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GREEN PARK VILLAGE GROUND CONTAMINATION INTERPRETATIVE REPORT - PHASE 3

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EXECUTIVE SUMMARY

Ramboll UK has been instructed by St Edward Homes Limited to undertake a ground contamination interpretative report in relation to its proposed redevelopment at Phase 3 of the Green Park Village development in Reading.

Early Ordnance Survey mapping (1883) indicates that Phase 3 was undeveloped open land known as "Smallmead Common". By 2008 a training centre belonging to Thames Valley University was present in the centre of the phase which was subsequently used as a maintenance and security depot that was removed at the onset of the GPV development. Phase 3 is currently open ground and is split into two sub phases Phase 3A and Phase 3B.

A ground investigation was undertaken in March and April 2017 to further assess the prevailing geoenvironmental conditions within the Phase. The intrusive works comprised the advancement of ten windowless sample boreholes to depths between 3 m and 5 m which were supplemented with three machine excavated trial pits excavated to depths of between 1.7 m and 2.5 m. The ground investigation encountered Made Ground overlying (in sequence) Alluvium, River Terrace Deposits and the Lambeth Group. The White Chalk Subgroup underlies the Lambeth Group however was not encountered on Phase 3. The River Terrace Deposits and Lambeth Group are classified as Secondary A Aquifers whilst the Chalk is a Principal Aquifer. Surface water receptors include a drainage ditch on the northern boundary which flows in an easterly direction to Foundry Brook, located 350m east of Phase 3.

Made Ground soils within Phase 3 were identified to be mildly impacted with arsenic, lead and copper. However risks are considered low as the land will be raised with 1 m to 2 m of imported material thus eliminating the direct contact, ingestion of soil and inhalation of dust pathways to human health.

Controlled water risks are also considered to be low with no leachable contaminants identified in the unsaturated zone. Risks from inorganic contaminants in groundwater (sulphate, arsenic, mercury, nickel) are also not considered significant due the limited number of marginal exceedences or exceedence within an order of magnitude of adopted thresholds. The risks associated with the identified medium and heavy end aliphatic hydrocarbons in groundwater are also considered low as these are of low mobility and no obvious onsite source or visual / olfactory evidence of contamination has been identified.

The source of bacteria (coliforms) in groundwater remains inconclusive however the colonies identified are not considered significant given that groundwater is not used for a potable supply and human interaction with groundwater at the site in its proposed state is unlikely. Potential risks during the construction stage should be managed through adherence to good construction practice e.g. use of appropriate PPE.

Elevated concentrations of the hazardous ground gases carbon dioxide and methane have been recorded during the monitoring period and as such ground gas protection measures commensurate with an NHBC Amber 2 classification are likely to be required at the site. However, it may be possible to reduce the need for ground gas protection measures within buildings through additional detailed assessment.

Overall, the assessments undertaken herein have resulted in the identification of a limited number of plausible pollutant linkages. Following this report the immediate next steps are recommended to comprise the preparation of a foundation works risk assessment and detailed ground gas risk assessment for the phase.

1. INTRODUCTION

1.1 Brief

Ramboll UK Limited (hereafter referred to as Ramboll) has been appointed by St Edward Homes Limited to undertake a ground contamination interpretative report to support the redevelopment of Phase 3 of the proposed Green Park Village development (GPV), located on the southern fringe of Reading (hereafter referred to as the site) as shown in Figure 1.

The GPV site is divided into a number of phases, each of which will be redeveloped separately. This report only assesses Phase 3 which is proposed for residential end uses (residential housing with gardens and areas of soft landscaping). The majority of Phase 3 will need to be raised by around 1 to 2 m from the original ground level of approximately +38 mOD to +39 mOD. This platform will effectively act as a cap to the underlying ground. This ground contamination interpretative report has been prepared to assist design and support the discharge of Planning Condition 42 parts (1) and (2) as outlined in Section 1.2.

This report follows the site wide Ground Contamination Interpretative Report which was prepared by Ramboll in March 2016 ref 1620000492/RPT/003, which provided a review of previously collated geoenvironmental information by Peter Brett Associates (PBA). From review of the PBA information, a number of areas of potential contamination risk were identified which were not previously investigated. This report addresses the gaps in information including any potential implications upon the development. This report does not constitute a geotechnical assessment of the site.

1.2 Planning Context

The site was granted Outline Planning Permission in 2011 under Application No 10/01461/OUT which comprised a hybrid application with full planning permission with no matters reserved for Phase 1 of the development and outline planning permission with all matters reserved for the subsequent phases of the development.

Planning permission included a number of conditions in relation to ground contamination. These are summarised below.

- Condition 42. Prior to the commencement of each phase of development approved by this planning permission (or such other date or stage in development as may be agreed in writing by the local planning authority), the following components of a scheme to deal with the risks associated with contamination in relation to that phase of development shall be submitted to and approved, in writing, by the local planning authority:
 1. A site investigation scheme, based on Phase I desk top study to provide information for detailed assessment of the risk to all receptors that may be affected, including those offsite.
 2. The investigation results and detailed risk assessment and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they will be undertaken. The remediation measures shall include an implementation timetable and remediation verification methodology. The remedial scheme must be carried out before the development commences unless otherwise agreed in writing by the local planning authority.
- Condition 43. Should any unforeseen contamination be encountered during the development, of any phase of the scheme no further development (unless agreed in writing with the local Planning authority) of that phase of the scheme shall be carried out until the developer has submitted, and obtained written approval from the local planning authority for an amendment to the remediation strategy for that phase of the scheme detailing how this unsuspected contamination shall be dealt

with. Any further investigation/remedial/protective works shall be carried out to agreed timescales and approved by the local planning authority in writing.

- Condition 44. Within one month of the completion of any required remediation being carried out for each phase of development, a Site Completion Report shall be submitted to an approved in writing by the local planning authority for that phase. The report must include:
 1. Confirmation that all remediation measures have been carried out fully in accordance with the approved remediation scheme. An appropriately qualified person shall oversee the implementation of all remediation.
 2. A long term monitoring and maintenance plan for longer term monitoring of pollutant linkages, maintenance and arrangements for contingency action and for the reporting of this to the local planning authority.
 3. If no contamination is encountered during the development, a letter confirming this fact shall be submitted to the local planning authority upon completion of the development.
- Condition 48. Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the local planning authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to groundwater.

1.3 Information Sources

This document draws on information from the following sources:

- i. Ramboll, March 2016. Green Park Village, Ground Investigation Report. Ref 1620000492/RPT/002.
- ii. Ramboll, March 2016. Green Park Village, Ground Contamination Interpretative Report. Ref 1620000492/RPT/003.
- iii. Ramboll, May 2017. Green Park Village, Specification for Earthworks. Ref 1620000492/SP/001.
- iv. Terramech, June 2017. Factual Report on Ground Investigation. Ref 3700D.

1.4 Earthworks and Proposed Development

In order to facilitate the wider GPV development a significant earthworks programme is proposed to be undertaken in order to bring the site to a minimum level of +40.2 mOD for flood alleviation purposes. The filling operation will involve the import of circa 600,000 m³ of material across the site under a re-use of waste in construction bespoke environmental permit ref EPR/DB3206HL. Filling operations would be conducted under the material requirements of the Ramboll Specification for Earthworks¹.

Phase 3 of the GPV development will comprise residential housing with gardens, areas of soft landscaping and associated infrastructure. Within the phase ground levels are proposed to be raised by approximately 1 to 2 m which effectively cap the underlying ground. The proposed development layout is shown in Figure 2.

1.5 Objectives

The objectives of this report are:

- i. To further assess the potential for significant risks to both human health and environmental receptors (including controlled waters) for the contaminants identified at the site;
- ii. To carry out a refined contaminated land risk assessment based on a source, pathway and receptor methodology in general accordance with the provisions of the EA / DEFRA Model Procedures for the Management of Land Contamination, 2004 (EA, 2004); and

¹ Ramboll, May 2017. Green Park Village, Specification for Earthworks. Ref 1620000492/SP/001.

- iii. To refine the Conceptual Site Model (CSM) based on the findings of the ground investigation.

1.6 Constraints and Limitations

This report has been prepared for the use of St Edward Homes Limited for the purpose of assisting them in developing appropriate risk management measures in order to allow the safe development of the land at Green Park Village for the proposed end use at the time of writing.

