0.2076		0.159	0.0393	0.1448	0.1135	</										
Metals																							
Arsenic	mg/kg	<0.5	40	12			8.9		9.5	10.2	7.7	3.9			6.9	11.5	9		5.7	13.8		5.6	
Beryllium	mg/kg	<0.5	1.7	0.7			3.5		1.1	1.1	0.7	4			1	0.6	0.9		2.4	<0.5		0.7	
Boron	mg/kg	<0.1	11,000	1.7			2.2		1.2	1.5	1.7	1.3			1.5	4.8	1.8		0.6	0.3		0.4	
Cadmium	mg/kg	<0.1	150	<0.1			0.2		0.4	0.2	0.3	<0.1			0.3	0.3	0.3		0.2	0.7		0.3	
Chromium (III)	mg/kg	<0.5	910	44.1			70.4		46.4	56.9	75.6	67.5			42.5	60.7	63		121.7	12.2		52.8	
Chromium (Total)	mg/kg	<0.5	910	44.1			70.4		46.4	56.9	75.6	67.5			42.5	60.7	63		121.7	12.2		52.8	
Chromium VI	mg/kg	<0.3	21	<0.3			<0.3		<0.3	<0.3	<0.3	<0.3			<0.3	<0.3	<0.3		<0.3	<0.3		<0.3	
Copper	mg/kg	<1	7,100	22			49		16	11	29	15			14	15	12		20	5		11	
Lead	mg/kg	<5	310	26			62		29	21	23	<5			30	12	16		26	31		24	
Mercury	mg/kg	<0.1	56	0.3			<0.1		<0.1	<0.1	<0.1	<0.1			<0.1	<0.1	<0.1		<0.1	<0.1		<0.1	
Nickel	mg/kg	<0.7	180	12.1			14.3		16.1	17.3	17.4	13.2			13.1	15.2	17.8		9.1	8.8		12.9	
Selenium	mg/kg	<1	430	<1			6		<1	<1	<1	5			<1	<1	<1		5	<1		<1	
Vanadium	mg/kg	<1	1,200	21			124		44	41	34	119			36	28	36		231	10		23	
Zinc	mg/kg	<5	40,000	46			95		96	56	93	33			70	65	69		75	99		61	
Polyaromatic Hydrocarbons (PAHs)																							
Acenaphthene	mg/kg	<0.05	2,000	<0.05	<0.01	<0.01	0.2	<0.01	0.89	0.6	1.07	<0.05			<1	<0.05	0.18		0.07	<0.05		0.07	<0.01
Acenaphthylene	mg/kg	<0.03	2,000	0.04	<0.01	<0.01	0.58	<0.01	0.76	0.83	1.05	<0.03			0.86	0.04	0.26		0.3	<0.03		0.05	<0.01
Anthracene	mg/kg	<0.04	30,000	0.23	0.076	<0.01	1.59	<0.01	2.85	3.21	9.06	<0.04			2.65	0.17	1.25		0.55	<0.04		0.19	0.02
Benz(a)anthracene [use BaP surrogate]	mg/kg	<0.06	12	0.45	0.198	<0.01	3.75	<0.01	5.63	7.04	13.83	0.08			5.25	0.41	1.96		1.69	0.12		0.77	0.101
Benzo(a)pyrene	mg/kg	<0.04	5.3	0.33	0.123	<0.01	4.64	<0.01	6.82	6.99	12.44	0.06			5.44	0.4	1.98		2.66	0.09		1.11	<0.01
Benzo(b)fluoranthene [use BaP surrogate]	mg/kg	<0.05	4	0.55	0.19	<0.01	6.21	<0.01	8.76	8.83	15.31	0.09			7.34	0.54	2.53		3.23	0.12		1.39	<0.01
Benzo(bk)fluoranthene [use BaP surrogate]	mg/kg	<0.07	4	0.76	0.264	<0.01	8.63	<0.01	12.17	12.26	21.26	0.13			10.2	0.75	3.52		4.49	0.17		1.93	<0.01
Benzo(ghi)perylene [use BaP surrogate]	mg/kg	<0.04	360	0.23	0.072	<0.01	3.35	<0.01	4.37	4.6	7.39	0.04			3.66	0.33	1.34		0.07	0.07		0.98	0.071
Benzo(k)fluoranthene [use BaP surrogate]	mg/kg	<0.02	110	0.21	0.074	<0.01	2.42	<0.01	3.41	3.43	5.95	0.04			2.86	0.21	0.99		1.26	0.05		0.54	<0.01
Chrysene [use BaP surrogate]	mg/kg	<0.02	30	0.42	0.212	<0.01	4.19	<0.01	5.47	6.58	12.26	0.06			5.19	0.39	1.92		1.64	0.09		0.7	0.053
Dibenz(ah)anthrancene [use BaP surrogate]	mg/kg	<0.04	0.31	0.06	0.021	<0.01	0.83	<0.01	1.2	1.05	2.11	<0.04			0.92	0.08	0.36		0.26	<0.04		0.12	<0.01
Fluoranthene	mg/kg	<0.03	1,500	0.76	0.411	<0.01	7.98	<0.01	13.13	16.2	32.16	0.08			12.28	0.91	4.91		2.77	0.17		1.36	0.053
Fluorene	mg/kg	<0.04	2,200	0.1	<0.01	<0.01	0.2	<0.01	0.84	0.46	1.28	<0.04			1.11	<0.04	0.2		0.06	<0.04		<0.04	<0.01
Indeno(123-cd)pyrene [use BaP surrogate]	mg/kg	<0.04	45	0.24	0.059	<0.01	3.58	<0.01	4.91	5.23	8.14	0.04			4.13	0.3	1.51		2.28	0.08		1	<0.01
Naphthalene	mg/kg	<0.04	0.99	0.12			0.37	<0.01	0.78	0.31	0.54	<0.04			<0.8	<0.04	0.11		0.06	<0.04		<0.04	<0.01
Phenanthrene	mg/kg	<0.03	1,300	0.6	0.387	<0.01	3.81	<0.01	7.04	8.85	27.15	0.05			7.3	0.47	4.34		0.79	0.07		0.54	0.167
Pyrene	mg/kg	<0.03	3,700	0.62	0.323	<0.01	7.56	<0.01	11.29	13.52	25.84	0.08			9.95	0.79	4.16		2.52	0.15		1.2	0.161
Total PAHs EPA16	mg/kg	<0.6	5				51.3		78.2	87.7	175.6	0.6			68.9	5	28		22.2	1		10	
Phenols																							
Methylphenol-2	ug/kg	<10	5,500,000	<10	<10	<10	<10	<10															<10
Methylphenol-4	ug/kg	<10	5,700,000	<10	<10	<10	<10	<10															<10
Pentachlorophenol	ug/kg	<10	27,000	<10	<10	<10	<10	<10															<10
Phenol	ug/kg	<10	380,000	<10	<10	<10	<10	<10															<10
Semi Volatile Organic Compounds (SVOCs)																							
Azobenzene	ug/kg	<10		<10	<10	<10	<10	<10															<10
Bis (2-chloroethoxy) methane	ug/kg	<10		<10	<10	<10	<10	<10															<10

