



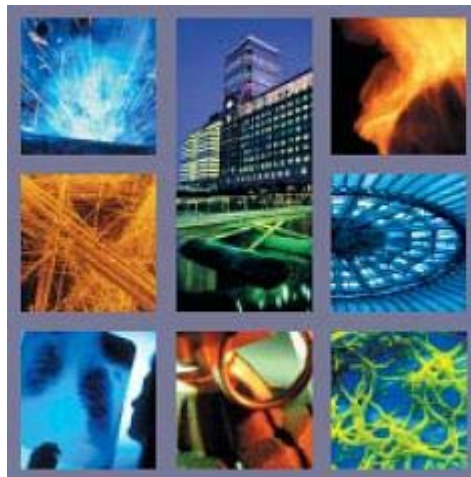
DRAFT

**Former Jaques Scrap Yard
Regent Street
Wrexham**

Groundwater Contamination Assessment

For

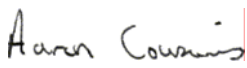
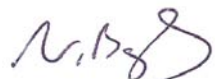
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**RCM4642-009R DRAFT
November 2007**

<i>This report has been prepared within the RPS Group Quality Management System to British Standard EN ISO 9001 : 2000.</i>			
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Report Status:		Draft	
Project Reference:		RCM4642-009 R	
	Consultant	Signature	Date
Report Author:	Aaron Cousins Environmental Consultant		8 November 2007
Technical Review:	Neil Bagley Principal Consultant		8 November 2007

RPS SITE INVESTIGATION

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EXECUTIVE SUMMARY

Project Background	Castlemead Homes Limited commissioned RPS Health, Safety & Environment to undertake a Groundwater Contamination Assessment of the former Jaques Scrap Yard, Wrexham prior to the proposed redevelopment. The site was previously subject to an initial Phase II Contamination Assessment undertaken by RPS Health, Safety & Environment, reference RCM4019-008 R Final, October 2004. Following this it was identified that further groundwater investigation was necessary.
Site Details	Former Jaques Scrap Yard Regent Street Wrexham NGR 332870 350680.
Current Condition and Activities	The site is located in a mixed commercial/light industrial area of Wrexham and is bounded to the east and west by operational railway lines. Regent Street forms the northern perimeter of the site. Towards the south the site tapers to a point beyond which is the River Gwenfro. Site topography is generally flat, the railway line to the west is set in a cutting and the River to the south is located approximately 7 m below the ground level of the site. It appears evident that the ground levels on site may have been built up.
Site History	During 1879 the site is shown as green field land with a railway line located to the east. A second railway line was then constructed to the west of the site. Evidence suggests that the level of the site was built up, possibly by the deposition of arisings resulting from the railway cutting located to the west. The site appears to have been initially partly developed during 1937, a structure appears to have been erected in the north eastern corner of the site; two further structures were erected which are later labelled 'Garage'. The site is labelled 'Scrap Yard' on the 1970 map. Historical maps of the site remain largely unchanged to the most recent. Anecdotal information suggests that the site was used for the storage of waste motor vehicles for approximately 50 years and has in part operated as a motor vehicle maintenance and repair garage.
Potential Contamination Sources	Principal contaminants potentially impacting groundwater have been identified as metals and hydrocarbons. Such contaminants were identified in Made Ground deposits during the initial site investigation.

Site Setting	The River Gwenfro is located adjacent to the southern point of the site. The site is directly underlain by Superficial Deposits comprising Glacial Sands and Gravels. Solid bedrock underlying the Superficial Deposits is indicated to comprise the Carboniferous Etruria Formation which is classified as a Minor Aquifer.
Intrusive Investigations	The intrusive investigation comprised the advancement of six boreholes by cable percussive technique to a maximum depth of 12.5 m.bgl. Each borehole was installed as a groundwater monitoring well. Groundwater monitoring and sampling of the River Gwenfro was undertaken on two occasions.
Identified Contamination	No significantly elevated contaminant concentrations have been identified in any of the samples taken from the groundwater monitoring wells or from the River Gwenfro.
Risk Assessment	Shallow groundwater present on site does not appear to have been impacted and as such no significant risk to controlled waters has been identified.
Conclusions and Recommendations	This Groundwater Contamination Assessment has indicated that groundwater present on site is not significantly contaminated and as such there is no significant risk to the underlying Minor Aquifer or the River Gwenfro.

1 INTRODUCTION

- 1.1 Castlemead Homes Limited commissioned RPS Health, Safety & Environment to undertake a Groundwater Contamination Assessment of the former Jaques Scrap Yard, Wrexham prior to the proposed redevelopment.
- 1.2 The site was previously subject to an initial Phase II Contamination Assessment undertaken by RPS Health, Safety & Environment, reference RCM4019-008 R Final, October 2004. This report identified elevated concentrations of chromium, lead, copper and hydrocarbons in Made Ground deposits. The report was submitted to the Local Authority and Environment Agency Wales for comment who suggested that further groundwater investigation was required in order to develop a more accurate conceptual model of the groundwater regime associated with the site.
- 1.3 The principal objectives of this investigation were to:
 - i investigate the potential presence, nature and extent of groundwater contamination beneath the site;
 - ii develop a hydrogeological conceptual site model;
 - iii determine the potential liability and environmental risk posed by any such contamination;
 - iv determine requirements for further investigation and/or quantitative risk assessment; and
 - v identify the potential requirements for remedial action and provide indicative costs for such works.
- 1.4 In order to achieve these objectives the following items of work were undertaken:
 - i the excavation of six boreholes and the subsequent installation of groundwater monitoring wells;
 - ii the collection of representative groundwater samples and surface water samples on two separate occasions;
 - iii the analysis of groundwater samples for a range of contaminants including metals, petroleum hydrocarbons, poly-aromatic hydrocarbons, semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC);
 - iv the monitoring of groundwater levels in the wells;
 - v the production of a conceptual site model (CSM) and qualitative risk assessment in accordance with current published guidance.

2 BACKGROUND INFORMATION

- 2.1 Details of the environmental setting and historical development of the site are outlined in the Phase II Contamination Assessment report prepared by RPS Health, Safety & Environment, reference RCM4019-008 R Final, dated October 2004 and are summarised below.

Site Location and Description

- 2.2 The site is located in Wrexham at national grid reference 332870 350680. A site location plan is presented as Figure 1.
- 2.3 The site is located in a mixed commercial/light industrial area of Wrexham and is bounded to the east and west by operational railway lines. Regent Street forms the northern perimeter of the site. Towards the south the site tapers to a point beyond which is the River Gwenfro. Site topography is generally flat, the railway line to the west is set in a cutting and the River to the south is located approximately 7 m below the ground level of the site. It appears evident that the ground levels on site may have been built up.

Site History

- 2.4 The earliest map reviewed, published during 1879, shows the site as green field land, a railway line is present to the east of the site, beyond which is the town of Wrexham; to the east are open fields.
- 2.5 The next available map, dated 1899 indicates that a railway line has been constructed to the west of the site. Hatching, which is likely to indicate earthworks are apparent on site; this may be a result of tipping arisings resulting from the adjacent railway cutting. The next available map, dated 1912, indicates that further earthworks have been carried out on site; these now covers a large area of the site. A single square structure is marked in the northeastern corner of the site. The map dated 1937 indicates that two further structures have been erected to the south of the original structure; these are later labelled 'Garage'.
- 2.6 The map dated 1968 indicates that the earthworks shown on earlier maps have been removed it is considered likely that the site was levelled. An embankment remains along the eastern perimeter of the site which is labelled 'Wat's Dyke'. The map published in 1970 labels the site as 'Scrap Yard'; the buildings to the north of the site remain labelled as 'Garage'. Historical maps of the site remain largely unchanged to the most recent.
- 2.7 The site is currently a registered Scrap Yard, (License 37037). Anecdotal information suggests that the site was used for the storage of waste motor vehicles for approximately 50 years and has in part operated as a motor vehicle maintenance and repair garage.
- 2.8 Further anecdotal information suggests that ground level was raised by approximately 3 to 4 metres. It is considered possible that arisings

resulting from the excavation of the adjacent railway cutting were deposited on site.