The recommendations detailed in this report relate to details of the proposed development at the time of writing the report. Any substantial changes to the proposed design may require a reassessment of the implications of the environmental risks identified. This report may not be used in whole or in part by any third parties without the express permission of Ramboll in writing.

Ramboll has endeavoured to assess all information provided during this process. This report summarises information provided from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

2. SITE SETTING

2.1 Site Location and Description

The GPV site is located approximately 4 km to the south of Reading Town Centre, Berkshire. Phase 3 is present in the eastern portion of the GPV site and occupies approximately 4.50 ha at an approximate National Grid reference of 470153, 170282. The site location is shown in Figure 1.

Phase 3 is bound by historic landfill sites to north, a drainage ditch at the northern boundary an isolated ditch at the southernmost boundary, and other Phases (Phases 1 and 4) to the west and north. Phase 3 is open ground and is split into two sub phases Phase 3A and Phased 3B. Phase 3A has recently been re-profiled and raised following the re-use of a number of stockpiles within the land raise in Phase 1A. Phase 3B is present at a lower (original) ground level. The location of these sub phases is shown in Figure 1. It should be noted that Phase 3 was referred to as part of the 'Eastern Triangle' within the previous ground investigation reports undertaken by PBA.

2.2 Soil Stockpiles

An assessment of the soil stockpiles was carried out by PBA in 2015² which concluded that they were not adversely impacted by ground contamination and were suitable for re-use without any remedial treatment. They were subsequently re-used within Phase 1A in late 2015 to early 2016 to raise ground levels for flood alleviation³⁴.

2.3 Site History

Early Ordnance Survey mapping (1883) indicates that Phase 3 was undeveloped open land known as "Smallmead Common". By 2008 a training centre belonging to Thames Valley University was present in the centre of the phase which was subsequently used as a maintenance and security depot.

2.4 Previous Works

2.4.1 Peter Brett Associates

The GPV development has been subject to numerous historical ground investigations by PBA with specific investigations undertaken at the site by PBA in 2002⁵, 2005⁶ and 2015².

These investigations comprised the advancement of 12 boreholes to depths of between 2m and 18.3m and 11 trial pits to depths between 0.8m and 3.1m. Visual evidence of contamination was largely limited to anthropogenic materials within the Made Ground. Lead, mercury, polycyclic aromatic hydrocarbon (PAHs) and total petroleum hydrocarbons (TPH) were identified as contaminants of concern within the Phase 3 soils however only minimal asbestos screening was undertaken. No samples were scheduled for leachate analysis.

Elevated metals (chromium, copper, manganese, nickel and selenium), ammonia, nitrate and TPH were identified as contaminants of concern within groundwater in Phase 3 requiring further investigation.

No elevated hazardous ground gases were detected during historical monitoring, however the ground gas regime remains largely uncharacterised due to the lack of exploratory hole coverage and limited number of monitoring rounds.

² Peter Brett Associates, (2015). Green Park Village. Report on Ground Investigation for Phase 1A.

³ Ramboll (2017). Green Park Village. Earthworks Completion Report – Phase 1A and 1B ref 1620000492/RPT/001

⁴ Ramboll (2016). Green Park Village. Phase 1 Earthworks Geoenvironmental Verification Letter Report ref 1620000492/LR/001.

⁵ Peter Brett Associates, (2002). Green Park Village. Geo-environmental Investigation for Phase III.

⁶ Peter Brett Associates, (2005). Green Park Village. Earthwork Material Suitability Assessment. Phase III.

2.5 Anticipated Ground Conditions, Hydrogeology, Hydrology

The site is underlain by Made Ground, Alluvium, River Terrace Deposits (RTD), Lambeth Group and the Chalk Formation. Groundwater bodies have been identified in the superficial strata and in the bedrock beneath Phase 3. The River Terrace Deposits and Lambeth Group are classified as Secondary A Aquifers by the Environment Agency (EA) and the White Chalk Subgroup is classified as a Principal Aquifer. The elevation of the piezometric head within these groundwater bodies differs, and it is likely that they form separate water bodies, although there may be some hydraulic continuity in places. Phase 3 is not within a Nitrate Vulnerable Zone (NVZ).

Foundry Brook is located approximately 350 metres east of Phase 3 and flowing to the northeast. A drainage ditch is present on the northern boundary of Phase 3 which flows in an easterly direction where it joins Foundry Brook. The River Kennet is present approximately 650 metres to the north of Phase 3, running in a west-east direction and flowing to the east. Table 2.1 below provides a summary of the anticipated ground conditions.

Table 2.1: Anticipated Geological Sequence

Strata	Thickness (m)
Made Ground	Up to 1.47
Alluvium	0.1 to 1.15
River Terrace Deposits	0.1 to 2.75
Lambeth Group	0.3 to 15.3
Chalk	Depth unproven

2.6 Conceptual Site Model

A detailed conceptual site model (CSM) was developed within the Site Wide Ground Contamination Interpretative Report⁷. A number of potential pollutant linkages were present which required further investigation and risk assessment to determine whether any remedial measures are required. From this information, the following significant pollutant linkages were identified:

- i. Potential for asbestos in Made Ground, as no testing was undertaken;
- ii. The Made Ground soils present within Phase 3 would not be suitable for reuse within a residential setting unless covered by a suitable clean soil. This would be resolved by the land raising required to facilitate development;
- iii. Petroleum hydrocarbons were identified within groundwater which requires further investigation; and
- iv. No significant gas risk was identified from the monitoring historically undertaken; however additional rounds of ground gas monitoring were required to comply with current UK guidance.

Furthermore a number of areas of potential contamination risk were identified which were not previously investigated e.g. maintenance and security depot. Consequently a ground investigation was designed to address the gaps in the information including any potential implications upon the development. This ground investigation is described in the following sections.

⁷ Ramboll (2016). Green Park Village. Site Wide Ground Contamination Interpretative Report ref 1620000492/RPT/003

3. GROUND INVESTIGATION

3.1 Design

The site investigation was designed by Ramboll to investigate the ground, ground gas and groundwater conditions at the site. The ground investigation was completed by Terramech, and is described in their factual report, enclosed as Appendix 1.

3.2 Site Investigation Activities

The site investigation was undertaken in general accordance with:

- i. BS 5930:2015 Code of Practice for Ground Investigation⁸; and
- ii. BS 10175:2011+A1:2013 Investigation of Potentially Contaminated Sites – Code of Practice⁹.

The site investigation for Phase 3 comprised the following items of fieldwork which are pertinent to the assessments contained herein:

- i. Ten windowless sample boreholes (RWS601-RWS610) to depths between 3m and 5m; and
- ii. Three machine excavated trial pits (RTP601-RTP603) excavated to depths of between 1.7m and 2.5m.

The intrusive ground investigation was undertaken in March and April 2017. The exploratory holes were logged and sampled for geo-environmental purposes and groundwater samples were obtained from each of the wells. These works were undertaken by Terramech under the direction of Ramboll. All boreholes were installed as dual purpose monitoring wells to be monitored for groundwater level, vapour and ground gas concentrations following completion of the intrusive works.

The exploratory locations were selected to supplement the historical site investigation works and provide additional general site coverage.

The exploratory hole logs are provided in Appendix 1 with locations shown in Figure 2.

Photo ionisation detector (PID) screening was undertaken on samples of soil which exhibited olfactory evidence of chemical or hydrocarbon odours.

3.3 Laboratory Analysis

Soil samples were scheduled by Ramboll for chemical analysis for a suite of potential contaminants based on the conceptual site model and historical site investigations.

Across the course of the works on Phase 3, a total of 15 soil samples were tested for a suite broadly comprising pH, free cyanide, sulphate, total phenols, PAHs, metals and speciated TPH. Additional samples were also analysed for volatile organic compounds (VOC), semi-volatile organic compounds (SVOC) and asbestos quantification.

A total of three soil leachate samples were tested for a suite comprising pH, free cyanide, sulphate, ammonium, dissolved organic carbon (DOC), hardness, speciated phenols, PAHs, metals, TPH C6-C10 and TPH C10-C40.