Lab Certificate			17/20363		17/20363		17/20363		17/20190		17/20190		17/20190		17/20190		17/20190		17/20190		17/20190		17/20190		17/20190		17/20363		17/20363		17/20363		17/20363		17/20363							
Lab Sample Number			1-3		4-7		8-11		9-11		12-14		37-40		45-48		30-33		60-61,78-79		72-74		69-71		53-56		21-25		62-65		75-77		18-21		51-54		55-57		31-33		37-39	
Sample Reference			BH402		BH402		BH404		BH405		BH405		WS401		WS402		WS403		WS404		WS404		WS404		WS405		WS406		WS407		WS407		WS408		WS409		WS409		WS410		WS410	
Depth (m)			0.3-0.5		1.3-1.5		1.3-1.5		0.80-1.00		3.00-3.20		0.25-0.50		0.25-0.50		0.30-0.50		0.30-0.50		1.40		2.50		0.25-0.50		0.30-0.50		0.25-0.50		1.30-1.40		0.6-0.8		0.4		1.6		0.5-0.7		1.5-1.6	
Strata																																										
Date Sampled			06/12/2017		07/12/2017		07/12/2017		06/12/2017		06/12/2017		05/12/2017		05/12/2017		05/12/2017		06/12/2017		06/12/2017		06/12/2017		06/12/2017		06/12/2017		06/12/2017		07/12/2017		06/12/2017		06/12/2017		07/12/2017		07/12/2017			
Analytical Parameter																																										
			Units		Limit of Detection																																					
Bis (2-chloro-ethyl) ether			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Bromophenyl phenylether, 4-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Butyl benzyl phthalate			ug/kg		<100		62,000,000		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100					
Carbazole			ug/kg		<10		40,900		<10		<10		<10		309		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Chloro-3-methylphenol, 4-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Chloroaniline, p-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Chloronaphthalene-2			ug/kg		<10		2,300		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Chlorophenol-2			ug/kg		<10		110,000		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Chlorophenyl phenylether, 4-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Di(2-ethylhexyl)phthalate (DEHP)			ug/kg		<100		3,900,000		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100					
Dibenzofuran			ug/kg		<10		278,000		161		<10		<10		142		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Dichlorophenol-2,4			ug/kg		<10		100,000		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Diethyl Phthalate			ug/kg		<100		1,900,000		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100					
Dimethylphenol-2,4			ug/kg		<10		200,000		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Dimethylphthalate			ug/kg		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100					
Di-n-butyl phthalate			ug/kg		<100		650,000		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100					
Dinitrotoluene-2,4			ug/kg		<10		250,000		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Dinitrotoluene-2,6			ug/kg		<10		110,000		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Di-n-octyl phthalate			ug/kg		<100		4,900,000		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100		<100					
Hexachlorobenzene			ug/kg		<10		2,500		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Hexachlorocyclopentadiene			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Hexachloroethane			ug/kg		<10		130		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Isophorone			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Methylnaphthalene, 2-			ug/kg		<10		27900*		205		<10		<10		196		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitroaniline, 2-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitroaniline, 3-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitroaniline, 4-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitrobenzene			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitrophenol, 2-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitrophenol, 4-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Nitrosodi-n-propylamine, n-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Total Phenols			mg/kg		<0.15		380		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15		<0.15					
Trichlorophenol, 2,4,5-			ug/kg		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Trichlorophenol-2,4,6			ug/kg		<10		150,000		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10		<10					
Total Petroleum Hydrocarbons (TPH)																																										
TPH Aliphatic C05-06			mg/kg		<0.1		24		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		0.1		<0.1		<0.1		<0.1		<0.1					
TPH Aliphatic C06-08			mg/kg		<0.1		53		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		0.6		<0.1		<0.1		<0.1		<0.1					
TPH Aliphatic C08-10			mg/kg		<0.1		13		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		1.5		<0.1		<0.1		<0.1		<0.1					
TPH Aliphatic C10-12			mg/kg		<0.2		62		<0.2		<0.2		<0.2		<0.2		<0.2		<0.2		<0.2		<0.2		<0.2		<0.2		16.6		<0.2		<0.2		<0.2		<0.2					
TPH Aliphatic C12-16			mg/kg		<4		510		<4		<4		<4		12		5		<4		<4		<4		19		6		<4		35		<4		<4		<4					
TPH Aliphatic C16-21 [1] Check Sum Value			mg/kg		<7		42,000		<7		<7		<7		47		23		47		<7		<7		56		48		9		108		<7		<7		<7					
TPH Aliphatic C21-35 [1] Check Sum Value			mg/kg		<7		42,000		22		<7		75		<7		489		53		444		<7		553		709		68		4,674		<7		<7		<7					
TPH Aromatic C08-10			mg/kg		<0.1		22		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		<0.1		0.6		<0.1		<0.1		<0.1							
TPH Aromatic C10-12			mg/kg		<0.2		120		<0.2		<0.2		<0.2		2		<0.2		<0.2		<0.2		0.6		<0.2		<0.2		21.3		<0.2		<0.2		<0.2							
TPH Aromatic C12-16			mg/kg		<4																																					

Lab Certificate		17/20363	17/20363	17/20363	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20190	17/20363	17/20363	17/20363	17/20363	17/20363
Lab Sample Number		1-3	4-7	8-11	9-11	12-14	37-40	45-48	30-33	60-61,78-79	72-74	69-71	53-56	21-25	62-65	75-77	18-21	51-54	55-57	31-33	37-39
Sample Reference	Tier 2 Screening	BH402	BH402	BH404	BH405	BH405	WS401	WS402	WS403	WS404	WS404	WS404	WS405	WS406	WS407	WS407	WS408	WS409	WS409	WS410	WS410
Depth (m)	Value	0.3-0.5	1.3-1.5	1.3-1.5	0.80-1.00	3.00-3.20	0.25-0.50	0.25-0.50	0.30-0.50	0.30-0.50	1.40	2.50	0.25-0.50	0.30-0.50	0.25-0.50	1.30-1.40	0.6-0.8	0.4	1.6	0.5-0.7	1.5-1.6
Strata																					
Date Sampled		06/12/2017	07/12/2017	07/12/2017	06/12/2017	06/12/2017	05/12/2017	05/12/2017	05/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	06/12/2017	07/12/2017	06/12/2017	06/12/2017	07/12/2017	07/12/2017

Analytical Parameter	Units	Limit of Detection																			
Chlorotoluene, 4-	ug/kg	<3																			<3
Dibromo-3-chloropropane, 1,2- (DBCP)	ug/kg	<4																			<4
Dibromochloromethane	ug/kg	<3																			<3
Dibromoethane, 1,2-	ug/kg	<3																			<3
Dibromomethane	ug/kg	<3																			<3
Dichlorobenzene-1,2	ug/kg	<4	9,800																		<4
Dichlorobenzene-1,2	ug/kg	<10	9,800	<10	<10	<10	<10	<10	<10												<10
Dichlorobenzene-1,3	ug/kg	<4	180	<4	<4	<4	<4	<4	<4												<4
Dichlorobenzene-1,3	ug/kg	<10	180	<10	<10	<10	<10	<10	<10												<10
Dichlorobenzene-1,4	ug/kg	<4	25,000	<4	<4	<4	<4	<4	<4												<4
Dichlorobenzene-1,4	ug/kg	<10	25,000	<10	<10	<10	<10	<10	<10												<10
Dichlorodifluoromethane	ug/kg	<2		<2	<2	<2	<2	<2	<2												<2
Dichloroethane-1,1	ug/kg	<3	1,400	<3	<3	<3	<3	<3	<3												<3
Dichloroethane-1,2	ug/kg	<4	3.5	<4	<4	<4	<4	<4	<4												<4
Dichloroethene-1,1,	ug/kg	<6	150	<6	<6	<6	<6	<6	<6												<6
Dichloroethene-1,2-cis	ug/kg	<3	69	<3	<3	<3	<3	<3	<3												<3
Dichloroethene-1,2-trans	ug/kg	<3	120	<3	<3	<3	<3	<3	<3												<3
Dichloromethane	ug/kg	<30	1,200	90	<30	<30	80	<30	<30												<30
Dichloropropane, 1,2-	ug/kg	<6	13	<6	<6	<6	<6	<6	<6												<6
Dichloropropane, 1,3-	ug/kg	<3		<3	<3	<3	<3	<3	<3												<3
Dichloropropane, 2,2- (R220a)	ug/kg	<4		<4	<4	<4	<4	<4	<4												<4
Dichloropropene, 1,1-	ug/kg	<3		<3	<3	<3	<3	<3	<3												<3
Dichloropropene, 1,3-cis	ug/kg	<4		<4	<4	<4	<4	<4	<4												<4
Dichloropropene, 1,3-trans	ug/kg	<3		<3	<3	<3	<3	<3	<3												<3
Hexachloro-1,3-butadiene	ug/kg	<4	130	<4	<4	<4	<4	<4	<4												<4
Hexachloro-1,3-butadiene	ug/kg	<10	130	<10	<10	<10	<10	<10	<10												<10
Iso-propylbenzene	ug/kg	<3	6,800	<3	<3	<3	<3	<3	<3												<3
Isopropyltoluene, 4-	ug/kg	<4		<4	<4	<4	<4	<4	<4												<4
Propylbenzene	ug/kg	<4	23,000	<4	<4	<4	<4	<4	<4												<4
Styrene	ug/kg	<3	21,000	<3	<3	<3	<3	<3	<3												<3
Tetrachloroethane-1,1,1,2	ug/kg	<3	630	<3	<3	<3	<3	<3	<3												<3
Tetrachloroethane-1,1,2,2	ug/kg	<3	1,600	<3	<3	<3	<3	<3	<3												<3
Tetrachloroethene	ug/kg	<3	74	<3	<3	<3	<3	<3	<3												<3
Tetrachloromethane (Carbon Tetrachloride)	ug/kg	<4	11	<4	<4	<4	<4	<4	<4												<4
Trichlorobenzene-1,2,3	ug/kg	<7	610	<7	<7	<7	<7	<7	<7												<7
Trichlorobenzene-1,2,4	ug/kg	<7	1,100	<7	<7	<7	<7	<7	<7												<7
Trichlorobenzene-1,2,4	ug/kg	<10	1,100	<10	<10	<10	<10	<10	<10												<10
Trichloroethane-1,1,1	ug/kg	<3	3,800	<3	<3	<3	<3	<3	<3												<3
Trichloroethane-1,1,2	ug/kg	<3	510	<3	<3	<3	<3	<3	<3												<3
Trichloroethene	ug/kg	<3	7.1	<3	<3	<3	<3	<3	<3												<3
Trichlorofluoromethane	ug/kg	<2		<2	<2	<2	<2	<2	<2												<2
Trichloromethane (Chloroform)	ug/kg	<3	480	<3	<3	<3	<3	<3	<3												<3
Trichloropropane, 1,2,3-	ug/kg	<4		<4	<4	<4	<4	<4	<4												<4
Trimethylbenzene-1,2,4	ug/kg	<6	240	<6	<6	<6	<6	<6	<6												<6
Trimethylbenzene-1,3,5	ug/kg	<3	79	<3	<3	<3	<3	<3	<3												<3