Site Sensitivity

Hydrology

- 2.9 The River Gwenfro is located adjacent to the southern point of the site and lies approximately 7 metres below the ground level of the site. This section of river bank has been lined with stone block work. The river flows towards the east; it flows beneath an operational railway line immediately upstream of the site, and is culvert immediately downstream of the site. The river was classified as 'Grade B (Good)' for river chemistry by Environment Agency Wales during 2002.
- 2.10 A brewery formerly held a Discharge Consent associated with the River Gwenfro that was positioned approximately 100 m south of the site; this has since been revoked. Welsh Water hold a license to release sewage discharges to the River Gwenfro, the discharge is positioned upstream of the site and is positioned approximately 115 m to the west of the site.
- 2.11 A single recorded Pollution Incident, Reference '37299', appears to be attributable to the site. The incident is reported to have involved the runoff of fire water/foam to the River Gwenfro, further information has not been made available.

Geology

- 2.12 British Geological Survey Map, Wrexham, Sheet 121, Solid and Drift edition, 1:50,000 scale, indicates that the site is directly underlain by Superficial Deposits comprising Glacial Sands and Gravels (northern extent of the site) and Made Ground (southern extent of the site). Solid bedrock underlying the Superficial Deposits is indicated to comprise the Carboniferous Etruria Formation, formerly known as the Ruabon Marl Formation. The Etruria Formation is described by the British Geological Survey as red, purple, brown, ochreous, green, grey and commonly mottled mudstone with lenticular pedogenic horizons.
- 2.13 A Coal Authority report related to the site indicates that the site is located within the likely zone of influence of a coal seam located between 330 m and 370 m below ground level. It states that the last working date of such was 1917 and that any associated ground movements should now have ceased.

Hydrogeology

- 2.14 Groundwater Vulnerability Map, West Cheshire, Sheet 16, 1:10,000 scale, indicates that the underlying Etruria Formation is classified as a Minor Aquifer.
- 2.15 A single groundwater abstraction is located within 1 km of the site. This is operated by Carlsberg Tetley Brewing Ltd and is located approximately 225 m west of the site; it is considered likely that this abstraction has now ceased operation. A Source Protection Zone is

associated with the abstraction; the site lies approximately 100 m east of the outer perimeter of the Source Protection Zone.

Statutory Protected Land and Ecosystems

- 2.16 Wat's Dyke, a scheduled ancient monument, is located within the perimeter of the site. This ancient historical monument runs in a north to south direction through the eastern extent of the site. This feature is not apparent on site and the exact position is therefore difficult to identify. The necessary precautions were taken to prevent significant disturbance to this feature during intrusive investigation works.
- 2.17 Gatewen Marsh, a Site of Special Scientific Interest is located approximately 800 m northwest of the site.

Landfill

- 2.18 The site is currently a registered Scrap Yard, (License 37037). RPS understands that Castlemead Homes are in the process of liaising with the former operators with a view to arrange the surrender of the associated Waste Management License. This report has not been produced for the purpose of this license surrender.
- 2.19 No licensed landfill sites have been identified within 500 m of the site.

Previous Reports

- 2.20 RPS is not aware of any third party environmental reports associated with the site.

3 SITE INVESTIGATION

Summary

- 3.1 This site investigation has been designed to further investigate groundwater previously identified on site within the Made Ground and Glacial Sands and Gravels.
- 3.2 Principal contaminants potentially impacting groundwater have been identified as metals and hydrocarbons. Such contaminants were identified in Made Ground deposits during the initial site investigation.
- 3.3 Information obtained during this intrusive investigation has been used to refine the conceptual site model and enable qualitative risk assessment to be carried out in accordance with current legislation.

Methodology

- 3.4 The intrusive investigation was undertaken between Monday 13th August and Monday 20th August 2007. It comprised the excavation of six boreholes by cable percussive technique to a maximum depth of 12.50 metres below ground level (m bgl). The location of the exploratory locations is presented as Figure 2.
- 3.5 Borehole locations were located to provide widespread coverage of the site but were restricted by the presence of Wat's Dyke and underground utility services. Prior to excavation, all locations were cleared for underground services by an independent specialist contractor.
- 3.6 All six boreholes were completed as permanent groundwater monitoring wells by the installation of 50mm plain and slotted HDPE stand pipe (0.5 to 1.0mm slot size). The resulting annular space was filled with fine non-calcareous pea gravel. Bentonite seals of at least 1 metre in length were placed immediately below ground level and at the boundary of made ground and natural strata. This measure was designed in order to prevent contaminants from entering the borehole from the surface and to prevent the vertical migration of the contaminants associated with the made ground. All positions were finished with a rubber seal and a steel cover.
- 3.7 The boreholes were lithologically logged during advancement in order to determine the stratigraphical relationship of the underlying strata and fill materials. Detailed borehole records and monitoring well construction details were made and are presented as Appendix A.
- 3.8 On completion each borehole location was surveyed in relation to an arbitrary datum in order to provide an accurate indication of the relative level of the upper surface of the various groundwater bodies identified across the site.

Monitoring

- 3.9 Prior to groundwater monitoring and the collection of samples, the standing groundwater level was measured to below ground level using

an oil/water interface meter. Three well volumes of groundwater were calculated and purged from the well

Chemical Analysis

3.10 Groundwater samples were collected on the 26 September 2007 and the 11 October 2007 by trained RPS personnel from five of the six monitoring wells and from two points on the River Gwenfro as indicated in the plan presented as Figure 2.

3.11 Following completion of the groundwater purge, samples were collected directly from the dedicated HDPE pipe using laboratory supplied glass and plastic bottles. The water to be analysed for metal concentrations was filtered on site in order to prevent analytical errors. On each occasion, a total of five samples were collected by RPS and were submitted to a UKAS accredited laboratory under the 'Chain of Custody' procedure for the analysis for a range of determinands which included the following:

- Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, V, Be, B, Se, Ba);
- pH;
- Ammoniacal Nitrogen as N;
- Speciated petroleum hydrocarbons and BTEX (TPHCWG);
- Speciated polycyclic aromatic hydrocarbons (PAH 16 speciated);
- Cyanide (free and total);
- Semi volatile organic compounds (including phenols and phthalates);
- Volatile organic compounds; and,
- Polychlorinated Biphenyls

3.12 The analytical results are provided in full as Appendix B and summarised in Section 5 of this report.

4 FIELD OBSERVATIONS

- 4.1 At the time of investigation two buildings remained present on site; both were located at the northern extent of the site, the area surrounding these was laid to hardstanding in the form of concrete or bitumen bonded aggregate. The majority of the site comprised compacted and levelled bare ground. The remnants of a structure remain present adjacent to the eastern perimeter towards the south of the site.
- 4.2 Hydrocarbon staining was evident on the south facing wall and hardstanding to the south of the existing building located at the northern extent of the site, this staining could be followed to a surface water drain which appeared to be blocked. It is considered likely that this staining is associated with a bulk storage tank which appears to have been located adjacent to the external wall of this building. Hydrocarbon staining was also evident in the vicinity of the remnants of the structure located towards the southern extent of the site.

Ground Conditions

- 4.3 A full description of soil conditions encountered at the site is included in the lithological logs presented in Appendix A. A summary of the ground conditions encountered during the ground investigation is provided below.
- 4.4 Made Ground was identified at all borehole locations; the depth and composition varied significantly across the site but was predominantly granular comprising sand and gravel of mixed lithology with fragments of concrete, brick, glass, coal and metal. The made ground was found to grade into natural Sands and Gravels, likely to be of glacial origin. this made the determination of the boundary between made ground and natural strata difficult to identify. In general made ground was present to depths of between 3.0 and 3.9 m.bgl.
- 4.5 The glacial sand and gravel deposits identified beneath the made ground also varied significantly in composition. These superficial deposits graded from sands and gravels to fine sands with narrow bands of silt. In some boreholes the sands and gravels became dense and the presence of cobbles up to 100mm in diameter made advancement of the borehole slow.
- 4.6 Deposits of Silt were identified beneath the sands and gravels in boreholes BH102 and BH106, both at a depth of 9.00 m.bgl. The deepest borehole, BH102 was advanced to a depth of 12.50 m.bgl, bedrock was not proven in this or any borehole. BH105 was terminated at a depth of 9.00 m.bgl as progress proved to be slow due to dense sand and gravels. The borehole was partly backfilled and the response zone of the monitoring well was installed at a relatively shallow layer in order to target a shallow perched groundwater body that was identified between approximately 5.5 m.bgl and 6.5 m.bgl.