⁸ British Standards Institute (2015) BS 5930:2015 Code of Practice for Ground Investigation

⁹ British Standards Institute (2013) v. BS 10175:2011+A1:2013 Investigation of Potentially Contaminated Sites – Code of Practice

12 Groundwater samples were obtained from a selection of the installed boreholes and were scheduled for laboratory analysis comprising pH, total cyanide, sulphate, ammoniacal nitrogen, DOC, hardness, total phenols, PAHs, monoaromatics, metals, speciated TPH, VOCs, SVOCs and microbial analysis.

Due to the presence of a former sewage treatment works to the west of the GPV development and the landfills to the north, groundwater across the site was targeted with microbiological analysis for total and faecal coliforms, E.Coli and total viable counts (TVC). Microbial samples were collected to examine the potential sources outlined above and determine whether they were migrating across the wider GPV development. Three samples were collected from Phase 3 installed wells including RWS601, RWS602 and RWS608.

The results of the laboratory testing are provided in Appendix 3.

3.4 Groundwater and Ground Gas Monitoring

A programme of gas and groundwater depth monitoring was undertaken as part of the investigation by Terramech. Six ground gas monitoring visits have been undertaken between 27th March and 24th May 2017. Gas monitoring was undertaken using a fully calibrated gas monitor from ten monitoring wells as indicated in Table 3.1. Monitoring was undertaken in accordance with procedures outlined in BS8576¹⁰ and CIRIA C665¹¹. The following parameters were monitored:

- i. Methane (% vol);
- ii. Carbon Dioxide (% vol);
- iii. Oxygen (% vol);
- iv. Hydrogen Sulphide (ppm)
- v. Carbon Monoxide;
- vi. Volatile Organic Compounds (VOCs) and
- vii. Flow rate (l/hr).

Terramech also completed up to six rounds of groundwater level monitoring with two rounds of groundwater sampling on the wells indicated in Table 3.1 between 27th March and 24th May 2017. Samples were collected in accordance with relevant British Standards i.e. BS ISO 5567-11¹² and BS ISO 6068-6.1112.

Table 3.1: Summary of Monitoring Wells

Monitoring Well	Response Zone (m)	Response Zone Strata	Ground Gas Monitoring Well	Groundwater Sampling Well
RWS601	0.5 to 3.0	MG and RTD	Y	Y
RWS602	1.5 to 4.0	ALV and RTD	Y	Y
RWS603	Unknown	ALV and RTD	Y	Y
RWS604	2.5 to 4.0	ALV and RTD	Y	Y
RWS605	2.5 to 3.65	MG, ALV and RTD	N	N
RWS606	1.7 to 3.0	MG and RTD	Y	N

¹⁰ British Standards Institute (2013). BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compound (VOCs)

¹¹ CIRIA (2007). C665 Assessing risks posed by hazardous ground gases to buildings

¹² British Standards Institute (2009). BS ISO 5567-11:2009 / BS6068-6.11:2009. Water quality sampling: Part 11 Guidance on sampling of groundwaters

Monitoring Well	Response Zone (m)	Response Zone Strata	Ground Gas Monitoring Well	Groundwater Sampling Well
RWS607	1.5 to 4.1	MG, ALV and RTD	Y	Y
RWS608a	1.5 to 4.0	MG, ALV and RTD	Y	Y
RWS609	1.0 to 2.0	MG	Y	N
RWS610	1.5 to 4.0	MG, ALV and RTD	Y	N

Notes:

MG: Made Ground, ALV: Alluvium, RTD: River Terrace Deposits

4. GROUND CONDITIONS

4.1 Ground Conditions Encountered

The succession of strata across the site identified during the ground investigation was as anticipated and comprises Made Ground overlying (in sequence) superficial deposits of discontinuous Alluvium and the River Terrace Deposits. The Made Ground was present as both engineered fill and residual Made Ground pre re-profiling. The superficial deposits overly the Lambeth Group and Chalk Formation with the latter not proven during this ground investigation. The exploratory hole logs provided by Terramech record these soil types to be variable in terms of both their vertical and lateral extent over the site. A summary of the site geology as recorded in the ground investigation is provided in Table 4.1.

Table 4.1: Summary of Encountered Geological Sequence

Stratum	Typical Description	Depth to Base of Stratum (mbgl)	Thickness (m)
Made Ground	Engineered fill generally comprising dark brown and grey occasionally mottled gravelly CLAYs. Gravel is fine to coarse angular to subrounded brick, concrete, flint and chalk with rare wood and ceramic.	0.7 to 2.0	0.7 to 2.0
Made Ground	Variable but predominantly dark brown gravelly sandy CLAYs and gravelly clayey SANDs. Gravel is fine to coarse subangular to subrounded brick, concrete, flint with inclusions of metal, tarmac, tile, glass, wood, peat and relic roots.	0.4 to 2.85	0.25 to 2.05
Alluvium	Ranged between dark grey gravelly CLAYs with a gravel is fine to coarse subangular to subrounded flint, to Dark grey peaty CLAYs.	0.7 to 3.6	Absent to 0.85
River Terrace Deposits	Brown to dark grey sandy GRAVELs and gravelly SANDs. Gravel is fine to coarse subangular to subrounded flint.	3.8 to 4.0	2.05
Lambeth Group	Light grey mottled purplish brown CLAY	Proven to 5.00	Unproven
Chalk Formation	Recovered on Phase 6 as putty CHALK with chalk and flint gravel.	Not encountered on Phase 3	

4.2 Groundwater

Groundwater strike details and seepages were encountered in all windowless sample boreholes advanced in the ground investigation with strikes in the Alluvium/River Terrace Deposits at depths between 1.6 mbgl and 4 mbgl. It is of note that the large range is in part due to differences in elevations from Phase 3A and Phase 3B. More representative data on groundwater levels has been obtained from current groundwater monitoring at the site. Groundwater levels were monitored within RWS601 to RWS610 on up to six occasions during 2017 by Terramech.

The results of groundwater monitoring have indicated groundwater within the Made Ground, Alluvium and River Terrace Deposits is at depths of between 1.63 mbgl and 3.02 mbgl and an elevation of between +36.94 mOD and +37.34 mOD. Based on groundwater monitoring on the wider GPV development site it is understood that groundwater within the River Terrace Deposits flows towards the north-east.

Underlying the River Terrace Deposits impermeable Lambeth Group clays have generally been encountered across the site suggesting the strata form separate groundwater bodies. However, the Reading Formation of the Lambeth Group is characterised by frequent strata interchanges between clay bands and groundwater bearing sand lenses. Due to the discontinuous presence of impermeable

Lambeth clays underlying the River Terrace Deposits, there is the potential that groundwater within the River Terrace Deposits is in continuity with groundwater within the Chalk via the sandy lenses within the Lambeth Group.

Full groundwater monitoring data is contained in Appendix 5 with a summary in Table 4.2 below.

Table 4.2: Groundwater Levels

Monitoring Well	Average Groundwater Level	
	mbgl	mAOD
RWS601	1.63	37.34
RWS602	1.91	37.21
RWS603	2.31	36.97
RWS604	2.80	37.17
RWS606	2.88	37.16
RWS607	3.02	37.33
RWS608	2.96	36.94
RWS609	Dry	Dry
RWS610	Dry	Dry

Notes

RWS604 to RWS610 lie within the Phase 3A area that has undergone a land raise of circa 1 m to 2 m

4.3 Visual and Olfactory Evidence of Potential Contamination

The Made Ground across Phase 3 generally included a range of anthropogenic materials including brick, concrete, ash, metal, tarmac, tile, glass and wood, however, no olfactory evidence of contamination was recorded.

In addition, no visual or olfactory evidence of contamination within groundwater was encountered during the monitoring program.

5. GROUND CONTAMINATION – GENERIC QUANTITATIVE RISK ASSESSMENT

5.1 Introduction

This ground contamination assessment has been undertaken in accordance with the current UK framework and comprises a generic quantitative risk assessment (GQRA) as defined in Contaminated Land Report CLR 11¹³. The risk assessment has been undertaken following the procedures set out within the guidance document CIRIA C552 Contaminated Land Risk Assessment, a Guide to Good Practice¹⁴ and EA/NHBC guidance²⁰. Further details of the UK legislative context and methodologies are provided in Appendix 2.

In order to assess the significance of the chemical concentrations reported, generic assessment criteria (GAC) must be selected based on the critical receptors identified at the site. Receptors are considered in relation to human health (e.g. construction workers, future site users and adjacent site users), property (building materials, water supply pipes and structures) and the water environment (e.g. surface water features and the sensitive aquifers underlying the site). An assessment of aggressive ground conditions however does not form a part of the scope of this report and is presented under a separate cover¹⁵.