Key
* incomparison with Methylnapthalene-1

Soil Lab Results for 1700001374, Kings Meadow, Reading						
Lab Certificate				17/20363	17/20363	17/20363
Lab Sample Number				25-27	58-61	44-47
Sample Reference				WS411	WS412	WS413
Depth (m)	Tier 2 Screening Value			0.5-0.7	0.6-0.8	0.8-0.9
Strata						
Date Sampled				07/12/2017	08/12/2017	07/12/2017
Analytical Parameter	Units	Limit of Detection				
Asbestos						
Asbestos Containing Material	None			NAD	NAD	NAD
Asbestos Containing Material (2)	None			NAD	NAD	NAD
Asbestos Fibres	None			NAD	NAD	NAD
Asbestos Fibres (2)	None			NAD	NAD	NAD
Asbestos Level Screen	None			NAD	NAD	NAD
Asbestos Type #	None			NAD	NAD	NAD
Asbestos Type (2) #	None			NAD	NAD	NAD
General Description (Bulk Analysis)	None			Soil/Stones	Soil/Stones	Soil/Stones
BTEX, MTBE						
Benzene (TPH Aromatic C5-7)	ug/kg	<5	370	<3	<3	<5
Ethylbenzene	ug/kg	<5	34,000	<3	<3	<5
Methyl tert-butyl ether	ug/kg	<5	39,000	<2	<2	<5
Toluene (TPH Aromatic C7-8)	ug/kg	<5	370,000	<3	<3	<5
Xylene, m & p -	ug/kg	<5	33,000	<5	<5	<5
Xylene-o	ug/kg	<5	37,000	<3	<3	<5
Inorganics						
Cyanide	mg/kg	<0.5	49	<0.5	<0.5	<0.5
Moisture Content dry weight	%	<0.1		14.6	15.5	17.7
pH	pH units	<0.01		11.64	9.18	8.88
Sulphate (SO4)	g/l	<0.0015		0.0154	0.0344	0.0122
Metals						
Arsenic	mg/kg	<0.5	40	13.1	3.2	5.1
Beryllium	mg/kg	<0.5	1.7	<0.5	<0.5	<0.5
Boron	mg/kg	<0.1	11,000	0.7	0.2	0.3
Cadmium	mg/kg	<0.1	150	0.4	0.3	0.1
Chromium (III)	mg/kg	<0.5	910	35.7	13.8	26
Chromium (Total)	mg/kg	<0.5	910	35.7	13.8	26
Chromium VI	mg/kg	<0.3	21	<0.3	<0.3	<0.3
Copper	mg/kg	<1	7,100	16	6	9
Lead	mg/kg	<5	310	33	10	12
Mercury	mg/kg	<0.1	56	<0.1	<0.1	0.1
Nickel	mg/kg	<0.7	180	12.3	4.3	9.3
Selenium	mg/kg	<1	430	<1	<1	<1
Vanadium	mg/kg	<1	1,200	22	9	15
Zinc	mg/kg	<5	40,000	119	28	35
Polyaromatic Hydrocarbons (PAHs)						
Acenaphthene	mg/kg	<0.05	2,000	<0.05	1.85	<0.05
Acenaphthylene	mg/kg	<0.03	2,000	0.04	0.06	0.04
Anthracene	mg/kg	<0.04	30,000	0.11	3.15	0.14
Benzo(a)anthracene [use BaP surrogate]	mg/kg	<0.06	12	0.36	10.86	0.47
Benzo(a)pyrene	mg/kg	<0.04	5.3	0.37	4.87	0.42
Benzo(b)fluoranthene [use BaP surrogate]	mg/kg	<0.05	4	0.56	5.63	0.55
Benzo(bk)fluoranthene [use BaP surrogate]	mg/kg	<0.07	4	0.78	7.82	0.77
Benzo(ghi)perylene [use BaP surrogate]	mg/kg	<0.04	360	0.34	3	0.36
Benzo(k)fluoranthene [use BaP surrogate]	mg/kg	<0.02	110	0.22	2.19	0.22
Chrysene [use BaP surrogate]	mg/kg	<0.02	30	0.34	4.97	0.41
Dibenz(ah)anthracene [use BaP surrogate]	mg/kg	<0.04	0.31	0.05	0.4	<0.04
Fluoranthene	mg/kg	<0.03	1,500	0.64	13.13	0.74
Fluorene	mg/kg	<0.04	2,200	<0.04	1.28	<0.04
Indeno(123-cd)pyrene [use BaP surrogate]	mg/kg	<0.04	45	0.36	3.21	0.35
Naphthalene	mg/kg	<0.04	0.99	<0.04	1.31	0.06
Phenanthrene	mg/kg	<0.03	1,300	0.27	11.66	0.43
Pyrene	mg/kg	<0.03	3,700	0.5	11.23	0.65
Total PAHs EPA16	mg/kg	<0.6		4.2	78.8	4.8
Phenols						
Methylphenol-2	ug/kg	<10	5,500,000	<10	<10	
Methylphenol-4	ug/kg	<10	5,700,000	<10	<10	
Pentachlorophenol	ug/kg	<10	27,000	<10	<10	
Phenol	ug/kg	<10	380,000	<10	<10	
Semi Volatile Organic Compounds (SVOCs)						
Azobenzene	ug/kg	<10		<10	<10	
Bis (2-chloroethoxy) methane	ug/kg	<10		<10	<10	

Lab Certificate	17/20363	17/20363	17/20363
Lab Sample Number	25-27	58-61	44-47
Sample Reference	Tier 2 Screening	WS411	WS412
Depth (m)	Value	0.5-0.7	0.6-0.8
Strata			0.8-0.9
Date Sampled	07/12/2017	08/12/2017	07/12/2017

Analytical Parameter	Units	Limit of Detection				
Bis (2-chloro-ethyl) ether	ug/kg	<10		<10	<10	
Bromophenyl phenylether, 4-	ug/kg	<10		<10	<10	
Butyl benzyl phthalate	ug/kg	<100	62,000,000	<100	<100	
Carbazole	ug/kg	<10	40,900	<10	1,036	
Chloro-3-methylphenol, 4-	ug/kg	<10		<10	<10	
Chloroaniline, p-	ug/kg	<10		<10	<10	
Chloronaphthalene-2	ug/kg	<10	2,300	<10	<10	
Chlorophenol-2	ug/kg	<10	110,000	<10	<10	
Chlorophenyl phenylether, 4-	ug/kg	<10		<10	<10	
Di(2-ethylhexyl)phthalate (DEHP)	ug/kg	<100	3,900,000	<100	<100	
Dibenzofuran	ug/kg	<10	278,000	<10	1,134	
Dichlorophenol-2,4	ug/kg	<10	100,000	<10	<10	
Diethyl Phthalate	ug/kg	<100	1,900,000	<100	<100	
Dimethylphenol-2,4	ug/kg	<10	200,000	<10	<10	
Dimethylphthalate	ug/kg	<100		<100	<100	
Di-n-butyl phthalate	ug/kg	<100	650,000	<100	<100	
Dinitrotoluene-2,4	ug/kg	<10	250,000	<10	<10	
Dinitrotoluene-2,6	ug/kg	<10	110,000	<10	<10	
Di-n-octyl phthalate	ug/kg	<100	4,900,000	<100	<100	
Hexachlorobenzene	ug/kg	<10	2,500	<10	<10	
Hexachlorocyclopentadiene	ug/kg	<10		<10	<10	
Hexachloroethane	ug/kg	<10	130	<10	<10	
Isophorone	ug/kg	<10		<10	<10	
Methylnaphthalene, 2-	ug/kg	<10	27900*	<10	767	
Nitroaniline, 2-	ug/kg	<10		<10	<10	
Nitroaniline, 3-	ug/kg	<10		<10	<10	
Nitroaniline, 4-	ug/kg	<10		<10	<10	
Nitrobenzene	ug/kg	<10		<10	<10	
Nitrophenol, 2-	ug/kg	<10		<10	<10	
Nitrophenol, 4-	ug/kg	<10		<10	<10	
Nitrosodi-n-propylamine, n-	ug/kg	<10		<10	<10	
Total Phenols	mg/kg	<0.15	380	<0.15	<0.15	<0.15
Trichlorophenol, 2,4,5-	ug/kg	<10		<10	<10	
Trichlorophenol-2,4,6	ug/kg	<10	150,000	<10	<10	
Total Petroleum Hydrocarbons (TPH)						
TPH Aliphatic C05-06	mg/kg	<0.1	24	<0.1	<0.1	<0.1
TPH Aliphatic C06-08	mg/kg	<0.1	53	<0.1	<0.1	<0.1
TPH Aliphatic C08-10	mg/kg	<0.1	13	<0.1	0.1	<0.1
TPH Aliphatic C10-12	mg/kg	<0.2	62	<0.2	<0.2	<0.2
TPH Aliphatic C12-16	mg/kg	<4	510	<4	<4	<4
TPH Aliphatic C16-21 [1] Check Sum Value	mg/kg	<7	42,000	<7	<7	<7
TPH Aliphatic C21-35 [1] Check Sum Value	mg/kg	<7	42,000	<7	<7	<7
TPH Aromatic C08-10	mg/kg	<0.1	22	<0.1	<0.1	<0.1
TPH Aromatic C10-12	mg/kg	<0.2	120	<0.2	3.1	<0.2
TPH Aromatic C12-16	mg/kg	<4	1,100	<4	22	<4
TPH Aromatic C16-21	mg/kg	<7	1,900	<7	129	<7
TPH Aromatic C21-35	mg/kg	<7	1,900	<7	282	<7
Total Aliphatic & Total Aromatic (C5-35)	mg/kg	<38		<38	436	<38
Total aliphatics C5-35	mg/kg	<19		<19	<19	<19
Total aromatics C5-35 #	mg/kg	<19		<19	436	<19
Volatile Organic Compounds (VOCs)						
Bromobenzene	ug/kg	<2	540	<2	<2	
Bromodichloromethane	ug/kg	<3	11	<3	<3	
Bromoform	ug/kg	<3	3,100	<3	<3	
Bromomethane	ug/kg	<1		<1	<1	
Butylbenzene, n-	ug/kg	<4		<4	<4	
Butylbenzene, sec-	ug/kg	<4		<4	<4	
Butylbenzene, tert-	ug/kg	<5		<5	<5	
Chlorobenzene	ug/kg	<3	190	<3	<3	
Chlorobromomethane	ug/kg	<3		<3	<3	
Chloroethane	ug/kg	<2	5,300	<2	<2	
Chloroethene (Vinyl Chloride)	ug/kg	<2	0.37	<2	<2	
Chloromethane	ug/kg	<3	5.3	<3	<3	
Chlorotoluene, 2-	ug/kg	<3	37,000	<3	<3	