Groundwater Conditions

- 4.7 Groundwater was encountered in all six monitoring wells, however insufficient water to collect a representative samples was present in BH105 to on both occasions. Groundwater rest levels ranged from 0.485 m below arbitrary datum (m.bAD) (BH105) to 2.755 m.bAD (BH104). The arbitrary benchmark used was the footpath of the wooden bridge that crosses the River Gwenfro at surface water sampling point SW1 which is identified in Figure 2.
- 4.8 The shallow groundwater identified on site appears to be present in several individual groundwater bodies. These are located in the granular sand and gravels and are perched upon less permeable bands of clayey and silty material. The underlying fine sand/silt deposits identified at an approximate depth of 9.0 m.bgl were found to be saturated.
- 4.9 The groundwater flow regime of the shallow perched bodies is therefore complex and plotting water table contours on a plan indicates no distinct pattern of groundwater flow direction. It is considered likely that groundwater associated with the fine sand/silt deposits identified at depth flows towards the River Gwenfro which is located to the south of the site.

Table 4B Groundwater monitoring rest level data.

Borehole Identifier	National Grid Reference	Monitoring Date	BH Base m aABM	GW Level m aABM
BH101	SJ 32852 50710	26/09/2007	-4.705	-2.425
BH102	SJ 32842 50593	26/09/2007	-6.125	-1.455
BH103	SJ 32854 50628	26/09/2007	-4.885	-2.485
BH104	SJ 32866 50677	26/09/2007	-5.355	-2.685
BH105	SJ 32886 50767	26/09/2007	-0.675	-0.505
BH106	SJ 32839 50664	26/09/2007	-5.01	-2.39
BH101	SJ 32852 50710	11/10/2007	-4.615	-2.465
BH102	SJ 32842 50593	11/10/2007	-5.835	-1.355
BH103	SJ 32854 50628	11/10/2007	-4.645	-2.025
BH104	SJ 32866 50677	11/10/2007	-5.275	-2.755
BH105	SJ 32886 50767	11/10/2007	-0.655	-0.485
BH106	SJ 32839 50664	11/10/2007	-4.9	-2.46

5 SUMMARY OF ANALYTICAL RESULTS

- 5.1 In order to evaluate whether a particular contaminant presents a significant hazard, the concentration at which it is identified in the environment is compared to relevant guidelines or standards.
- 5.2 Based on the preliminary conceptual model the groundwater and River Gwenfro were considered as the most sensitive receptors and as such analytical results for groundwater and surface water samples have been compared to the Statutory Environmental Quality Standards (EQS) for List I and II substances where available. These guidelines are purely used as indicative guidance to provide an indication of the level of any contamination present. Based on monitoring information made available by the Environment Agency for the River Gwenfro, EQS values for freshwater bodies with a hardness value of 250+ mg/l CaCO₃ supporting none salmonoid aquatic life has been assumed.
- 5.3 Where EQS values are not available, the UK Drinking Water Standards (DWS) have been adopted; these have been taken from Water Supply (Water Quality) Regulations 2000 (SI 2000/3184). In the absence of both EQS and DWS values, World Health Organisation Guideline for Drinking Water Quality, 1984 values have been adopted.

Groundwater Analysis

Metals

- 5.4 No toxic metal concentrations were identified in excess of the relevant EQS values in any sample taken during both sampling visits. Chromium was identified at 5 ug l⁻¹ in the sample taken from BH106 on 26/09/2007 which is equivalent to the relevant EQS value. During the same monitoring visit samples from BH101, BH102 and BH104 were found to contain 3 ug l⁻¹ chromium. The samples collected on 11/10/2007 were all found to contain less than 2 ug l⁻¹ chromium.

Inorganic Compounds

- 5.5 pH values of groundwater samples were identified to range from 7.85 to 8.17 (11/10/2007) with a mean pH value of 7.97 which indicates that slightly alkaline groundwater conditions persist in groundwater across the site. Similar values were identified in samples taken on 26/09/2007.
- 5.6 Conductivity values ranged from 0.75 mS/cm (BH106, 26/09/2007) to 0.95 mS/cm (BH103, 11/10/2007).
- 5.7 Ammoniacal Nitrogen concentrations were identified at a maximum concentration of 0.3 mg l⁻¹ (BH103, 11/10/2007).
- 5.8 Total and free cyanide concentrations were not identified at a concentration in excess of the laboratory limit of detection of 0.05 mg/l⁻¹.

Petroleum Hydrocarbons

- 5.9 No petroleum hydrocarbon compounds were identified at concentrations greater than the laboratory limit of detection of 10 ug l^{-1} . This limit of detection is considerably less than the relevant available EQS values.

Polyaromatic Hydrocarbons

- 5.10 No PAH concentrations were identified at a concentration greater than the relevant guideline values. The majority of identified concentrations were less than the laboratory limit of detection. Samples BH101 and BH104 collected on 26/09/2007 contained detectable PAH concentrations with a total PAH concentration being identified at 1800 ng l^{-1} and 1400 ng l^{-1} respectively. Of all of the five groundwater samples collected on 11/10/2007 the only detectable PAH concentrations was benzo(a)pyrene; this was detected at 13 ng l^{-1} in BH106.

Polychlorinated Biphenyls

- 5.11 No PCB concentrations were identified in excess of the laboratory limit of detection of 10 ng l^{-1} .

Semi Volatile Organic Compounds

- 5.12 Only 3-Nitroaniline and hexachlorocyclopentadiene were identified at a concentration greater than the laboratory limit of detection of 1 ug l^{-1} in a single sample. The identified concentration of both compounds was 2 ug l^{-1} .

Volatile Organic Compounds

- 5.13 No VOCs were identified at a concentration greater than the laboratory limit of detection of 1 ug l^{-1} .

Surface Water Analysis*Metals*

- 5.14 No toxic metal concentrations were identified in exceedance of the relevant EQS in any sample taken during both sampling visits.

Inorganic Compounds

- 5.15 pH values of surface water samples were identified to range from 8.32 to 8.43 which indicates that slightly alkaline groundwater conditions prevail in the river at this location.
- 5.16 Conductivity values ranged from 0.60 mS/cm (SW1, 26/09/2007) to 0.96 mS/cm (SW2, 26/09/2007).
- 5.17 Ammoniacal Nitrogen concentrations did not exceed the limit of detection of 0.2 mg l^{-1} .

- 5.18 Total and free cyanide concentrations were not identified at a concentration in excess of the laboratory limit of detection of 0.05 mg/l⁻¹.

Petroleum Hydrocarbons

- 5.19 No petroleum hydrocarbon compounds were identified at concentration greater than the laboratory limit of detection of 10 ug l⁻¹.

Polyaromatic Hydrocarbons

- 5.20 No PAHs were identified at a concentration greater than the relevant guideline values. The majority of concentrations were less than the laboratory limit of detection. Sample SW2 (26/09/2007) contained detectable concentrations of PAHs with a total PAH 16 value of 460 ug l⁻¹.

Polychlorinated Biphenyls

- 5.21 No PCB concentrations were identified in excess of the laboratory limit of detection of 10 ng l⁻¹.

Semi Volatile Organic Compounds

- 5.22 No SVOC concentrations were identified at concentration greater than the laboratory limit of detection of 1 ug l⁻¹.

Volatile Organic Compounds

- 5.23 Non VOCs were identified at a concentration greater than the laboratory limit of detection of 1 ug l⁻¹.

Summary of Results

- 5.24 No exceedances of the adopted guideline values have been identified.