5.2 Data Quality and Site Coverage

The sampling strategy for the collection of the soil samples has been discussed in Section 3.3. A summary of the number of soil samples analysed for potential contaminants as part of the Ramboll ground investigation in each geological stratum and the depth range from which the samples were collected is presented in Table 5.1 below.

Table 5.1: Total Number of Soil Samples Analysed

Stratum	No. of Samples Analysed	Sampling Depths (m)
Soil		
Made Ground	11	0.3 to 2.6
Alluvium	2	0.5 to 2.2
River Terrace Deposits	1	2.6
Lambeth Group	1	4.2

Notes:

The engineered Made Ground was not sampled or analysed as this has been tested and accepted for importation in accordance with the Environmental Permit for the site^{3 4}.

The reported concentrations of contaminants will depend on a combination of the nature of the contaminant in the soil matrix, site geology, sampling strategy, sample handling and the method of laboratory analysis.

Based on the material encountered and the sampling density (both laterally across the site and vertically) adopted during the ground investigation it is considered that sufficient information is available to robustly characterise the site and to highlight the requirement for any further detailed assessment and / or remediation works.

¹³ EA / DEFRA (2004). Contaminated Land Report 11: Model Procedures for the Management of Land Contamination

¹⁴ CIRIA (2001) C552 Contaminated Land Risk Assessment, a Guide to Good Practice

¹⁵ Ramboll (2017). Green Park Village. Ground Investigation Report ref 1620000492/RPT/003

5.3 Human Health Assessment

Methodology

Detail of the UK framework for human health risk assessment is provided in Appendix 2.

Contaminant concentrations within soil samples below the adopted GAC are considered not to warrant further risk assessment. Where any concentrations are recorded above the GAC consideration of the contaminant distribution is undertaken.

Current UK guidance is provided in the Defra/EA Contaminated Land Report (CLR) framework which sets out standard land uses for which GAC are derived for individual contaminants: residential with plant uptake, residential without plant uptake, allotments, and commercial/ industrial use. Additional land use categories have been developed for public open spaces by more recent guidance issued by Defra within the Category 4 Screening Level (C4SL) framework and subsequently by the Chartered Institute of Environmental Health / Land Quality Management CIEH/LQM in the derivation of Suitable 4 Use Levels (S4ULs), see Appendix 2 for further detail.

As the proposed development comprises residential houses with private gardens, generic assessment criteria have been adopted for a residential (with homegrown produce) land use.

Based on the average soil organic matter (SOM) content of the site soils GAC for 1 % has been adopted.

5.4 Soil Screening Analysis

The soil analysis results are presented in Appendix 3 and 4. Table 5.2 below summarises the contaminants of concern identified at concentrations above the GAC in one or more samples.

Table 5.2: Human Health Contaminants of Concern

Contaminant	No of Samples	GAC (mg/kg) (No. of Exceedences)	Min (mg/kg)	Max (mg/kg)	Distribution Comment
Arsenic	15	37 (4)	3.6	89	Exceedences present in Made Ground in RTP601 0.6m, RTP603 1.2m, RWS601 0.6m and RWS603 2.1m within Phase 3B.
Lead	15	200 (4)	5.7	960	
Beryllium	15	1.7 (6)	0.12	9.5	Exceedences as above with addition of RWS602 at 4.2m in Lambeth Group. Exceedences not considered significant or considered further as industry research indicates that the published GAC is very conservative.
Copper	15	2,400 (1)	10	7,600	Isolated to RWS603 at 2.1 m.
Benzo(a)pyrene (BaP)*	15	5 (1)	<LoD	5.4	Isolated to RWS606 at 2.6 m.

Notes:

* Surrogate marker approach (benzo(a)pyrene) used for the assessment of carcinogenic PAH species

All other determinands analysed, as presented in Appendix 4, were observed to be below adopted GAC (where available).

Hydrocarbon Theoretical Saturation Assessment

Following assessment a number of soil results recorded concentrations of petroleum hydrocarbons in excess of theoretical saturation limits which are indicative of the potential presence of free phase hydrocarbons. Due to the lack of visual/olfactory evidence of contamination across Phase 3, the theoretical exceedences are not considered significant.

Statistical Assessment

When exceedences of GAC are present statistical analysis of the soil results has been carried out in general accordance with industry guidance¹⁶ to provide an estimate of the true population mean which can be compared against GAC. This approach is intended to assess the average exposure to a contaminant rather than looking at solely worst case values. Outlier testing has been carried out to indicate whether or not a data point is likely to form part of the same statistical distribution. Where a maximum concentration has been determined as an outlier (confirmed by visual/olfactory evidence or the result of an error) this concentration has not been included in the calculation of the true mean.

No significant difference has been identified between the Made Ground soils on Phase 3 and therefore no outliers have been omitted from the statistical assessment.

Table 5.3: Summary of Statistical Assessment for Made Ground

Analysis	No of Samples	GAC (mg/kg)	Outlier Details	Maximum Concentration Recorded Excluding Outliers (mg/kg)	True Mean of Sample Population (mg/kg)	Outcome of Statistical Test
Arsenic	11	37	None	89	66.16	True mean >GAC
Lead	11	200	None	960	891.2	True mean >GAC
Copper	11	2,400	None	7,600	3,770	True mean >GAC
BaP	11	5	None	5.4	2.85	True mean <GAC

On the basis of the above, the true mean of the arsenic, lead and copper sample populations are above the GAC and require further consideration through risk assessment. Conversely the true mean of the benzo(a)pyrene sample population is below the GAC and no risks are envisaged to end users with results not considered further in this assessment.

Asbestos

Asbestos containing soils (ACSS) were recorded in a single location within Phase 3 in RWS605 at 2.6 m as chrysotile loose fibres. The quantification result for this sample was below the laboratory limit of detection (<0.001%w/w) and is therefore not considered significant.

Soil Screening Summary

Following an assessment of the site soils in relation to residential (with homegrown produce) GAC contaminants of concern within the soil matrix are limited to arsenic, lead and copper in the residual Made Ground.

¹⁶ CL:AIRE and CIEH (2008). Guidance on Comparing Soil Contamination Data with a Critical Concentration

6. CONTROLLED WATERS ASSESSMENT

6.1 Methodology

Generic assessment criteria (GAC) for waters have been selected to assess potential risks to identified environmental receptors, which, for the site include the Secondary River Terrace Deposits Aquifer, the Secondary Lambeth Group Aquifer, the Principal Chalk Aquifer, Trout Lakes and the Foudry Brook. On this basis comparison of concentrations of determinands in leachate and groundwater has been made to Water Framework Directive Standards for General Quality of Groundwater and WFD thresholds for Inland surface water bodies. In the absence of these, environmental quality standards for freshwater have been used due to the presence of the Trout Lakes within the wider GPV site boundary.

6.2 Soil Leachate Assessment

No inorganic or organic leachable contaminants of concern are present from the soil leachate screening assessment contained in Appendix 4.

6.3 Groundwater Assessment

Made Ground/Alluvium/River Terrace Deposits

The results of the groundwater analysis indicate marginal exceedences for inorganic contaminants including sulphate and the metals arsenic, mercury and nickel.

Exceedences for organic contaminants were limited to medium and heavy end aliphatic petroleum hydrocarbons (C16-C21 and C21-C35) in excess of the conservative assessment criteria of 10 µg/l.

Microbial analysis of the groundwater samples from RWS601, RWS602 and RWS608 has highlighted concentrations of coliforms that render the groundwater unsuitable for potable supply. Concentrations of total coliforms comprised 1,200 mpn/100ml, 11 mpn/100ml and 19 mpn/100ml respectively whilst faecal coliform concentrations were recorded at 649 mpn/100ml, 161 mpn/100ml and 125 mpn/100ml. E.Coli concentrations were below detection limits with. TVC concentrations recorded > 300 cfu/ml in all samples. The source of bacteria remains inconclusive however the exceedences are not considered significant given the groundwater is not used for a potable supply and human interaction with groundwater at the site in its proposed state is unlikely, however the risks will require consideration during the groundworks phase should deep sewers be installed beneath the water table.

Further details on exceedences of GAC are contained in Table 6.1 below. Full results are presented in Appendix 4.