Lab Certificate	17/20363	17/20363	17/20363
Lab Sample Number	25-27	58-61	44-47
Sample Reference	Tier 2 Screening	WS411	WS412
Depth (m)	Value	0.5-0.7	0.6-0.8
Strata			0.8-0.9
Date Sampled	07/12/2017	08/12/2017	07/12/2017

Analytical Parameter	Units	Limit of Detection		
Chlorotoluene, 4-	ug/kg	<3	<3	<3
Dibromo-3-chloropropane, 1,2- (DBCP)	ug/kg	<4	<4	<4
Dibromochloromethane	ug/kg	<3	<3	<3
Dibromoethane, 1,2-	ug/kg	<3	<3	<3
Dibromomethane	ug/kg	<3	<3	<3
Dichlorobenzene-1,2	ug/kg	<4	9,800	<4
Dichlorobenzene-1,2	ug/kg	<10	9,800	<10
Dichlorobenzene-1,3	ug/kg	<4	180	<4
Dichlorobenzene-1,3	ug/kg	<10	180	<10
Dichlorobenzene-1,4	ug/kg	<4	25,000	<4
Dichlorobenzene-1,4	ug/kg	<10	25,000	<10
Dichlorodifluoromethane	ug/kg	<2		<2
Dichloroethane-1,1	ug/kg	<3	1,400	<3
Dichloroethane-1,2	ug/kg	<4	3.5	<4
Dichloroethene-1,1,	ug/kg	<6	150	<6
Dichloroethene-1,2-cis	ug/kg	<3	69	<3
Dichloroethene-1,2-trans	ug/kg	<3	120	<3
Dichloromethane	ug/kg	<30	1,200	<30
Dichloropropane, 1,2-	ug/kg	<6	13	<6
Dichloropropane, 1,3-	ug/kg	<3		<3
Dichloropropane, 2,2- (R220a)	ug/kg	<4		<4
Dichloropropene, 1,1-	ug/kg	<3		<3
Dichloropropene, 1,3-cis	ug/kg	<4		<4
Dichloropropene, 1,3-trans	ug/kg	<3		<3
Hexachloro-1,3-butadiene	ug/kg	<4	130	<4
Hexachloro-1,3-butadiene	ug/kg	<10	130	<10
Iso-propylbenzene	ug/kg	<3	6,800	<3
Isopropyltoluene, 4-	ug/kg	<4		<4
Propylbenzene	ug/kg	<4	23,000	<4
Styrene	ug/kg	<3	21,000	<3
Tetrachloroethane-1,1,1,2	ug/kg	<3	630	<3
Tetrachloroethane-1,1,2,2	ug/kg	<3	1,600	<3
Tetrachloroethene	ug/kg	<3	74	<3
Tetrachloromethane (Carbon Tetrachloride)	ug/kg	<4	11	<4
Trichlorobenzene-1,2,3	ug/kg	<7	610	<7
Trichlorobenzene-1,2,4	ug/kg	<7	1,100	<7
Trichlorobenzene-1,2,4	ug/kg	<10	1,100	<10
Trichloroethane-1,1,1	ug/kg	<3	3,800	<3
Trichloroethane-1,1,2	ug/kg	<3	510	<3
Trichloroethene	ug/kg	<3	7.1	<3
Trichlorofluoromethane	ug/kg	<2		<2
Trichloromethane (Chloroform)	ug/kg	<3	480	<3
Trichloropropane, 1,2,3-	ug/kg	<4		<4
Trimethylbenzene-1,2,4	ug/kg	<6	240	<6
Trimethylbenzene-1,3,5	ug/kg	<3	79	<3

Key
* incomparision with Methylnapthalene-1



Groundwater Lab Results for 1700001374, Kings Meadow, Reading - Residential end use

Lab Certificate				17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663						
Lab Sample Number				102-108	81	82-87	88-94	67-73	46-52	60-66	95-101	74-80	53-59	109-115	22-28	31-37	1-7	8-14	39-45	38	15-21	29	30					
Sample Reference				Tier 2 Screening Value				1i	BH201	BH201	BH305	BH401	BH402	BH403	BH404	BH405	BH406	C	WS401	WS402	WS403	WS404	WS405	WS406	WS407	WS410	WS412	
Depth (m)																												
Strata																												
Date Sampled				13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	12/12/2017	13/12/2017	12/12/2017	12/12/2017	13/12/2017	13/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017	12/12/2017	
Analytical Parameter	Units	Limit of Detection	Accreditation Status																									
BTEX, MTBE																												
Benzene (TPH Aromatic C5-7)	ug/l	<0.5	1	26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzene (TPH Aromatic C5-7)	ug/l	<0.5	TM15/PM10	26	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzene (TPH Aromatic C5-7)	ug/l	<10	TM36/PM12	26	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Ethylbenzene	ug/l	<1	1	3,070	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Ethylbenzene	ug/l	<1	TM15/PM10	3,070	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Methyl tert-butyl ether	ug/l	<0.1	1	111,000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	0.2	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6.1	0.8	0.8	<0.1	
Methyl tert-butyl ether	ug/l	<0.1	TM15/PM10	111,000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	0.2	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6.1	0.8	0.8	<0.1	
Toluene (TPH Aromatic C7-8)	ug/l	<5	1	23,400	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Toluene (TPH Aromatic C7-8)	ug/l	<5	TM15/PM10	23,400	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Toluene (TPH Aromatic C7-8)	ug/l	<10	TM36/PM12	23,400	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Xylene, m & p -	ug/l	<2	1	877	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	5	<2	<2	<2	
Xylene, m & p -	ug/l	<2	TM15/PM10	877	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	5	<2	<2	<2	
Xylene-o	ug/l	<1	1	1,160	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	22	<1	<1	<1	
Xylene-o	ug/l	<1	TM15/PM10	1,160	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	22	<1	<1	<1	
Inorganics																												
Ammoniacal Nitrogen (as N)	mg/l	<0.03	TM38/PM0						0.04	0.05	0.05	0.05	<0.03	0.06			1.31		0.23	0.17	2.92				2.29			
Calcium as Ca (Dissolved)	mg/l	<0.2	TM30/PM14						95.7	59.7	80.9	98.9		125.1			169.3		170.7	244.1	79.3				115.3			
Cyanide	mg/l	<0.01	TM89/PM0	1,000,000					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.12	<0.01				0.01				
pH	pH units	<0.01	TM73/PM0						7.37	8.03	7.3	7.6	7.34	7.85			7.69		7.56	7.2	12.27				7.44			
Sulphate (SO4)	mg/l	<0.5	TM38/PM0						59.9	56.8	104.8	53.4	71.8	68.9			131.5		248.7	526.3	54.6				64.7			
Total Hardness	mg/l	<1	TM30/PM14						258	161	222	268	318	340			448		481	687	198				331			
Dissolved Organic Carbon #	mg/l	<2	TM60/PM0						2	<2	10	<2		3			3		9	4	18				35			
Metals																												
Arsenic	ug/l	<2.5	TM30/PM14	1,000,000,000					<2.5	<2.5	<2.5	<2.5	<2.5	<2.5			<2.5		<2.5	<2.5	12.1				9.8			
Beryllium	ug/l	<0.5	TM30/PM14	1,000,000,000					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5		<0.5	<0.5	<0.5				<0.5			
Boron	ug/l	<12	TM30/PM14	1,000,000,000					77	40	233	73	97	153			115		2,664	266	152				476			
Cadmium as Cd (Dissolved)	ug/l	<0.5	TM30/PM14	1,000,000,000					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			<0.5		<0.5	<0.5	<0.5				<0.5			
Chromium (III)	ug/l	<6	NONE/NONE	1,000,000,000					<6	<6	<6	<6	<6	<6			<6		<6	<6	<6				<6			
Chromium (Total)	ug/l	<1.5	TM30/PM14	1,000,000,000					<1.5	<1.5	5.5	<1.5	<1.5	<1.5			4		<1.5	<1.5	10.3				2			
Chromium VI	ug/l	<6	TM38/PM0	1,000,000,000					<6	<6	<6	<6	<6	<6			<6		<6	<6	53				<6			
Copper	ug/l	<7	TM30/PM14	1,000,000,000					<7	<7	<7	<7	<7	<7			<7		<7	<7	43				<7			
Lead	ug/l	<5	TM30/PM14	1,000,000,000					<5	<5	<5	<5	<5	<5			<5		<5	<5	<5				<5			
Mercury	ug/l	<1	TM30/PM14	1,000,000,000					<1	<1	<1	<1	<1	<1			<1		<1	<1	<1				<1			
Nickel	ug/l	<2	TM30/PM14	1,000,000,000					<2	<2	2	<2	<2	3			<2		2	4	8				6			
Selenium	ug/l	<3	TM30/PM14	1,000,000,000					<3	<3	<3	<3	<3	<3			<3		<3	<3	<3				<3			
Vanadium	ug/l	<1.5	TM30/PM14	1,000,000,000					<1.5	<1.5	1.7	1.5	<1.5	<1.5			4.2		2.1	<1.5	43.1				4.6			
Zinc	ug/l	<3	TM30/PM14	1,000,000,000					<3	25	<3	29	4	<3			<3		<3	<3	<3				24			
PAHs																												
Acenaphthene	ug/l	<1	TM16/PM30	4,100	<1	<1	<1	<1	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1		
Acenaphthene	ug/l	<0.013	TM4/PM30	4,100					<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.024		0.072		<0.013	0.018	0.518			0.028				
Acenaphthylene	ug/l	<0.5	TM16/PM30	8,000	<0.5	<0.5	<0.5	<0.5	<0.5																			