6 RISK ASSESSMENT

- 6.1 A qualitative risk assessment (QRA) has been undertaken in line with current government guidance in order to identify the significance of any identified contamination. This requires an assessment of the toxicity on individual contaminants and the likely exposure sensitive receptors may receive which is presented in the following paragraphs.
- 6.2 The overall aim of the QRA is to characterise areas of concern and to identify any areas that may require further investigation.
- 6.3 The results of field observations, field measurements and the chemical analysis of samples collected during the intrusive investigation constitute the hazard identification stage of the risk assessment process.

Conceptual Site Model

- 6.4 In order to implement the risk assessment the following conceptual model has been developed.

Sources of Contamination

- 6.5 The results of the groundwater and surface water chemical analysis have not identified any significant contamination which suggests that no significant source of groundwater contamination exists on site.

Receptors of Contamination

The underlying Minor Aquifer and River Gwenfro were previously identified as key controlled waters in relation to the site, and were therefore considered to be the most significant receptors.

Contaminant Migration & Exposure Pathways

- 6.6 Potential significant migration and exposure pathways that may be relevant to the site include:
- vertical migration of mobile substances through the sub-surface to deeper groundwater,
 - lateral migration of contaminated groundwater to the River Gwenfro,

Risk Characterisation and Evaluation

- 6.7 The risk characterisation and evaluation refers to the conceptual model and takes account of any mitigating circumstances that relate to the site and the proposed redevelopment. The significance of any potential risk or liability is therefore evaluated.
- 6.8 Shallow groundwater present on site does not appear to have been significantly impacted and as such no significant risk to controlled waters has been identified.

7 CONCLUSIONS AND RECOMMENDATIONS

Summary of Contamination

- 7.1 No significant groundwater or surface water contamination has been identified.

Risk Assessment

- 7.2 Although soil contamination was identified in Made Ground deposits during the initial site investigation, the analysis of shallow groundwater and the River Gwenfro suggests that such contamination is not significantly mobile.
- 7.3 Shallow groundwater present on site does not appear to have been impacted and as such no significant risk to controlled waters has been identified.

Recommendations

- 7.4 This Groundwater Contamination Assessment has indicated that groundwater present on site is not significantly contaminated and as such there is no significant risk to the underlying Minor Aquifer or the River Gwenfro.

FIGURE 1
Site Location Plan



— Site Boundary

Project: Jacques Yard

Project Number: RCM4642

Date: November 2007

Scale: Not To Scale

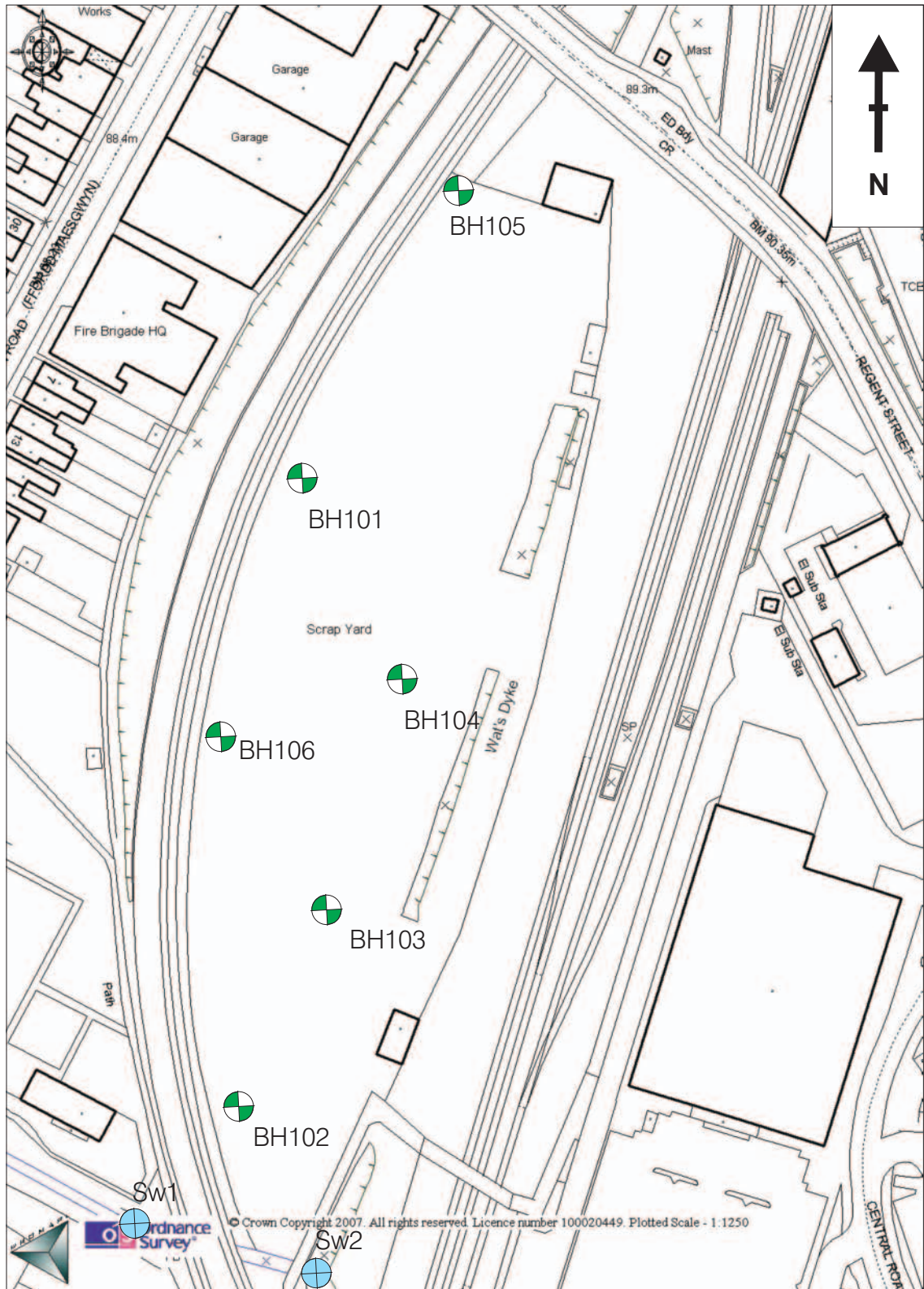
Figure 1: Site Location Plan



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FIGURE 2
Monitoring Point Location Plan



Project: Jacques Yard

Project Number: RCM4642

Date: November 2007

Scale: Not To Scale

Figure 2: Borehole Location Plan

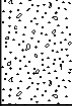


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Appendix A
Borehole Records

RPS					RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315			Site Jaques Yard, Wrexham		Borehole Number BH101	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 10.70m			Ground Level (mAD) 4.74		Client Castlemead Homes Ltd			Job Number RCM4642	
		Location 3.00316 E 53.04942 N			Dates 13/08/2007- 14/08/2007		Engineer Aaron Cousins			Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
							MADE GROUND. Dark grey brown fine to coarse sand and gravel. Gravel is fine to coarse subangular to subrounded of limestone with fragments of ash, brick and glass. (Fill) Becoming predominantly firm to stiff red brown clay with fragments of metal, roofing slate and gravel to cobble sized fragments of brick and tan fine grained sandstone. (3.90)				
					0.84 0.64	3.90 (0.20) 4.10	Tan to mid brown subangular to subrounded fine SAND. (Glacial Till)				
						(0.60)	Tan to mid brown finely laminated silty CLAY with occasional laminations of red brown clay and occasion fragments of fine to coarse subrounded sandstone and limestone gravel. (Glacial Till)				
					0.04	4.70 (0.60)	Light brown grey fine SAND. (Glacial Till)				
					-0.56	5.30	Brown subangular to subrounded fine to coarse GRAVEL of mixed lithologies including dark grey mudstone, pink brown sandstone, light grey quartzite and purple-pink granite. (Glacial Till)				
						(2.50)					
					-3.06	7.80	Dark to orange brown silty CLAY with occasional fragments of orange brown subrounded fine grained sandstone gravel. (Glacial Till)				
				Water strike(1) at 7.83m, rose to 6.83m in 20 mins.	-3.46	8.20	Light to mid brown subangular to subrounded coarse SAND and angular fine to coarse GRAVEL of mixed lithology including brown sandstone, pink and white quartzite and dark grey mudstone. (Glacial Till) Gravels becoming well graded with occasional cobbles of mid to dark grey limestone.				
						(2.50)					
Remarks Groundwater rest level 6.76 m.bgl. Chiselling from 4.90m to 5.10m for 0.5 hours. Chiselling from 5.40m to 5.80m for 1 hour. Chiselling from 6.10m to 6.60m for 1 hour. Chiselling from 6.90m to 7.10m for 0.5 hours. Chiselling from 8.30m to 8.50m for 0.5 hours. Chiselling from 8.70m to 8.90m for 0.5 hours. Water added from 4.90m to 8.00m. Excavating from 0.00m to 1.10m for 1 hour.								Scale (approx) 1:50	Logged By MG	Figure No. RCM4642.BH101	

		RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham		Borehole Number BH101	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 10.70m			Ground Level (mAD) 4.74		Client Castlemead Homes Ltd		Job Number RCM4642	
		Location 3.00316 E 53.04942 N			Dates 13/08/2007-14/08/2007		Engineer Aaron Cousins		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(2.50) -5.96 10.70				
							Complete at 10.70m			
Remarks								Scale (approx)	Logged By	
								1:50	MG	
								Figure No. RCM4642.BH101		

RPS				RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315			Site Jaques Yard, Wrexham		Borehole Number BH102		
Boring Method Cable Percussion		Casing Diameter 150mm cased to 12.00m			Ground Level (mAD) 4.48		Client Castlemead Homes Ltd			Job Number RCM4642	
		Location 3.00327 E 53.04836 N			Dates 14/08/2007-15/08/2007		Engineer Aaron Cousins			Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr	
							MADE GROUND. Dark grey brown slightly silty fine to coarse sand with subangular to subrounded fine to coarse gravel of mixed lithology including tan sandstone, dark grey mudstone, concrete, brick and occasional metal fragments. (Fill)				
					1.38	3.10	Grey brown silty fine to coarse SAND with subangular to subrounded fine to coarse gravel of tan sandstone and dark grey mudstone. (Glacial Till)				
						(2.00)					
					-0.62	5.10	Soft pale brown mottled grey sandy CLAY with occasional fine to coarse subangular to subrounded gravel of mixed lithology including tan sandstone, dark grey mudstone and pale limestone. (Glacial Till)				
				Water strike(1) at 5.63m, rose to 5.61m in 20 mins.		(1.00)					
					-1.62	6.10	Pale grey brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone and pale grey limestone with some broken cobbles. Silty in patches. (Glacial Till)				
						(1.60)					
					-3.22	7.70	Grey brown silty fine SAND with occasional subangular to subrounded fine to coarse gravel of mixed lithology including tan sandstone and dark grey mudstone. (Glacial Till)				
						(1.30)					
					-4.52	9.00	Soft to firm grey brown fine sandy SILT with occasional subangular to subrounded fine to coarse gravel of tan sandstone and dark grey mudstone. (Glacial Till)				
Remarks Groundwater rest level 5.79 m.bgl. Chiselling from 6.50m to 6.70m for 0.5 hours. Water added from 6.10m to 6.30m. Excavating from 0.00m to 1.20m for 1 hour.								Scale (approx)	Logged By		
								1:50	AC		
								Figure No. RCM4642.BH102			



RPS Health, Safety and Environment
52 Princess Street
Manchester, M1 6JX
Tel: 0161 2379858 Fax: 0161 2373315

Site
Jaques Yard, Wrexham

**Borehole
Number**
BH102

Boring Method

Cable Percussion

Casing Diameter
150mm cased to 12.00m

Ground Level (mAD)
4.48

Client
Castlemead Homes Ltd

**Job
Number**
RCM4642

Location
3.00327 E 53.04836 N

Dates
14/08/2007-
15/08/2007

Engineer
Aaron Cousins

Sheet
2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(3.50)				
					-8.02	12.50	Complete at 12.50m			

Remarks

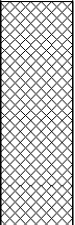
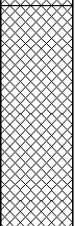
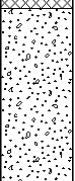
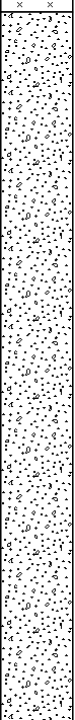
Scale (approx)
1:50

Logged
By

AC

Figure No.
RCM4642.BH10

		RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham		Borehole Number BH103	
		Boring Method Cable Percussion		Casing Diameter 150mm cased to 9.50m		Ground Level (mAD) 4.51		Client Castlemead Homes Ltd		Job Number RCM4642
		Location 3.00309 E 53.04868 N		Dates 15/08/2007- 16/08/2007		Engineer Aaron Cousins		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							MADE GROUND. Dark grey brown slightly silty fine to coarse sand with subangular to subrounded fine to coarse gravel of mixed lithology including tan sandstone, dark grey mudstone, coal, concrete, brick with occasional fragments of metal and roofing slate. (Fill)			
					0.91	3.60				
					0.51	4.00	Brown slightly silty fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone and pale grey limestone (Glacial Till)			
						(1.20)	Brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone. (Glacial Till)			
					-0.69	5.20				
					-1.09	5.60	Soft finely laminated red brown SILT with bands of orange brown clay and occasional lenses of sand and fragments of fine to medium gravel of tan sandstone and dark grey mudstone. (Glacial Till)			
					-1.49	6.00	Orange brown slightly silty fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone. (Glacial Till)			
						(1.80)	Pale brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone, pale grey limestone and pink granite with some broken cobbles. (Glacial Till)			
				Water strike(1) at 7.32m, rose to 7.28m in 20 mins.	-3.29	7.80	Red brown silty fine to medium SAND with occasional fine to medium sub angular gravel of dark grey mudstone. (Glacial Till)			
						(1.70)				
					-4.99	9.50				
Remarks Groundwater rest level 6.75 m.bgl. Chiselling from 4.60m to 5.00m for 1 hour. Chiselling from 6.90m to 7.30m for 1 hour. Water added from 4.00m to 6.50m. Excavating from 0.00m to 1.20m for 1 hour.								Scale (approx) 1:50	Logged By AC	Figure No. RCM4642.BH103

		RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham		Borehole Number BH104	
		Boring Method Cable Percussion		Casing Diameter 150mm cased to 10.00m		Ground Level (mAD) 4.67		Client Castlemead Homes Ltd		Job Number RCM4642
		Location 3.00292 E 53.049 N		Dates 16/08/2007		Engineer Aaron Cousins		Sheet 1/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
1.50	D1				3.17	1.50 (1.50)	MADE GROUND. Dark grey brown slightly silty fine to coarse sand with subangular to subrounded fine to coarse gravel of mixed lithology including tan sandstone, dark grey mudstone, concrete, brick and occasional metal and glass fragments. Several whole bricks (Fill)			
					1.67	3.00 (1.50)	MADE GROUND. Grey brown silty fine to coarse sand with subangular to subrounded fine to coarse gravel of tan sandstone, dark grey mudstone and occasional fragments of brick. (Fill)			
					0.47	4.20 (0.60)	Layer of coal ash.			
					-0.13	4.80 (1.20)	Pale brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone and pale grey limestone. (Glacial Till)			
							Soft to firm finely laminated orange brown SILT with bands of orange brown clay and lenses of sand. (Glacial Till)			
5.60	D2					(4.70)	Pale brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone, pale grey limestone and pink granite with some broken cobbles. Silty in patches. (Glacial Till)			
				Water strike(1) at 8.10m, rose to 8.09m in 20 mins.	-4.83	9.50 (0.70)	Red brown silty fine to medium SAND with occasional fine to medium sub angular gravel of tan sandstone and dark grey mudstone. (Glacial			
Remarks Groundwater rest level 6.93 m.bgl. Chiselling from 5.40m to 5.80m for 1 hour. Chiselling from 6.70m to 6.90m for 0.5 hours. Chiselling from 8.90m to 9.10m for 0.5 hours. Water added from 5.00m to 9.50m. Excavating from 0.00m to 1.20m for 1 hour.								Scale (approx) 1:50	Logged By AC	
								Figure No. RCM4642.BH104		

 RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham			Borehole Number BH104		
Boring Method Cable Percussion		Casing Diameter 150mm cased to 10.00m		Ground Level (mAD) 4.67		Client Castlemead Homes Ltd		Job Number RCM4642		
		Location 3.00292 E 53.049 N		Dates 16/08/2007		Engineer Aaron Cousins		Sheet 2/2		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					-5.53	(0.70) 10.20	Till Complete at 10.20m			
Remarks								Scale (approx)	Logged By	
								1:50	AC	
								Figure No. RCM4642.BH104		

RPS					RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham					Borehole Number BH105	
Boring Method Cable Percussion			Casing Diameter 150mm cased to 9.00m			Ground Level (mAD) 6.50		Client Castlemead Homes Ltd					Job Number RCM4642			
			Location 3.00265 E 53.04993 N			Dates 17/08/2007		Engineer Aaron Cousins					Sheet 1/1			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mAD)	Depth (m) (Thickness)	Description	Legend	Water	Instr						
				Water strike(1) at 5.47m, no rise after 20 mins, sealed at 6.60m.			MADE GROUND. Dark grey brown slightly silty fine to coarse sand with subangular to subrounded fine to coarse gravel of mixed lithology including tan sandstone, dark grey mudstone, concrete, brick and occasional metal fragments. (Fill)									
						(2.00)										
						4.50	2.00						MADE GROUND. Grey brown silty fine to coarse sand with subangular to subrounded fine to coarse gravel of tan sandstone, dark grey mudstone and occasional fragments of brick. (Fill)			
						(1.00)										
						3.50	3.00						Pale brown slightly silty fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone and pale grey limestone. (Glacial Till)			
						(1.90)										
						1.60	4.90 (0.20)						Soft to firm orange brown SILT with occasional gravel and patches of fine to medium sand. Gravel is subangular to subrounded fine to coarse of mixed lithology. (Glacial Till)			
						1.40	5.10									
						(1.40)										
						0.00	6.50						Soft to firm finely laminated orange brown SILT with bands of orange brown clay and occasional pockets of sand. (Glacial Till)			
(1.00)																
-1.00	7.50	Pale brown fine to coarse SAND and GRAVEL. Gravel is subangular to subrounded fine to coarse of mixed lithology including tan sandstone, dark grey mudstone and pale grey limestone with some broken cobbles. Silty in patches. (Glacial Till)														
(1.50)																
		Obstruction (probable cobble/boulder).														
-2.50	9.00	Complete at 9.00m														
Remarks Borehole terminated at 9.0 m.bgl due to very slow progress. Groundwater rest level 8.80 m.bgl. Chiselling from 8.00m to 9.00m for 2.5 hours. Water added from 5.00m to 6.50m. Water added from 7.40m to 9.00m. Excavating from 0.00m to 1.20m for 1 hour.									Scale (approx) 1:50	Logged By AC	Figure No. RCM4642.BH105					

RPS					RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham					Borehole Number BH106	
Boring Method Cable Percussion			Casing Diameter 150mm cased to 11.00m			Ground Level (mOD) 4.04		Client Castlemead Homes Ltd					Job Number RCM4642			
			Location 3.00332 E 53.049 N			Dates 20/08/2007		Engineer Aaron Cousins					Sheet 1/2			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr						
							MADE GROUND. Dark grey brown slightly silty fine to coarse sand with subangular to subrounded fine to coarse gravel of mixed lithology including tan sandstone, dark grey mudstone, concrete, brick and occasional metal fragments. (Fill)									
					0.54	3.50 (3.50)	Grey brown silty fine to coarse SAND with subangular to subrounded fine to coarse gravel of tan sandstone and dark grey mudstone. (Glacial Till)									
					-0.46	4.50 (0.40)	Soft finely laminated brown SILT with bands of orange brown clay and occasional lenses of fine to medium sand. (Glacial Till)	x x x x								
					-0.86	4.90 (2.30)	Mid brown fine to coarse SAND and GRAVEL. Gravel is fine to coarse subangular to subrounded of mixed lithology including tan sandstone, dark grey mudstone, pale grey limestone and pink granite with some broken cobbles. Silty in patches. (Glacial Till)									
				Water strike(1) at 6.02m, no rise after 20 mins, sealed at 9.00m.			Becoming silty and stained dark brown.									
					-3.16	7.20 (1.80)	Red brown silty fine SAND with occasional fine to medium gravel of dark grey mudstone and tan sandstone. Almost cohesive when wet. (Glacial Till)									
					-4.96	9.00	Stiff to very stiff red brown SILT with occasional bands of sand and occasional gravel of fine to medium subangular dark grey mudstone and tan sandstone. Breaks along crenulated horizontal plains of weakness of up to 10 mm in thickness. (Glacial Till)	x x x x								
Remarks Water added from 4.90m to 7.20m. Excavating from 0.00m to 1.20m for 1 hour.								Scale (approx)	Logged By							
								1:50	AC							
								Figure No. RCM4642.BH106								

		RPS Health, Safety and Environment 52 Princess Street Manchester, M1 6JX Tel: 0161 2379858 Fax: 0161 2373315					Site Jaques Yard, Wrexham		Borehole Number BH106	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 11.00m			Ground Level (mOD) 4.04		Client Castlemead Homes Ltd		Job Number RCM4642	
		Location 3.00332 E 53.049 N			Dates 20/08/2007		Engineer Aaron Cousins		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						(2.80) -7.76 11.80				
Complete at 11.80m										
Remarks								Scale (approx)	Logged By	
								1:50	AC	
								Figure No. RCM4642.BH106		

Appendix B
Groundwater Analytical Data

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAUQUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Sample Received Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	1-6	7-13	14-19	20-25	26-30	31-37	38-44				
Arsenic Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Barium Dissolved (ICP-MS)	-	-	-	-	-	43	43			TM152 [#]	<1 ug/l
Beryllium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Boron Dissolved (ICP-MS)	-	-	-	-	-	<10	<10			TM152 [#]	<10 ug/l
Cadmium Dissolved (ICP-MS)	-	-	-	-	-	<0.4	<0.4			TM152 [#]	<0.4 ug/l
Chromium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Copper Dissolved (ICP-MS)	-	-	-	-	-	2	12			TM152 [#]	<1 ug/l
Lead Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Nickel Dissolved (ICP-MS)	-	-	-	-	-	3	3			TM152 [#]	<1 ug/l
Selenium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Vanadium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Zinc Dissolved (ICP-MS)	-	-	-	-	-	17	9			TM152 [#]	<3 ug/l
Arsenic Total (HNO3 Digest)	2	8	5	2	3	-	-			TM152	<1 ug/l
Barium Total (HNO3 Digest)	74	150	220	73	86	-	-			TM152	<1 ug/l
Beryllium Total (HNO3 Digest)	<1	<1	<1	<1	<1	-	-			TM152	<1 ug/l
Boron Total (HNO3 Digest)	72	<10	180	47	80	-	-			TM152	<10 ug/l
Cadmium Total (HNO3 Digest)	<0.4	<0.4	<0.4	<0.4	<0.4	-	-			TM152	<0.4 ug/l
Chromium Total (HNO3 Digest)	3	3	2	3	5	-	-			TM152	<1 ug/l
Copper Total (HNO3 Digest)	7	2	11	16	3	-	-			TM152	<1 ug/l
Lead Total (HNO3 Digest)	<1	<1	<1	<1	4	-	-			TM152	<1 ug/l
Nickel Total (HNO3 Digest)	4	8	8	7	6	-	-			TM152	<1 ug/l
Selenium Total (HNO3 Digest)	7	7	10	8	11	-	-			TM152	<1 ug/l
Vanadium Total (HNO3 Digest)	<1	1	<1	<1	<1	-	-			TM152	<1 ug/l
Zinc Total (HNO3 Digest)	82	67	120	82	68	-	-			TM152	<3 ug/l
Mercury Dissolved (CVAA)	-	-	-	-	-	<0.05	<0.05			TM127 [#]	<0.05 ug/l
Mercury Total (HNO3 Digest)	<0.05	<0.05	<0.05	<0.05	<0.05	-	-			TM127	<0.05 ug/l
Conductivity (at 25 deg.C)	0.80	0.82	0.91	0.80	0.75	0.60	0.96			TM120 [#]	<0.014 mS/cm
Ammoniacal Nitrogen as N	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2			TM099 [#]	<0.2 mg/l
Total Cyanide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153 [#]	<0.05 mg/l
Free Cyanide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153 [#]	<0.05 mg/l
pH Value	8.12	8.17	8.12	8.16	8.08	8.43	8.43			TM133 [#]	<1.00 pH Units