Table 6.1: Summary of Exceedences of Groundwater GAC

Contaminant	No of Samples	Assessment Criteria (µg/l) (No of Exceedences)	Minimum (µg/l)	Maximum (µg/l)	Comment
Sulphate	12	188,000 (4)	40,000	290,000	Marginal exceedences therefore not considered to be significant
Arsenic	12	7.5 (9)	2.41	90	Exceedences within an order of magnitude and therefore not considered to be significant
Mercury	12	0.07 (5)	<LoD	0.2	
Nickel	12	15 (4)	6.3	35	
TPH Aliphatic C10-C12	12	10 (5)	<LoD	23	Total aliphatic petroleum hydrocarbon concentrations in RWS601, RWS603 and RW604 in Phase 3B exceed the conservative assessment criteria by up to two orders of magnitude. No visual or olfactory evidence of hydrocarbon contamination was noted in groundwater throughout Phase 3. Aliphatic bands noted to be exceeding are generally lower mobility and risk fractions ¹⁷ . Plausible sources of hydrocarbon contamination have not been identified in Phase 3 or hydraulically up-gradient (to the south-south west) of RWS601, RWS603 and RWS603. Furthermore it is noted that all three locations are close to the boundary with Smallmead landfill to the north and may be associated with off -site impacts.
TPH Aliphatic C12-C16	12		<LoD	190	
TPH Aliphatic C16-C21	12		<LoD	140	
TPH Aliphatic C21-C35	12		<LoD	790	
Total Coliforms*	3	0 per 100ml	19	1,200	The exceedences are not considered significant given the groundwater is not used for a potable supply and human interaction with groundwater at the site in its proposed state is unlikely. Risks to be considered in relation to human health during groundworks stage.
Faecal Coliforms *	3	0 per 100ml	125	649	

Notes:

* It is of note that holding times for microbial analysis were marginally exceeded and therefore the results are treated as indicative only.

¹⁷ Environment Agency (2009). Petroleum Hydrocarbons in Groundwater: Supplementary Guidance for Hydrogeological Risk Assessment

Controlled Waters Summary

No leachable contaminants have been identified in the unsaturated zone soils at the site.

Groundwater exceedences for sulphate, arsenic, mercury and nickel are all marginal or within an order of magnitude of GAC and are therefore not considered significant. These are also consistent with site wide trends.

Elevated medium and heavy end aliphatic hydrocarbons have been identified in groundwater in RWS601, RWS602 and RWS604 but these are considered to be of low mobility and risk¹⁷. As there is no plausible local up-gradient source and no visual and/or olfactory evidence of hydrocarbon contamination was recorded in groundwater during monitoring they are not considered significant.

Faecal and total coliforms in excess of drinking water standard derived GAC have been identified in groundwater in Phase 3. Given the current depth to groundwater in the River Terrace Deposits (1.63 m to 3.02 m) limiting human interaction and the absence of potable groundwater abstractions in the proposed development human health risks are considered limited. However, the presence of pathogens will require consideration by the groundworks contractor during the construction stage.

7. GROUND GAS ASSESSMENT

7.1 Methodology

The gas regime at the site has been characterised using the guidelines provided in CIRIA Report C665¹⁸, BS8485¹⁹ and RSK/NHBC²⁰. Further details of the assessment methodology are provided in Appendix 2.

Changes in the ground gas regime may be driven by a number of factors or combination of these, including for example:

- i. Barometric pressure;
- ii. Rate of change of barometric pressure;
- iii. Groundwater elevation;
- iv. Rate of change of groundwater pressure; and
- v. Degree of 'sealing' at the surface by wet/frozen ground conditions.

Recent guidance contained within BS8576²¹ states that monitoring should be sufficient to allow prediction of worst-case conditions, and the monitoring period and frequency should be based upon site's conceptual site model, but that this monitoring does not necessarily need to coincide with low or falling pressure conditions. BS8576 states that gas monitoring should be continued until it is unlikely that additional data will change the interpretation of the data, risk assessment or proposed remedial options.

7.2 Results and Discussion

In order to characterise the ground gas regime at the site ground gas monitoring has been undertaken on up to six occasions between 27th March and 24th May 2017. During the monitoring period atmospheric pressure varied between 1007 mb and 1032 mb. Full ground gas monitoring data is contained within Appendix 5 with a summary of the data provided in Table 7.1.

Table 7.1: Summary of Gas Monitoring Data

ID	No. of Visits	Response Zone (mbgl)	Response Zone Strata	Average Water Level (mbgl)	Max Gas Flow Rate (l/hr)	Peak CO ₂ (%) v/v	Peak CH ₄ (%) v/v	Peak VOC (ppm)
RWS601	6	0.5 to 3.0	MG and RTD	1.63	<LoD	10.9	0.2	1.1
RWS602	6	1.5 to 4.0	ALV and RTD	1.91	<LoD	1.0	0.2	1.2
RWS603	5	1.5 to 3.1	ALV and RTD	2.31	<LoD	2.1	0.1	1.1
RWS604	6	2.5 to 4.0	ALV and RTD	2.80	<LoD	4.6	0.3	2.2
RWS606	6	1.7 to 3.0	MG and RTD	2.88	0.1	10.3	12.4	1.3
RWS607	6	1.5 to 4.1	MG, ALV and RTD	3.02	1.4 (0.7)	7.4	15.7	0.9
RWS608	3	1.5 to 4.0	MG, ALV and RTD	2.96	<LoD	13.1	0.2	2.1

¹⁸ CIRIA (2007) Assessing Risks Posed by Hazardous Ground Gases to Buildings. C665

¹⁹ British Standards Institution (2015) Code of Practice for The Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings. BS8485-2015

²⁰ National House Building Council (NHBC) (2006) Guidance on Evaluation on Development Proposals on Sites Where Methane and Carbon Dioxide Are Present, Incorporating 'Traffic Lights'

²¹ British Standards Institution (2013) Guidance for Investigations for Ground Gas: Permanent Gases and Volatile Organic Compound. BS8576:2013

ID	No. of Visits	Response Zone (mbgl)	Response Zone Strata	Average Water Level (mbgl)	Max Gas Flow Rate (l/hr)	Peak CO ₂ (% v/v)	Peak CH ₄ (% v/v)	Peak VOC (ppm)
RWS609	6	1.0 to 2.0	MG	Dry	<LoD	9.4	26.5	1.1
RWS610	3	1.5 to 4.0	MG, ALV and RTD	Dry	5.0 (0.1)	12.3	1.9	2.9

Notes:

- MG: Made Ground, RTD: River Terrace Deposits, C: Chalk, VOC: Volatile Organic Compounds
- LoD: Instrument limit of detection (0.1 l/hr for flow rate, 0.1 %v/v for carbon dioxide and methane and 1 ppm for VOCs)

It should be noted that the anomalous gas flow rates were recorded on a single occasion in RWS607 on the fifth monitoring round (1.4 l/hr) and RWS610 on the first monitoring round (5.0 l/hr). In both cases steady state flow rates were reached after two to three minutes at 0.7 l/hr and 0.1 l/hr respectively. Given the anomalous nature of the peak rates (the other 44 gas flow data points did not exceed 0.1 l/hr) they have been discounted and the highest steady state rate (0.7 l/hr) adopted for GSV calculations.

The recorded VOC concentrations (all <3ppm) are considered to be generally low and do not warrant further assessment.

Table 7.2: Worst Case Ground Gas Assessment

	Flow Rate	Peak Gas Concentration (% v/v)				Characteristic Situation (CIRIA C665)
		CO ₂	GSV	CH ₄	GSV	
Worst Case	0.7	13.1	0.09	26.5	0.19	2

The worst case GSV of 0.19 corresponds to a Characteristic Situation of 2 / NHBC Amber 1 (low risk). However elevated concentrations of both carbon dioxide and methane have been recorded in several exploratory holes across the monitoring period up to a maximum of 26.5 %v/v for methane and 13.1 %v/v for carbon dioxide. It is noted that the maximum concentration of methane was only recorded on a single occasion with typical elevated concentrations varying between 1.1 %v/v and 19 %v/v.

Due to this is it considered that Phase 3 should be classified as NHBC Amber 2 and ground gas protection measures commensurate with that classification are likely to be required in new buildings at the site. However, it may be possible to reduce the requirement for ground gas protection measures within buildings through further detailed assessment.