Groundwater Lab Results for 1700001374, Kings Meadow, Reading - Residential end use

Lab Certificate				17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663			
Lab Sample Number				102-108	81	82-87	88-94	67-73	46-52	60-66	95-101	74-80	53-59	109-115	22-28	31-37	1-7	8-14	39-45	38	15-21	29	30	
Sample Reference				Tier 2 Screening Value	1i	BH201	BH201	BH305	BH401	BH402	BH403	BH404	BH405	BH406	C	WS401	WS402	WS403	WS404	WS405	WS406	WS407	WS410	WS412
Depth (m)																								
Strata																								
Date Sampled		Limit of Detection	Accreditation Status	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	12/12/2017	13/12/2017	12/12/2017	12/12/2017	13/12/2017	13/12/2017	12/12/2017	12/12/2017	12/12/2017
Analytical Parameter	Units																							
Butylbenzene, tert-	ug/l	<3	TM15/PM10		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Chlorobenzene	ug/l	<2	TM15/PM10	150	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Chlorobromomethane	ug/l	<2	TM15/PM10		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Chloroethane	ug/l	<3	TM15/PM10	25,600	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Chloroethene (Vinyl Chloride)	ug/l	<0.1	TM15/PM10	0.976	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Chloromethane	ug/l	<3	TM15/PM10	21.1	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Chlorotoluene, 2-	ug/l	<3	TM15/PM10	29,700	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Chlorotoluene, 4-	ug/l	<3	TM15/PM10		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dibromo-3-chloropropane, 1,2- (DBCP)	ug/l	<2	TM15/PM10	0.829	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dibromochloromethane	ug/l	<2	TM15/PM10		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dibromoethane, 1,2-	ug/l	<2	TM15/PM10	27,800	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dibromomethane	ug/l	<3	TM15/PM10	485	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichlorobenzene-1,2	ug/l	<3	TM15/PM10	2,200	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichlorobenzene-1,2	ug/l	<1	TM16/PM30	2,200	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	
Dichlorobenzene-1,3	ug/l	<3	TM15/PM10	39.3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichlorobenzene-1,3	ug/l	<1	TM16/PM30	39.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	
Dichlorobenzene-1,4	ug/l	<3	TM15/PM10	5,950	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichlorobenzene-1,4	ug/l	<1	TM16/PM30	5,950	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	
Dichlorodifluoromethane	ug/l	<2	TM15/PM10	36	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dichloroethane-1,1	ug/l	<3	TM15/PM10		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichloroethane-1,2	ug/l	<2	TM15/PM10	10.3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dichloroethene-1,1,	ug/l	<3	TM15/PM10	218	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichloroethene-1,2-cis	ug/l	<3	TM15/PM10		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichloroethene-1,2-trans	ug/l	<3	TM15/PM10	175	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichloromethane	ug/l	<5	TM15/PM10	3,640	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Dichloropropane, 1,2-	ug/l	<2	TM15/PM10	78.8	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dichloropropane, 1,3-	ug/l	<2	TM15/PM10	194	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dichloropropane, 2,2- (R220a)	ug/l	<1	TM15/PM10	50.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Dichloropropene, 1,1-	ug/l	<3	TM15/PM10	5.74	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Dichloropropene, 1,3-cis	ug/l	<2	TM15/PM10	934	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Dichloropropene, 1,3-trans	ug/l	<2	TM15/PM10	117	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Hexachloro-1,3-butadiene	ug/l	<3	TM15/PM10	1.84	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Hexachloro-1,3-butadiene	ug/l	<1	TM16/PM30	1.84	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	
Iso-propylbenzene	ug/l	<3	TM15/PM10	869	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Isopropyltoluene, 4-	ug/l	<3	TM15/PM10		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Propylbenzene	ug/l	<3	TM15/PM10	2,800	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
Styrene	ug/l	<2	TM15/PM10	10,000	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Tetrachloroethane-1,1,1,2	ug/l	<2	TM15/PM10	286	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Tetrachloroethane-1,1,2,2	ug/l	<4	TM15/PM10	1,510	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	
Tetrachloroethene	ug/l	<3	TM15/PM10	325	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3</								

APPENDIX 6

CONTROLLED WATERS GAC SCREENING TABLES



Groundwater Lab Results for 1700001374, Kings Meadow, Reading - EQS (CaCO3>200mg/l)

Lab Certificate
Lab Sample Number
Sample Reference
Depth (m)
Strata
Date Sampled

Tier 2
Screening
Value

17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663	17/20663
102-108	81	82-87	88-94	67-73	46-52	60-66	95-101	74-80	53-59	109-115	22-28	31-37	1-7	8-14	39-45	38	15-21	29	30	
1i	BH201	BH201	BH305	BH401	BH402	BH403	BH404	BH405	BH406	C	WS401	WS402	WS403	WS404	WS405	WS406	WS407	WS410	WS412	
13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	13/12/2017	12/12/2017	13/12/2017	12/12/2017	12/12/2017	13/12/2017	13/12/2017	12/12/2017	12/12/2017

Analytical Parameter

Units
Limit of
Detection
Accreditation
Status

BTEX, MTBE
Benzene (TPH Aromatic C5-7)
Benzene (TPH Aromatic C5-7)
Benzene (TPH Aromatic C5-7)
Ethylbenzene
Ethylbenzene
Methyl tert-butyl ether
Methyl tert-butyl ether
Toluene (TPH Aromatic C7-8)
Toluene (TPH Aromatic C7-8)
Toluene (TPH Aromatic C7-8)
Xylene, m & p -
Xylene, m & p -
Xylene-o
Xylene-o
Inorganics
Ammoniacal Nitrogen (as N)
Calcium as Ca (Dissolved)
Cyanide
pH
Sulphate (SO4)
Total Hardness
Dissolved Organic Carbon #
Metals
Arsenic
Beryllium
Boron
Cadmium as Cd (Dissolved)
Chromium (III)
Chromium (Total)
Chromium VI
Copper
Lead
Mercury
Nickel
Selenium
Vanadium
Zinc
PAHs
Acenaphthene
Acenaphthene
Acenaphthylene
Acenaphthylene
Anthracene
Anthracene
Benz(a)anthracene
Benz(a)anthracene
Benzo(a)pyrene
Benzo(a)pyrene
Benzo(b)fluoranthene [use BaP surrogate]
Benzo(bk)fluoranthene [use BaP surrogate]
Benzo(bk)fluoranthene [use BaP surrogate]
Benzo(ghi)perylene [use BaP surrogate]
Benzo(ghi)perylene [use BaP surrogate]
Benzo(k)fluoranthene [use BaP surrogate]
Chrysene
Chrysene
Dibenz(ah)anthracene
Dibenz(ah)anthracene
Fluoranthene
Fluoranthene
Fluorene
Fluorene
Indeno(123-cd)pyrene [use BaP surrogate]
Indeno(123-cd)pyrene [use BaP surrogate]
Naphthalene
Naphthalene
Naphthalene
Phenanthrene