Date 11.10.2007

11

11

ISO 17025 accredited

M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Matrix: LIQUID

Location: JACQUES YARD

Client Contact: Aaron Cousins

GRO (C4-C12)	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
MTBE	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
Benzene	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
Toluene	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
Ethyl benzene	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
m & p Xylene	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
o Xylene	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
Aliphatics C5-C6	<10	<10	<10	<10	<10	<10	<10			TM089	<10 ug/l
Aliphatics >C6-C8	<10	<10	<10	<10	<10	<10	<10			TM089	<10 ug/l
Aliphatics >C8-C10	<10	<10	<10	<10	<10	<10	<10			TM089	<10 ug/l
Aliphatics >C10-C12	<10	<10	<10	<10	<10	<10	<10			TM089	<10 ug/l
Aliphatics >C12-C16 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM174	<10 ug/l
Aliphatics >C16-C21 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM174	<10 ug/l
Aliphatics >C21-C35 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM174	<10 ug/l
Total Aliphatics C5-C35 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM61/89	<10 ug/l
Aromatics C6-C7	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
Aromatics >C7-C8	<10	<10	<10	<10	<10	<10	<10			TM089 [#]	<10 ug/l
Aromatics >EC8-EC10	<10	<10	<10	<10	<10	<10	<10			TM089	<10 ug/l
Aromatics >EC10-EC12	<10	<10	<10	<10	<10	<10	<10			TM089	<10 ug/l
Aromatics >EC12-EC16 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM174	<10 ug/l
Aromatics >EC16-EC21 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM174	<10 ug/l
Aromatics >EC21-EC35 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM174	<10 ug/l
Total Aromatics C6-C35 Aqueous	<10	<10	<10	<10	<10	<10	<10			TM61/89	<10 ug/l
TPH (Aliphatics and Aromatics C5-C35) Aqueous	<10	<10	<10	<10	<10	<10	<10			TM61/89	<10 ug/l

Date 11.10.2007

Validated	☐
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAMES YARD
Client Contact: Aaron Cousins

[illegible]

Date 11.10.2007

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 07/16941/02/01

Matrix: LIQUID

Client: RPS Consultants Ltd

Location: JAKUES YARD

Client Ref. No.:

Client Contact: Aaron Cousins

[illegible]

Date 11.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAKUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Sample Received Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	1-6	7-13	14-19	20-25	26-30	31-37	38-44				
SVOC by GCMS											
Phenols											
2-Chlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Methylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Nitrophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4-Dichlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4-Dimethylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4,5-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Chloro-3-methylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Methylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Nitrophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Pentachlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Phenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
PAHs											
2-Chloronaphthalene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Methylnaphthalene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Acenaphthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Acenaphthylene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Anthracene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(a)anthracene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(a)pyrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(b)fluoranthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(ghi)perylene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(k)fluoranthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Chrysene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Dibenzo(a,h)anthracene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Fluoranthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Fluorene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Indeno(1,2,3-cd)pyrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l

Date 11.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAKUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Sample Received Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	1-6	7-13	14-19	20-25	26-30	31-37	38-44				
PAHs (cont)											
Naphthalene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Phenanthrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Pyrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Phthalates											
Bis(2-ethylhexyl) phthalate	<2	<2	<2	<2	<2	<2	<2			TM176	<2 ug/l
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Di-n-butyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Di-n-Octyl phthalate	<5	<5	<5	<5	<5	<5	<5			TM176	<5 ug/l
Diethyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Dimethyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Other Semi-volatiles											
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
1,2,4-Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Nitroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
3-Nitroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Bromophenylphenylether	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Chloroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Chlorophenylphenylether	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Nitroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Azobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Bis(2-chloroethoxy)methane	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Bis(2-chloroethyl)ether	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Carbazole	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Dibenzofuran	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l

Date 11.10.2007

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ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 07/16941/02/01

Matrix: LIQUID

Client: RPS Consultants Ltd

Location: JACQUES YARD

Client Ref. No.:

Client Contact: Aaron Cousins

[illegible]

Date 11.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAKUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Sample Received Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	1-6	7-13	14-19	20-25	26-30	31-37	38-44				
Volatile Organic Compounds											
Dichlorodifluoromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Vinyl Chloride	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromomethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
trans-1-2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Dichloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Carbon Disulphide	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Methyl Tertiary Butyl Ether	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
cis-1-2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chloroform	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1-Dichloropropene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Benzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Carbontetrachloride	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Dibromomethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Trichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
cis-1-3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
trans-1-3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Toluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,3-Dichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l

Date 11.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAUQUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Sample Received Date	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07	26.09.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	1-6	7-13	14-19	20-25	26-30	31-37	38-44				
Volatile Organic Compounds (cont)											
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
p/m-Xylene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromoform	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Styrene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
o-Xylene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
2-Chlorotoluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Propylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
4-Chlorotoluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
4-Isopropyltoluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
sec-Butylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
tert-Butylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
n-Butylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dibromo-3-chloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,4-Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Naphthalene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,3-Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l

Date 11.10.2007

Validated

Preliminary

ALcontrol Geochem Analytical Services

^M MCERTS accredited

» Shown on prev. report

Job Number: 07/16941/02/01

Client: RPS Consultants Ltd

Client Ref. No.:

Matrix: LIQUID

Location: JAQUES YARD

Client Contact: Aaron Cousins

[illegible]

Date 11.10.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited ISO 17025	Accredited MCERTS	Wet/Dry Sample ¹	Surrogate Corrected
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB's) as Aroclor 1254 and the ICE 7 Congeners by GC-MS			NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.			NA	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)			NA	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	✓		NA	
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	✓		NA	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	✓		NA	
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter	✓		NA	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy			NA	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy	✓		NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓		NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS			NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	✓		NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓		NA	
TM174		Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID			NA	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/16941/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Summary of Coolbox temperatures

[illegible]