8. GROUND CONTAMINATION RISK EVALUATION

8.1 Proposed Development Considerations

The majority of the Phase 3 will need to be raised by approximately 1 m to 2 m from the original ground level of 38 m above ordnance datum (OD). This has already been completed in Phase 3A. This platform will effectively act as a cap to the underlying ground and is required for flood alleviation purposes. This will effectively sever any direct contact, inhalation and ingestion of soil pathways between end users and the residual Made Ground. In addition, ground improvement comprises the installation of vibro-stone columns whereby no arisings are generated.

8.2 Conceptual Site Model

The information presented in the previous sections of this report has been collated and evaluated to refine the preliminary conceptual site model for the site. The conceptual site model has been updated in accordance with the guidance contained within CIRIA document C552¹⁴ and EA/NHBC publications²².

Sources

A summary of the potential sources identified includes those as given in Table 8.1.

Table 8.1: Summary of Potential Sources Identified

Source	Comment
Soil impacts	Contaminants of concern within the soil matrix are limited to arsenic, lead and copper in the residual Made Ground. No leachable contaminants of concern have been identified.
Ground gas and vapour impacts	Elevated concentrations of carbon dioxide and methane have been recorded during the monitoring period and ground gas protection measures will be required at the site.
Groundwater Impacts in Made Ground/Alluvium/ River Terrace Deposits	No significant contaminants of concern have been identified in groundwater. Marginal exceedences or exceedences within an order of magnitude of GAC have been recorded for sulphate, arsenic, mercury, nickel and medium to heavy end petroleum hydrocarbons. Exceedences of GAC have been detected for total coliforms and faecal coliforms.

Receptors

The site-specific receptors that could potentially be affected by the contamination hazards are summarised in Table 8.2.

Table 8.2: Potential Receptors

Feature	Detail
Onsite	
End users	Site residents within the proposed housing which includes private gardens.
Groundworkers	Any workers coming in contact with the ground or groundwater or working within a confined space in which gases may build up, including construction workers and maintenance workers.
Groundwater	Secondary A Aquifers of the River Terrace Deposits and Lambeth Group, Principal Aquifer of the Chalk.
Buried infrastructure and building	Buildings materials used below ground (e.g. foundations and services, including water supply pipes).

²² National House Building Council (NHBC) and Environment Agency (2008) Guidance for the Safe Development of Housing on Land Affected by Contamination. R&D Publication 66

foundations	
Offsite	
End users	Exposure to the nearest adjacent site users (residential) including those within the adjacent GPV development phases.
Controlled Waters – Surface Water	Down-gradient receptors include the drainage ditch on the northern boundary which flows in an easterly direction to Foundry Brook, located 350m east of Phase 3.

Pathways

In order for the contaminants identified in this site investigation to reach potential receptors, there have to be viable pathways for the contaminants to travel from the sources to those receptors. Potential pathways were identified within the preliminary conceptual site model and are discussed further in Table 8.3 in relation to the identified sources and receptors.

Table 8.3: Potential Pathways

Receptor	Pathway	Comment
Human health	Dermal contact Dust/soil ingestion/inhalation Inhalation of asbestos fibres	Due to the raising of levels by circa 1 m to 2 m of inert imported material, exposure pathways from the residual Made Ground to human health are eliminated bar the disturbance of these soils during construction that could be mitigated through appropriate health and safety procedures. Potential risks to construction workers from interaction with pathogens in groundwater would be mitigated through appropriate health and safety procedures.
	Inhalation of vapours/gases	Carbon dioxide and methane have the potential to migrate and build up in buildings and confined spaces.
Water environment	Leaching and / or migration of contaminants to the water environment; including creation of pathways via piling or other construction activities to the River Terrace Deposits and Chalk. Leaching direct to surface waterbodies and migration of impacted groundwater to surface water.	The Made Ground, Alluvium and River Terrace Deposits are observed to be in hydraulic continuity whilst localised areas across the wider site have also been identified where groundwater in the aforementioned strata is also in continuity with sandy lenses of the Lambeth Group. This highlights the potential for the superficial aquifers to be in continuity with the Chalk however this is considered unlikely due to the frequent clay bands within the Lambeth Group.
	Leaching and migration direct to surface waterbodies and migration of impacted groundwater to surface water	The identified inorganic contaminants are not considered significant due to their marginal exceedence or exceedence within an order of magnitude of adopted GAC. As no plausible sources have been identified these are considered to comprise background concentrations rather than being reflective of an on-site source of contamination. Furthermore, no obvious up-gradient site source of the medium and heavy end aliphatic hydrocarbons has been identified (the former Pingemead Industrial Estate is cross gradient) and given that these fractions are considered to be of low mobility and risk to the water environment they are not considered significant. The source of bacteria remains inconclusive however

Receptor	Pathway	Comment
		the exceedences are not considered significant given the groundwater is not used for a potable supply and human interaction with groundwater at the site in its proposed state is unlikely aside from during construction of deep drainage.
Buildings and structures	Damage to building materials or services through direct contact with contaminants or through contaminant migration	Hydrocarbons have been identified in the ground at concentrations which could theoretically affect subsurface construction materials and in particular water supply pipes. Water supply pipes are likely to be installed within the land raise and therefore risks from permeation of organic contaminants are considered negligible.

Qualitative Risk Assessment

Potential pollutant linkages are identified using the source-pathway-receptor framework detailed in Appendix 2. An assessment of the potential significance of each linkage is then made by consideration of the likely magnitude and mobility of the source, the sensitivity of the receptor and nature of the migration/exposure pathways between them.

This qualitative hazard assessment has been undertaken in accordance with NHBC and Environment Agency²² guidance. Further details of which are provided in Appendix 2 including definition of risk categories.

The table below summarises the pollutant linkages and risk ratings associated with the proposed development as assessed following interpretation of the results of the ground investigation.

Table 8.4 Risk Assessment

Source	Contaminants of Concern	Pathway	Receptor	Probability of Risk being Realised	Consequence of Risk being Realised	Risk Classification
Made Ground	Arsenic, lead and copper	Dermal contact, inhalation of soil dust and ingestion of soil	End users (indoor)	Unlikely	Medium	Low
			End users (outdoor)	Unlikely	Medium	Low
			Adjacent users	Unlikely	Medium	Low
			Groundworkers	Unlikely	Medium	Low
	Organic contaminants	Permeation of buried water supply pipes and damage to buried structures	Buried infrastructure and building foundations	Unlikely	Low	Very Low
Groundwater	Sulphate, arsenic, mercury and nickel	Dermal contact, ingestion of water	Groundworkers	Unlikely	Medium	Low
		Migration to surface water	Surface Water	Low likelihood	Mild	Low
		Migration to groundwater within the Chalk	Chalk Aquifer	Unlikely	Medium	Low
	Heavy end aliphatic (C10-C35) petroleum hydrocarbons	Dermal contact, ingestion of water	Groundworkers	Unlikely	Medium	Low
		Migration to surface water	Surface Water	Low likelihood	Mild	Low
		Migration to groundwater within the Chalk	Chalk Aquifer	Unlikely	Medium	Low
	Bacteria (total and faecal coliforms)	Dermal contact, ingestion of water	End users	Unlikely	Medium	Low
			Groundworkers	Unlikely	Medium	Low
	Ground Gases	Carbon dioxide and methane	Migration of gases and build up in confined spaces	End users (indoor)	Likely	Medium
End users (outdoor)				Unlikely	Medium	Low
Groundworkers				Likely	Medium	Moderate
Building structures				Likely	Medium	Moderate

Notes:

- Assessment completed assuming site in current condition, but that inert imported fill material will be placed across the site to raise site levels. Should site levels be altered from this assumption, a reassessment may be required
- Assessment completed assuming no remediation/mitigation in place
- Should the development proposals alter significantly a review of this risk assessment may be required

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

This ground contamination interpretative report has been prepared to fulfil the requirements of Planning Condition 42 parts (1) and (2) of planning permission ref 10/01461/OUT in relation to Phase 3 and should be submitted to both the Environment Agency and Reading Borough Council for approval.