10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
12*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	0.2	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6.1	0.8	0.8	<0.1
12*	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	0.2	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6.1	0.8	0.8	<0.1
74	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
74	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
74	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	5	<2	<2	<2
30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	5	<2	<2	<2
30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	22	<1	<1	<1
30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	22	<1	<1	<1
0.3						0.04	0.05	0.05	0.05	<0.03	0.06		1.31		0.23	0.17	2.92		2.29		
						95.7	59.7	80.9	98.9		125.1		169.3		170.7	244.1	79.3		115.3		
0.001						<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01		<0.01	0.12	<0.01		0.01		
6.5-9.5**						7.37	8.03	7.3	7.6	7.34	7.85		7.69		7.56	7.2	12.27		7.44		
400						59.9	56.8	104.8	53.4	71.8	68.9		131.5		248.7	526.3	54.6		64.7		
						258	161	222	268	318	340		448		481	687	198		331		
						2	<2	10	<2		3		3		9	4	18		35		
50						<2.5	<2.5	<2.5	<2.5	<2.5	<2.5		<2.5		<2.5	<2.5	12.1		9.8		
						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5	<0.5	<0.5		<0.5		
2,000						77	40	233	73	97	153		115		2,664	266	152		476		
0.25						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5		<0.5	<0.5	<0.5		<0.5		
4.7						<6	<6	<6	<6	<6	<6		<6		<6	<6	<6		<6		
3.4						<1.5	<1.5	5.5	<1.5	<1.5	<1.5		4		<1.5	<1.5	10.3		2		
3.4						<6	<6	<6	<6	<6	<6		<6		<6	<6	53		<6		
1						<7	<7	<7	<7	<7	<7		<7		<7	<7	43		<7		
1.2						<5	<5	<5	<5	<5	<5		<5		<5	<5	<5		<5		
						<1	<1	<1	<1	<1	<1		<1		<1	<1	<1		<1		
4						<2	<2	2	<2	<2	3		<2		2	4	8		6		
						<3	<3	<3	<3	<3	<3		<3		<3	<3	<3		<3		
60						<1.5	<1.5	1.7	1.5	<1.5	<1.5		4.2		2.1	<1.5	43.1		4.6		
10.9						<3	25	<3	29	4	<3		<3		<3	<3	<3		24		
	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1
	<0.5	<0.5	<0.5	<0.5	<0.5	<0.013	<0.013	<0.013	<0.013	<0.013	0.024		0.072		<0.013	0.018	0.518		0.028		
	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5
	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.019	0.03		0.028		
0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5
0.1	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013		0.025		<0.013	0.027	0.129		0.089		
	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<5	1.1	<0.5
	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.019		0.033		<0.015	0.098	0.07		0.123		
0.00017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	1	<1
0.00017	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	0.021		0.034		<0.016	0.077	0.051		0.209		
0.00017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02		0.05		<0.01	0.11	0.07		0.17		
0.00017	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<10	<1	<1
0.00017	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	0.027		0.072		<0.018	0.146	0.102		0.24		
0.00017	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.3	1.9	<0.5
0.00017	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.04	0.038		0.251		
0.00017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.03		0.07		
	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<5	1.3	<0.5
	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.016		0.04		<0.011	0.097	0.063		0.091		
	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5
	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02		<0.01	<0.01	<1
0.0063	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<5	1	<0.5
0.0063	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	0.031		0.136		<0.012	0.186	0.293		0.14		
	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5
	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	0.019		0.018		<0.014	0.023	0.217		0.06		
	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<					

Lab Certificate					18/1072	18/1006	18/1072	18/1006	18/1175
Lab Sample Number					9-16	9-16	1-8	1-8	1-8
Sample Reference					BH1	BH2	CP01	CP02	CP03
Depth (m)					6.50	12.0	8.00	10.0	14.5
Strata									
Date Sampled					25/01/2018	24/01/2018	25/01/2018	24/01/2018	26/01/2018
					Tier 2 Screening Value				
					Accreditation Status				
					Limit of Detection				
					Units				
Analytical Parameter									
BTEX, MTBE									
Benzene (TPH Aromatic C5-7)	ug/l	<5	1	10	<5	<5	<5	<5	<5
Benzene (TPH Aromatic C5-7)	ug/l	<10	TM36/PM12	10	<10	<10	<10	<10	<10
Ethylbenzene	ug/l	<5	1		<5	<5	<5	<5	<5
Methyl tert-butyl ether	ug/l	<5	1		<5	<5	<5	<5	<5
Toluene (TPH Aromatic C7-8)	ug/l	<5	1	74	<5	<5	<5	<5	<5
Toluene (TPH Aromatic C7-8)	ug/l	<10	TM36/PM12	74	<10	<10	<10	<10	<10
Xylene, m & p -	ug/l	<5	1	30	<5	<5	<5	<5	<5
Xylene-o	ug/l	<5	1	30	<5	<5	<5	<5	<5
Inorganics									
Ammoniacal Nitrogen (as N)	mg/l	<0.03	TM38/PM0	0.3	<0.03	<0.03	0.03	<0.03	0.08
Cyanide	mg/l	<0.01	TM89/PM0	0.001	<0.01	<0.01	<0.01	<0.01	<0.01
pH	pH units	<0.01	TM73/PM0		7.66	7.39	7.44	7.27	7.25
Sulphate (SO4)	mg/l	<0.5	TM38/PM0	400	65.2	59.7	109.2	99.2	71.4
Total Hardness	mg/l	<1	TM30/PM14		268	289	337	284	408
Total Organic Carbon	mg/l	<2	TM60/PM0		<2	<2	<2	2	<2
Metals									
Arsenic	ug/l	<2.5	TM30/PM14	50	2.9	<2.5	6.1	<2.5	<2.5
Beryllium	ug/l	<0.5	TM30/PM14		<0.5	<0.5	<0.5	<0.5	<0.5
Boron	ug/l	<12	TM30/PM14	2,000	76	92	189	255	140
Cadmium as Cd (Dissolved)	ug/l	<0.5	TM30/PM14	0.25	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (III)	ug/l	<6	NONE/NONE	4.7	<6	<6	<6	<6	<6
Chromium (Total)	ug/l	<1.5	TM30/PM14	3.4	<1.5	<1.5	<1.5	<1.5	<1.5
Chromium VI	ug/l	<6	TM38/PM0	3.4	<6	<6	<6	<6	<6
Copper	ug/l	<7	TM30/PM14	1	<7	<7	<7	<7	<7
Lead	ug/l	<5	TM30/PM14	1.2	<5	6	<5	8	<5
Mercury	ug/l	<1	TM30/PM14		<1	<1	<1	<1	<1
Nickel	ug/l	<2	TM30/PM14	4	<2	2	4	6	7
Selenium	ug/l	<3	TM30/PM14		<3	<3	<3	<3	<3
Vanadium	ug/l	<1.5	TM30/PM14	60	<1.5	<1.5	<1.5	<1.5	<1.5
Zinc	ug/l	<3	TM30/PM14	10.9	<3	<3	<3	<3	52
Others									
Total aliphatics C5-35 #	ug/l	<10	TM5/TM36/PM30/PM12		<10	<10	<10	<10	<10
Total aromatics C5-35 #	ug/l	<10	TM5/TM36/PM30/PM12		<10	<10	170	<10	<10
PAHs									
Acenaphthene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	0.019	0.017	0.133
Acenaphthylene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	<0.013	<0.013	<0.013
Anthracene	ug/l	<0.013	TM4/PM30	0.1	<0.013	<0.013	0.015	<0.013	0.044
Benz(a)anthracene [use BaP surrogate]	ug/l	<0.015	TM4/PM30		<0.015	<0.015	0.022	<0.015	<0.015
Benzo(a)pyrene	ug/l	<0.016	TM4/PM30	0.00017	<0.016	<0.016	<0.016	<0.016	<0.016
Benzo(b)fluoranthene [use BaP surrogate]	ug/l	<0.01	TM4/PM30	0.00017	<0.01	<0.01	0.02	<0.01	<0.01
Benzo(k)fluoranthene [use BaP surrogate]	ug/l	<0.018	TM4/PM30	0.00017	<0.018	<0.018	0.021	<0.018	<0.018
Benzo(ghi)perylene [use BaP surrogate]	ug/l	<0.011	TM4/PM30	0.00017	<0.011	<0.011	0.017	<0.011	<0.011
Benzo(k)fluoranthene [use BaP surrogate]	ug/l	<0.01	TM4/PM30	0.00017	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene [use BaP surrogate]	ug/l	<0.011	TM4/PM30		<0.011	<0.011	0.018	<0.011	0.018
Dibenz(ah)anthracene [use BaP surrogate]	ug/l	<0.01	TM4/PM30		<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	ug/l	<0.012	TM4/PM30	0.0063	<0.012	<0.012	0.031	0.031	0.091
Fluorene	ug/l	<0.014	TM4/PM30		<0.014	<0.014	0.035	<0.014	0.078
Indeno(123-cd)pyrene [use BaP surrogate]	ug/l	<0.011	TM4/PM30	0.00017	<0.011	<0.011	<0.011	<0.011	<0.011
Naphthalene	ug/l	<0.1	TM4/PM30	2	<0.1	<0.1	<0.1	<0.1	0.2
PAH Surrogate % Recovery	%	<0	TM4/PM30		70	85	70	80	71
Phenanthrene	ug/l	<0.011	TM4/PM30		<0.011	<0.011	0.083	0.03	0.209
Pyrene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	0.045	0.027	0.074
Total PAHs EPA16	ug/l	<0.195	TM4/PM30		<0.195	<0.195	0.306	<0.195	0.847
Semi Volatile Organic Compounds (SVOCs)									
Total Phenols	mg/l	<0.1	TM26/PM0		<0.1	<0.1	<0.1	<0.1	<0.1
Total Petroleum Hydrocarbons (TPH)									
Total Aliphatic & Total Aromatic (C5-35)	ug/l	<10	TM5/TM36/PM30/PM12		<10	<10	170	<10	<10
TPH Aliphatic C05-06	ug/l	<10	TM36/PM12		<10	<10	<10	<10	<10
TPH Aliphatic C06-08	ug/l	<10	TM36/PM12		<10	<10	<10	<10	<10
TPH Aliphatic C08-10	ug/l	<10	TM36/PM12		<10	<10	<10	<10	<10
TPH Aliphatic C10-12	ug/l	<5	TM5/PM30		<5	<5	<5	<5	<5
TPH Aliphatic C12-16	ug/l	<10	TM5/PM30		<10	<10	<10	<10	<10
TPH Aliphatic C16-21 [1] Check Sum Value	ug/l	<10	TM5/PM30		<10	<10	<10	<10	<10
TPH Aliphatic C21-35 [1] Check Sum Value	ug/l	<10	TM5/PM30		<10	<10	<10	<10	<10
TPH Aromatic C08-10	ug/l	<10	TM36/PM12		<10	<10	<10	<10	<10
TPH Aromatic C10-12	ug/l	<5	TM5/PM30		<5	<5	<5	<5	<5
TPH Aromatic C12-16	ug/l	<10	TM5/PM30		<10	<10	<10	<10	<10
TPH Aromatic C16-21	ug/l	<10	TM5/PM30		<10	<10	170	<10	<10
TPH Aromatic C21-35	ug/l	<10	TM5/PM30		<10	<10	<10	<10	<10