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAQUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Sample Received Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	2-9	10-16	17-22	23-27	28-31	32-37	38-42				
Arsenic Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Barium Dissolved (ICP-MS)	-	-	-	-	-	53	60			TM152 [#]	<1 ug/l
Beryllium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Boron Dissolved (ICP-MS)	-	-	-	-	-	48	49			TM152 [#]	<10 ug/l
Cadmium Dissolved (ICP-MS)	-	-	-	-	-	<0.4	<0.4			TM152 [#]	<0.4 ug/l
Chromium Dissolved (ICP-MS)	-	-	-	-	-	1	1			TM152 [#]	<1 ug/l
Copper Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Lead Dissolved (ICP-MS)	-	-	-	-	-	<1	1			TM152 [#]	<1 ug/l
Nickel Dissolved (ICP-MS)	-	-	-	-	-	2	3			TM152 [#]	<1 ug/l
Selenium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Vanadium Dissolved (ICP-MS)	-	-	-	-	-	<1	<1			TM152 [#]	<1 ug/l
Zinc Dissolved (ICP-MS)	-	-	-	-	-	24	28			TM152 [#]	<3 ug/l
Arsenic Total (HNO3 Digest)	<1	5	<1	<1	<1	-	-			TM152	<1 ug/l
Barium Total (HNO3 Digest)	68	140	130	72	86	-	-			TM152	<1 ug/l
Beryllium Total (HNO3 Digest)	<1	<1	<1	<1	<1	-	-			TM152	<1 ug/l
Boron Total (HNO3 Digest)	140	67	140	110	160	-	-			TM152	<10 ug/l
Cadmium Total (HNO3 Digest)	<0.4	<0.4	<0.4	<0.4	<0.4	-	-			TM152	<0.4 ug/l
Chromium Total (HNO3 Digest)	<1	2	<1	1	<1	-	-			TM152	<1 ug/l
Copper Total (HNO3 Digest)	<1	3	<1	<1	<1	-	-			TM152	<1 ug/l
Lead Total (HNO3 Digest)	<1	<1	<1	<1	<1	-	-			TM152	<1 ug/l
Nickel Total (HNO3 Digest)	2	3	5	3	2	-	-			TM152	<1 ug/l
Selenium Total (HNO3 Digest)	<1	<1	<1	1	1	-	-			TM152	<1 ug/l
Vanadium Total (HNO3 Digest)	<1	1	<1	<1	<1	-	-			TM152	<1 ug/l
Zinc Total (HNO3 Digest)	58	91	51	110	53	-	-			TM152	<3 ug/l
Mercury Dissolved (CVAA)	-	-	-	-	-	<0.05	<0.05			TM127 [#]	<0.05 ug/l
Mercury Total (HNO3 Digest)	<0.05	<0.05	<0.05	<0.05	<0.05	-	-			TM127	<0.05 ug/l
Conductivity (at 25 deg.C)	0.84	0.89	0.95	0.88	0.86	0.84	0.85			TM120 [#]	<0.014 mS/cm
Ammoniacal Nitrogen as N	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2			TM099 [#]	<0.2 mg/l
Total Cyanide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153 [#]	<0.05 mg/l
Free Cyanide	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			TM153 [#]	<0.05 mg/l
pH Value	7.86	8.02	7.97	7.85	8.17	8.36	8.32			TM133 [#]	<1.00 pH Units

Date 29.10.2007

11

11

ISO 17025 accredited

M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Matrix: LIQUID

Location: JACQUES YARD

Client Contact: Aaron Cousins

[illegible]

Date 29.10.2007

Validated	☐
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited

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* Subcontracted test

» Shown on prev. report

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAKUES YARD
Client Contact: Aaron Cousins

[illegible]

Date 29.10.2007

Validated	☐
Preliminary	☐

ALcontrol Geochem Analytical Services Table Of Results

ISO 17025 accredited

^M MCERTS accredited

* Subcontracted test

» Shown on prev. report

Job Number: 07/18017/02/01

Matrix: LIQUID

Client: RPS Consultants Ltd

Location: JACQUES YARD

Client Ref. No.:

Client Contact: Aaron Cousins

[illegible]

Date 29.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAKUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Sample Received Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	2-9	10-16	17-22	23-27	28-31	32-37	38-42				
SVOC by GCMS											
Phenols											
2-Chlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Methylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Nitrophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4-Dichlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4-Dimethylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4,5-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4,6-Trichlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Chloro-3-methylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Methylphenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Nitrophenol	<2	<2	<2	<2	<2	<2	<2			TM176	<1 ug/l
Pentachlorophenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Phenol	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
PAHs											
2-Chloronaphthalene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Methylnaphthalene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Acenaphthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Acenaphthylene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Anthracene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(a)anthracene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(a)pyrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(b)fluoranthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(ghi)perylene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Benzo(k)fluoranthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Chrysene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Dibenzo(a,h)anthracene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Fluoranthene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Fluorene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Indeno(1,2,3-cd)pyrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l

Date 29.10.2007

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Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAQUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Sample Received Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	2-9	10-16	17-22	23-27	28-31	32-37	38-42				
PAHs (cont)											
Naphthalene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Phenanthrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Pyrene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Phthalates											
Bis(2-ethylhexyl) phthalate	<2	<2	<2	<2	<2	<2	<2			TM176	<2 ug/l
Butylbenzyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Di-n-butyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Di-n-Octyl phthalate	<5	<5	<5	<5	<5	<5	<5			TM176	<5 ug/l
Diethyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Dimethyl phthalate	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Other Semi-volatiles											
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
1,2,4-Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2-Nitroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,4-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
2,6-Dinitrotoluene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
3-Nitroaniline	<1	<1	<1	<2	<1	<1	<1			TM176	<1 ug/l
4-Bromophenylphenylether	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Chloroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Chlorophenylphenylether	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
4-Nitroaniline	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Azobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Bis(2-chloroethoxy)methane	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Bis(2-chloroethyl)ether	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Carbazole	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Dibenzofuran	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l

Date 29.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAQUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Sample Received Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	2-9	10-16	17-22	23-27	28-31	32-37	38-42				
Other Semi-volatiles (cont)											
Hexachlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Hexachlorobutadiene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Hexachlorocyclopentadiene	<1	<1	<1	<2	<1	<1	<1			TM176	<1 ug/l
Hexachloroethane	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Isophorone	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
N-nitrosodi-n-propylamine	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l
Nitrobenzene	<1	<1	<1	<1	<1	<1	<1			TM176	<1 ug/l

Date 29.10.2007

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Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
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Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAKUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Sample Received Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	2-9	10-16	17-22	23-27	28-31	32-37	38-42				
Volatile Organic Compounds											
Dichlorodifluoromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Vinyl Chloride	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromomethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Trichlorofluoromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
trans-1-2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Dichloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Carbon Disulphide	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1-Dichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1-Dichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Methyl Tertiary Butyl Ether	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
cis-1-2-Dichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chloroform	<1	<1	<1	<1	1	<1	<1			TM116 [#]	<1 ug/l
2,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1-Dichloropropene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Benzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Carbontetrachloride	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Dibromomethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Trichloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
cis-1-3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
trans-1-3-Dichloropropene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,2-Trichloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Toluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,3-Dichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l

Date 29.10.2007

Validated ☐
Preliminary ☐

ALcontrol Geochem Analytical Services

Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Matrix: LIQUID
Location: JAQUES YARD
Client Contact: Aaron Cousins

Sample Identity	BH101	BH102	BH103	BH104	BH106	SW1	SW2			Method Code	LoD/Units
Depth (m)	-	-	-	-	-	-	-				
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID				
Sampled Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Sample Received Date	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07	11.10.07				
Batch	1	1	1	1	1	1	1				
Sample Number(s)	2-9	10-16	17-22	23-27	28-31	32-37	38-42				
Volatile Organic Compounds (cont)											
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Chlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
p/m-Xylene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromoform	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Styrene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
o-Xylene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,3-Trichloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Isopropylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Bromobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
2-Chlorotoluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Propylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
4-Chlorotoluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,4-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
4-Isopropyltoluene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,3,5-Trimethylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
sec-Butylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
tert-Butylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
n-Butylbenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2-Dibromo-3-chloropropane	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,4-Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
Naphthalene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l
1,2,3-Trichlorobenzene	<1	<1	<1	<1	<1	<1	<1			TM116 [#]	<1 ug/l

Date 29.10.2007

ALcontrol Geochem Analytical Services

Table Of Results - Appendix

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03x10⁻⁷

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	Accredited	ISO 17025	MCERTS Accredited	Wet/Dry Sample ¹	Surrogate Corrected
TM070	Modified: US EPA Method 8250 & 625	Determination of Total Polychlorinated Biphenyls (PCB's) as Aroclor 1254 and the ICE 7 Congeners by GC-MS				NA	
TM074	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS. MCERTS Accreditation on Soils for Naphthalene except when Kerosene present.				NA	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)				NA	
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)	✓			NA	
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser	✓			NA	
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS	✓			NA	
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter	✓			NA	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy				NA	
TM127	Method 3112B, AWWA/APHA, 20th Ed., 1999	The Determination of Trace Level Mercury in Aqueous Media and Soil Extracts by Atomic Absorption Spectroscopy	✓			NA	
TM133	BS 1377: Part 3 1990	Determination of pH in Soil and Water using the GLpH pH Meter	✓			NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS				NA	
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS	✓			NA	
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the "Skalar SANS+ System" Segmented Flow Analyser	✓			NA	
TM174		Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID				NA	

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

[illegible]

¹ Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services Table Of Results - Appendix

Job Number: 07/18017/02/01
Client: RPS Consultants Ltd
Client Ref. No.:

Summary of Coolbox temperatures

[illegible]