Early Ordnance Survey mapping (1883) indicates that Phase 3 was undeveloped open land known as "Smallmead Common". By 2008 a training centre belonging to Thames Valley University was present in the centre of the phase which was subsequently used as a maintenance and security depot that was removed at the onset of the GPV development. Phase 3 is currently open ground and is split into two sub phases Phase 3A and Phased 3B. Phase 3A has recently been re-profiled and raised with phase 3B present at a lower ground level following a topsoil strip.

Phase 3 will comprise residential housing with gardens, areas of soft landscaping and associated infrastructure. The majority of the Phase 3 will need to be raised by approximately 1 m to 2 m from the original ground level of 39 m above ordnance datum (OD). This platform will effectively act as a cap to the underlying ground and is required for flood alleviation purposes.

In the context of the proposed development the ground investigation has identified limited pollutant linkages that will require consideration and mitigation. Those identified are summarised below and should be integrated into the design and construction process by the Principal Designer and Principal Contractor.

Soils

The screening assessment has identified soil contamination to be low with exceedences of assessment criteria limited to arsenic, lead and copper. However, land raise within Phase 3 of 1 m to 2 m of inert imported materials will eliminate the direct contact, ingestion of soil and inhalation of dust pathways to human health.

Controlled Waters

The screening assessment has not identified any significant controlled waters risks with no leachable contaminants identified in the unsaturated zone. The identified inorganic contaminants in groundwater are also not considered significant due to their marginal exceedence or exceedence within an order of magnitude of adopted GAC. As no plausible sources have been identified these are considered to comprise background concentrations rather than being reflective of an on-site source of contamination. Furthermore no obvious on site source of the identified medium and heavy end aliphatic hydrocarbons have been identified and given that these fractions are considered to be of low mobility and risk to the water environment they are also not considered significant.

The source of bacteria in groundwater remains inconclusive however the exceedences are not considered significant given that groundwater is not used for a potable supply and human interaction with groundwater at the site in its proposed state is unlikely. Potential risks during the construction stage should be managed though adherence to good construction practice e.g. use of appropriate PPE.

Notwithstanding the above, as vibro-stone column ground improvement is proposed for the founding solution in Phase 3 that will terminate within the River Terrace Deposits Secondary Aquifer a foundation works risk assessment should be prepared for the phase in accordance with Environmental Agency document NC/99/7323.

²³ Environment Agency (2001). Piling and penetrative ground improvement methods on land affected by contamination: Guidance on pollution prevention ref. NC/99/77.

Ground Gas

Elevated concentrations of carbon dioxide and methane have been recorded during the monitoring period and as such ground gas protection measures commensurate with NHBC Amber 2 are likely to be required at the site. The performance requirements of these should be detailed in a remediation strategy for the site. However, it may be possible to reduce the requirement for ground gas protection measures within buildings through detailed assessment.

Water Supply Pipes

Providing water supply pipes are installed within the land raise, the risks from permeation of organics is considered negligible. Nonetheless, the choice of water supply pipe material is subject to assessment agreement from regulators and the local water company.

9.2 Recommendations for Further Works

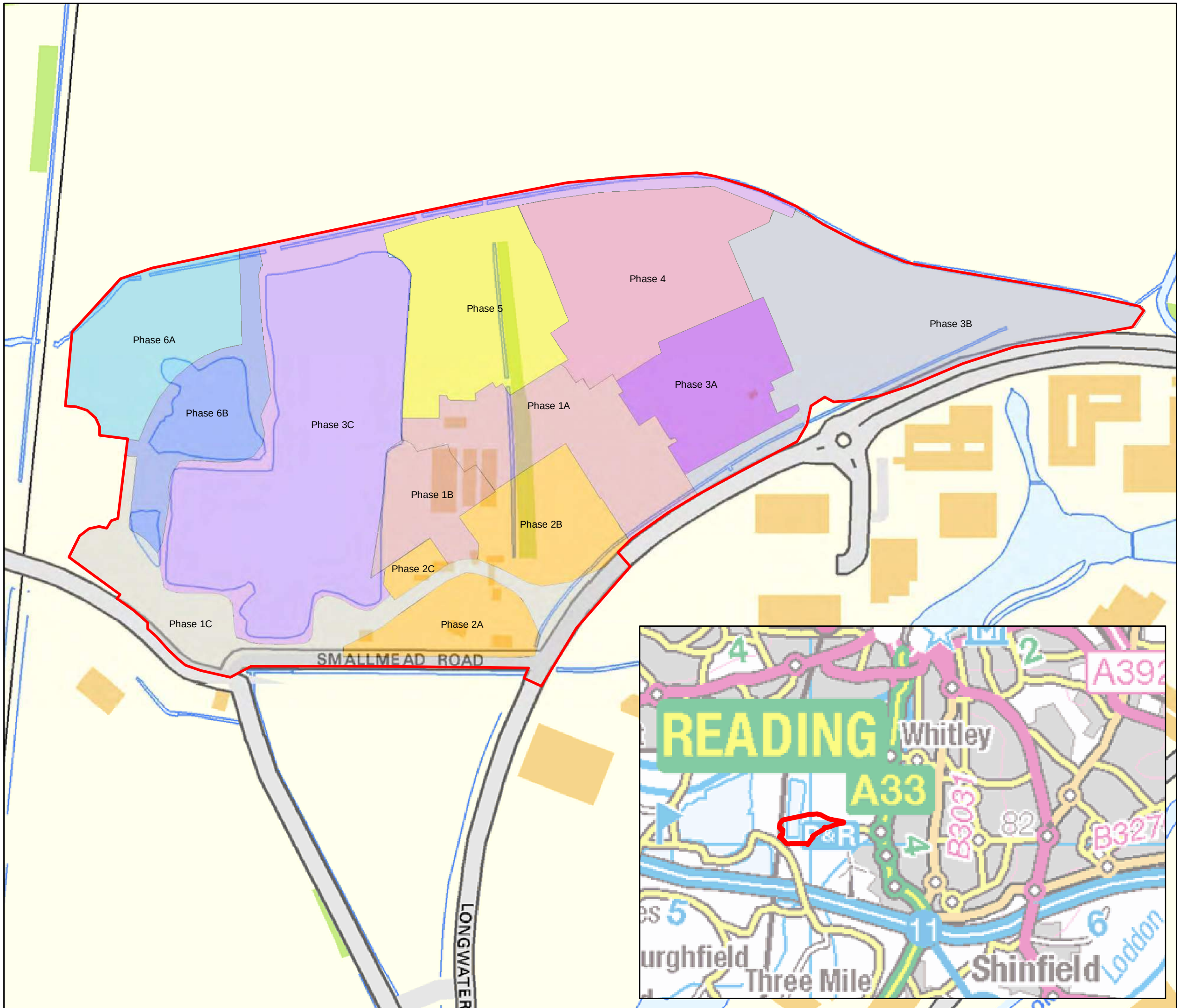
The assessments undertaken herein have resulted in the identification of a limited number of plausible pollutant linkages that require further investigation and remedial intervention in order to deliver a site that is suitable for use for the proposed development. The recommended next steps are summarised below with the immediate next steps to comprise the preparation of a foundation works risk assessment and detailed ground gas risk assessment for the phase.

Table 9.1: Recommended Next Steps

Action	Timescale	Likely Interactions and Stakeholders	Status
Further assessment of gas risks recommended with agreement on requirement for gas protection measures with local authority	Prior to development	St Edwards Ltd, Ramboll, EA, local authority, development contractor	Further detailed gas risk assessment required. In lieu of this gas protection will be required in new buildings and will be detailed in Remediation Strategy.
Completion of foundation and piling risk assessment	Prior to development	St Edwards Ltd, Ramboll, EA, development contractor	To be reported in a Foundation Works Risk Assessment
Contractor method statements for environmental management plans, waste disposal etc	During development	St Edwards Ltd, Ramboll, EA, local authority, development contractor	To be completed
Validation report	After groundwork phases of development	St Edwards Ltd, Ramboll, EA, local authority, development contractor	To be completed after groundworks phase

FIGURES/DRAWINGS

FIGURE 1	SITE LOCATION PLAN
FIGURE 2	EXPLORATORY HOLE PLAN



Site Boundary



1:3,000

1:50,000

Drawn at A3

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Client

St Edward Homes Ltd

Project Title

Green Park Village

Project Number

1620000492

Figure Title

Site Location Plan



Tel: 023 8081 7500
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southampton@ramboll.co.uk
www.ramboll.co.uk