Lab Certificate					18/1072	18/1006	18/1072	18/1006	18/1175
Lab Sample Number					9-16	9-16	1-8	1-8	1-8
Sample Reference					BH1	BH2	CP01	CP02	CP03
Depth (m)				Tier 2	6.50	12.0	8.00	10.0	14.5
Strata				Screening					
Date Sampled				Value	25/01/2018	24/01/2018	25/01/2018	24/01/2018	26/01/2018
				Accreditation Status					
Analytical Parameter	Units	Limit of Detection							
BTEX, MTBE									
Benzene (TPH Aromatic C5-7)	ug/l	<5	1	1	<5	<5	<5	<5	<5
Benzene (TPH Aromatic C5-7)	ug/l	<10	TM36/PM12	1	<10	<10	<10	<10	<10
Ethylbenzene	ug/l	<5	1	300	<5	<5	<5	<5	<5
Methyl tert-butyl ether	ug/l	<5	1		<5	<5	<5	<5	<5
Toluene (TPH Aromatic C7-8)	ug/l	<5	1	700	<5	<5	<5	<5	<5
Toluene (TPH Aromatic C7-8)	ug/l	<10	TM36/PM12	700	<10	<10	<10	<10	<10
Xylene, m & p -	ug/l	<5	1	500	<5	<5	<5	<5	<5
Xylene-o	ug/l	<5	1	500	<5	<5	<5	<5	<5
Inorganics									
Ammoniacal Nitrogen (as N)	mg/l	<0.03	TM38/PM0		<0.03	<0.03	0.03	<0.03	0.08
Cyanide	mg/l	<0.01	TM89/PM0	0.05	<0.01	<0.01	<0.01	<0.01	<0.01
pH	pH units	<0.01	TM73/PM0		7.66	7.39	7.44	7.27	7.25
Sulphate (SO4)	mg/l	<0.5	TM38/PM0	250	65.2	59.7	109.2	99.2	71.4
Total Hardness	mg/l	<1	TM30/PM14		268	289	337	284	408
Total Organic Carbon	mg/l	<2	TM60/PM0		<2	<2	<2	2	<2
Metals									
Arsenic	ug/l	<2.5	TM30/PM14	10	2.9	<2.5	6.1	<2.5	<2.5
Beryllium	ug/l	<0.5	TM30/PM14	4	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	ug/l	<12	TM30/PM14	1,000	76	92	189	255	140
Cadmium as Cd (Dissolved)	ug/l	<0.5	TM30/PM14	5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium (III)	ug/l	<6	NONE/NONE	50	<6	<6	<6	<6	<6
Chromium (Total)	ug/l	<1.5	TM30/PM14	50	<1.5	<1.5	<1.5	<1.5	<1.5
Chromium VI	ug/l	<6	TM38/PM0	50	<6	<6	<6	<6	<6
Copper	ug/l	<7	TM30/PM14	2,000	<7	<7	<7	<7	<7
Lead	ug/l	<5	TM30/PM14	10	<5	6	<5	8	<5
Mercury	ug/l	<1	TM30/PM14		<1	<1	<1	<1	<1
Nickel	ug/l	<2	TM30/PM14	20	<2	2	4	6	7
Selenium	ug/l	<3	TM30/PM14	10	<3	<3	<3	<3	<3
Vanadium	ug/l	<1.5	TM30/PM14		<1.5	<1.5	<1.5	<1.5	<1.5
Zinc	ug/l	<3	TM30/PM14	5,000	<3	<3	<3	<3	52
Others									
Total aliphatics C5-35 #	ug/l	<10	TM5/TM36/PM30/PM12		<10	<10	<10	<10	<10
Total aromatics C5-35 #	ug/l	<10	TM5/TM36/PM30/PM12		<10	<10	170	<10	<10
PAHs									
Acenaphthene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	0.019	0.017	0.133
Acenaphthylene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	<0.013	<0.013	<0.013
Anthracene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	0.015	<0.013	0.044
Benz(a)anthracene [use BaP surrogate]	ug/l	<0.015	TM4/PM30		<0.015	<0.015	0.022	<0.015	<0.015
Benzo(a)pyrene	ug/l	<0.016	TM4/PM30	0.01	<0.016	<0.016	<0.016	<0.016	<0.016
Benzo(b)fluoranthene [use BaP surrogate]	ug/l	<0.01	TM4/PM30	0.1	<0.01	<0.01	0.02	<0.01	<0.01
Benzo(bk)fluoranthene [use BaP surrogate]	ug/l	<0.018	TM4/PM30	0.1	<0.018	<0.018	0.021	<0.018	<0.018
Benzo(ghi)perylene [use BaP surrogate]	ug/l	<0.011	TM4/PM30	0.1	<0.011	<0.011	0.017	<0.011	<0.011
Benzo(k)fluoranthene [use BaP surrogate]	ug/l	<0.01	TM4/PM30	0.1	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene [use BaP surrogate]	ug/l	<0.011	TM4/PM30		<0.011	<0.011	0.018	<0.011	0.018
Dibenz(ah)anthracene [use BaP surrogate]	ug/l	<0.01	TM4/PM30		<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	ug/l	<0.012	TM4/PM30		<0.012	<0.012	0.031	0.031	0.091
Fluorene	ug/l	<0.014	TM4/PM30		<0.014	<0.014	0.035	<0.014	0.078
Indeno(123-cd)pyrene [use BaP surrogate]	ug/l	<0.011	TM4/PM30	0.1	<0.011	<0.011	<0.011	<0.011	<0.011
Naphthalene	ug/l	<0.1	TM4/PM30		<0.1	<0.1	<0.1	<0.1	0.2
PAH Surrogate % Recovery	%	<0	TM4/PM30		70	85	70	80	71
Phenanthrene	ug/l	<0.011	TM4/PM30		<0.011	<0.011	0.083	0.03	0.209
Pyrene	ug/l	<0.013	TM4/PM30		<0.013	<0.013	0.045	0.027	0.074
Total PAHs EPA16	ug/l	<0.195	TM4/PM30		<0.195	<0.195	0.306	<0.195	0.847
Semi Volatile Organic Compounds (SVOCs)									
Total Phenols	mg/l	<0.1	TM26/PM0		<0.1	<0.1	<0.1	<0.1	<0.1
Total Petroleum Hydrocarbons (TPH)									
Total Aliphatic & Total Aromatic (C5-35)	ug/l	<10	TM5/TM36/PM30/PM12	10	<10	<10	170	<10	<10
TPH Aliphatic C05-06	ug/l	<10	TM36/PM12	10	<10	<10	<10	<10	<10
TPH Aliphatic C06-08	ug/l	<10	TM36/PM12	10	<10	<10	<10	<10	<10
TPH Aliphatic C08-10	ug/l	<10	TM36/PM12	10	<10	<10	<10	<10	<10
TPH Aliphatic C10-12	ug/l	<5	TM5/PM30	10	<5	<5	<5	<5	<5
TPH Aliphatic C12-16	ug/l	<10	TM5/PM30	10	<10	<10	<10	<10	<10
TPH Aliphatic C16-21 [1] Check Sum Value	ug/l	<10	TM5/PM30	10	<10	<10	<10	<10	<10
TPH Aliphatic C21-35 [1] Check Sum Value	ug/l	<10	TM5/PM30	10	<10	<10	<10	<10	<10
TPH Aromatic C08-10	ug/l	<10	TM36/PM12	10	<10	<10	<10	<10	<10
TPH Aromatic C10-12	ug/l	<5	TM5/PM30	10	<5	<5	<5	<5	<5
TPH Aromatic C12-16	ug/l	<10	TM5/PM30	10	<10	<10	<10	<10	<10
TPH Aromatic C16-21	ug/l	<10	TM5/PM30	10	<10	<10	170	<10	<10
TPH Aromatic C21-35	ug/l	<10	TM5/PM30	10	<10	<10	<10	<10	<10

APPENDIX 7

GROUND GAS MONITORING RESULTS

Site King's Meadow, Reading **Date Sampled:** 12/12/2017
Contract No. 1700001374 **Weather:** Clear sky, cold, slight breeze, damp ground
Sampler: RH/FR **Equipment:** GFM430, Phocheck Tiger, Interface Probe

Round 1 Gas Monitoring Data												
Monitoring Well	Flow Rate (l/hour)	Time	CH4 (% vol)	CO2 (% vol)	O2 (% vol)	H2S (ppm)	CO (ppm)	Atm Pressure (mBar)	PID (ppm)	Depth to Water (m bgl)	Depth to Base (m bgl)	Comments
WS406	0.0	09:35	<0.1	<0.1	19.5	NR	NR	1003	<0.1	1.38	2.54	
WS403	0.0	09:55	<0.1	<0.1	19.9	NR	NR	1002	<0.1	1.24	2.57	
WS401	0.0	10:00	<0.1	<0.1	18.4	NR	NR	1002	<0.1	1.97	3.06	
WS402	0.0	10:10	0.2	1.9	8.4	NR	NR	1002	<0.1	1.81	2.61	
WS404	0.0	10:20	<0.1	0.5	19.1	NR	NR	1003	<0.1	1.89	2.55	
WS405	0.0	10:30	<0.1	<0.1	14.6	NR	NR	1003	<0.1	0.84	2.02	
WS409	0.0	11:20	<0.1	1.2	18.3	NR	NR	1004	0.1	1.99	2.05	
WS410	0.0	11:15	<0.1	0.8	18.3	NR	NR	1004	0.1	1.89	2.02	
WS412	0.0	11:06	<0.1	2.3	18.0	NR	NR	1004	<0.1	1.91	2.06	
WS413	0.0	10:55	<0.1	3.1	17.5	NR	NR	1004	<0.1	Dry	2.03	
WS408	0.0	10:50	<0.1	3.5	17.5	NR	NR	1003	<0.1	Dry	2.08	
WS411	0.0	10:40	<0.1	2.0	17.3	NR	NR	1002	<0.1	Dry	2.09	
WS407	0.0	11:30	<0.1	<0.1	18.0	NR	NR	1004	1.8	1.24	1.55	

Atmospheric Pressure Trend: Rising
 Local weather station: Benson
 Date Time Barometric pressure
 10/12/2017 09:00 974mb 48 hrs before
 11/12/2017 09:00 981mb 24hrs before
 12/12/2017 09:00 1008mb Day of monitoring
 13/12/2017 09:00 999mb 24hrs after monitoring
 14/12/2017 09:00 992mb 48hrs after monitoring

Site King's Meadow, Reading **Date Sampled:** 20/12/2017
Contract No. 1700001374 **Weather:** Overcast, damp, 10 degrees
Sampler: FR/CC **Equipment:** GA5000, MiniRae Lite, Interface Probe

Round 2 Gas Monitoring Data

Monitoring Well	Flow Rate (l/hour)	Time	CH4 (% vol)	CO2 (% vol)	O2 (% vol)	H2S (ppm)	CO (ppm)	Atm Pressure (mBar)	PID (ppm)	Depth to Water (m bgl)	Depth to Base (m bgl)
WS406	0	09:00	<0.1	<0.1	19.6	NR	NR	1030	<0.1	1.24	2.53
WS403	0		<0.1	<0.1	20.2	NR	NR	1030	<0.1	1.28	2.49
WS401	0		<0.1	<0.1	18.5	NR	NR	1030	<0.1	2.045	3.08
WS402	0		<0.1	2.2	7.3	NR	NR	1030	<0.1	1.85	2.61
WS404	0		<0.1	0.6	19.6	NR	NR	1030	<0.1	1.945	2.45
WS405	0		<0.1	<0.1	14.8	NR	NR	1030	<0.1	1.98	2.01
WS409	0		<0.1	0.9	18.7	NR	NR	1030	<0.1	1.955	2.03
WS410	0		<0.1	0.7	18.8	NR	NR	1030	<0.1	1.845	2.00
WS412	0		<0.1	2.1	18.6	NR	NR	1030	<0.1	2.035	0.06
WS413	0		<0.1	3.4	17.4	NR	NR	1030	<0.1	1.91	2.03
WS408	0		<0.1	3.3	17.2	NR	NR	1030	<0.1	Dry	2.07
WS411	0		<0.1	2.2	17.4	NR	NR	1030	<0.1	1.61	2.08
WS407	0	13:00	<0.1	<0.1	18.4	NR	NR	1030	2.2	1.26	1.53

Atmospheric Pressure Trend: Steady
 Local weather station: Benson

Date	Time	Barometric pressure
18/12/2017	09:00	1029mb 48 hrs before
19/12/2017	09:00	1035mb 24hrs before
20/12/2017	09:00	1035mb Day of monitoring
21/12/2017	09:00	1035mb 24hrs after monitoring
22/12/2017	09:00	1035mb 48hrs after monitoring

Site WJ Reading **Date Sampled:** 10/01/2018
Contract No 1700001374 **Weather:** Cold, Dry, clear, 10 degrees
Sampler: FR **Equipment:** GA5000, MiniRae Lite, Interface Probe

Round 3 Gas Monitoring Data												
Monitoring Well	Flow Rate (l/hour)	Time	CH4 (% vol)	CO2 (% vol)	O2 (% vol)	H2S (ppm)	CO (ppm)	Atm Pressure (mBar)	PID (ppm)	Depth to Water (m bgl)	Depth to Base (m bgl)	Comments
WS406	0	09:00	<0.1	<0.1	19.6	1	0	1003	0	1.22	2.52	
WS403	0		<0.1	<0.1	20.1	1	0	1002	0	1.28	2.54	
WS401	0		<0.1	<0.1	18.8	1	2	1001	0	1.99	3.07	
WS402	0		ERR	ERR	ERR	ERR	ERR	1000	0	1.78	2.61	
WS404	0		<0.1	<0.1	20.5	1	0	1000	0	1.91	2.56	
WS405	0		<0.1	<0.1	19.9	1	0	1000	0	1.98	2.03	
WS409	0		<0.1	0.7	19.3	1	0	1001	0	1.87	2.03	
WS410	0		<0.1	0.6	18.8	1	0	1001	0	1.53	2.01	
WS412	0		<0.1	1.7	19.3	1	0	1001	0	1.79	2.05	
WS413	0		<0.1	2.5	18.3	1	2	1001	0	1.61	2.02	
WS408	0		<0.1	1.8	19.6	1	0	1001	0	1.98	2.07	
WS411	0		<0.1	0.9	19.7	1	0	1000	0	1.51	2.07	
WS407	0	13:00	<0.1	<0.1	18.7	1	0	1001	0.3	1.33	1.54	

Atmospheric Pressure Trend: Steady
 Local weather station: Benson
 Date Time Barometric pressure
 08/01/2018 09:00 1023mb 48 hrs before
 09/01/2018 09:00 1009mb 24hrs before
 10/01/2018 09:00 1004mb Day of monitoring
 11/01/2018 09:00 1017mb 24hrs after monitoring
 12/01/2018 09:00 1026mb 48hrs after monitoring