Date

May 2017

Prepared By

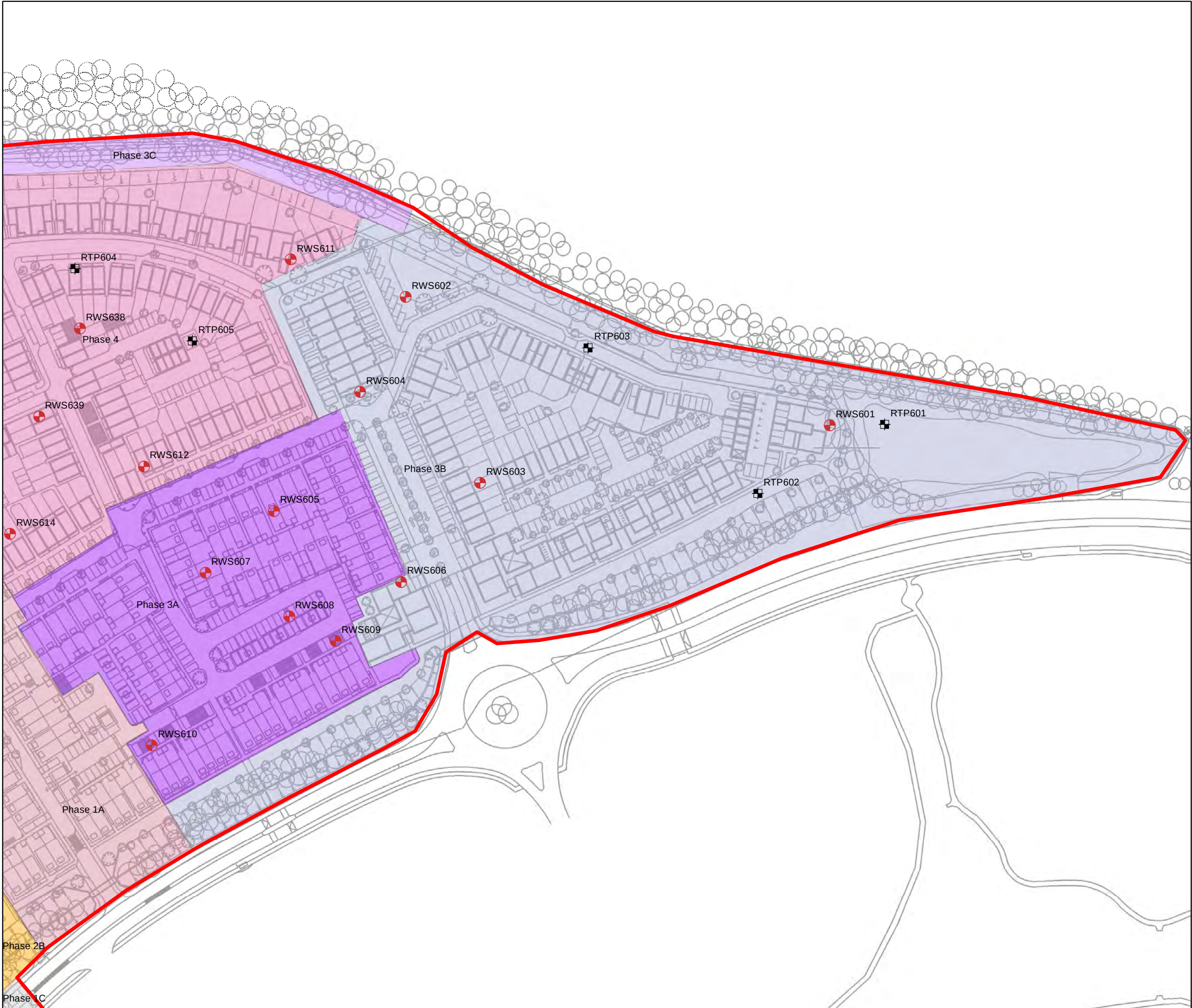
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Figure No.

Figure 1

Revision

-



- Site Boundary
- Phase 1A
- Phase 1B
- Phase 1C
- Phase 2A
- Phase 2B
- Phase 2C
- Phase 3A
- Phase 3B
- Phase 3C
- Phase 4
- Phase 5
- Phase 6A
- Phase 6B
- Borehole
- Trial Pit
- Window Sample Borehole

Drawn at A3
1:1,350

Client

St Edward Homes Ltd

Project Title

Green Park Village

Project Number

1620000492

Figure Title

Phase 3 Exploratory Hole Plan



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Date June 2017

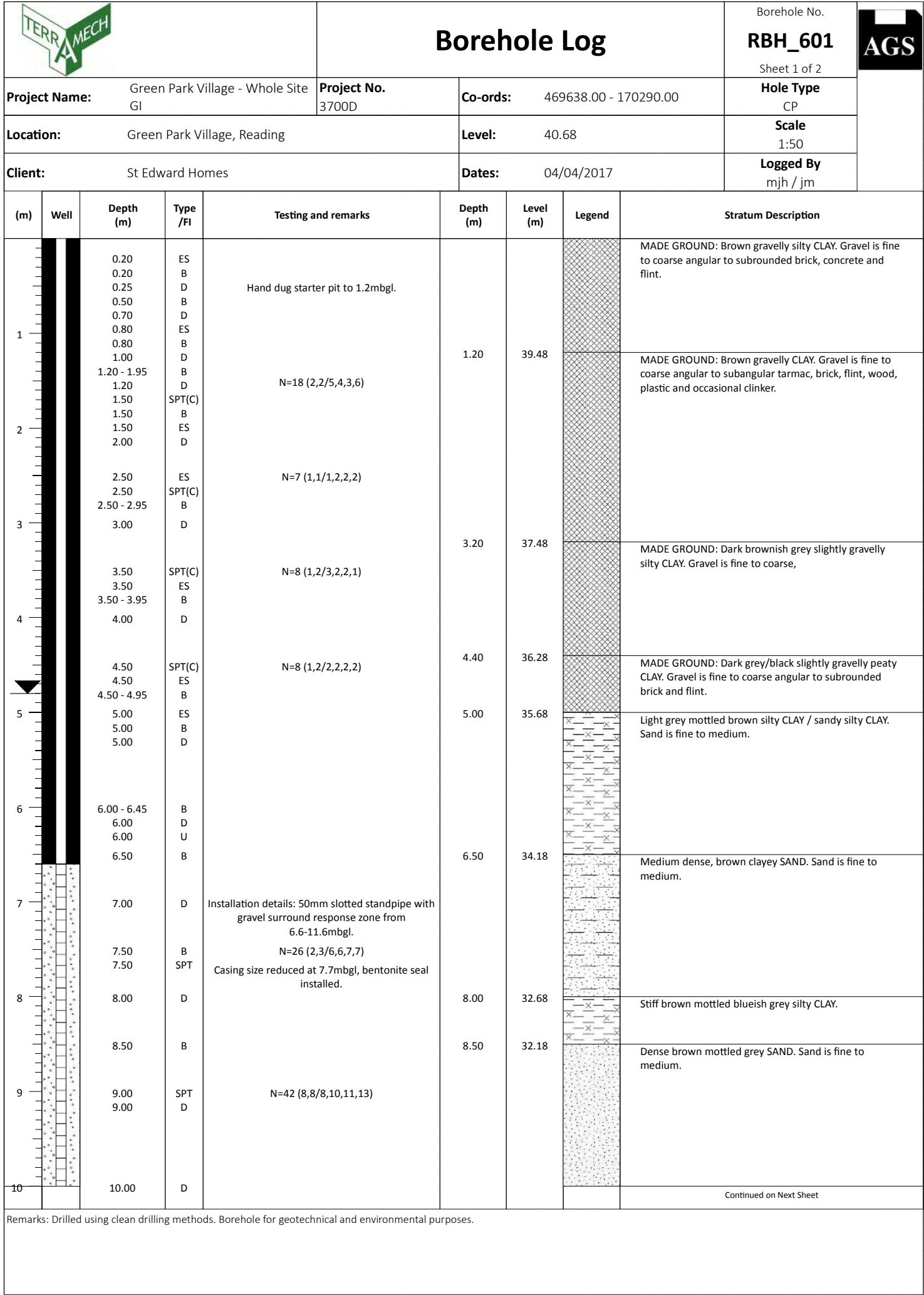
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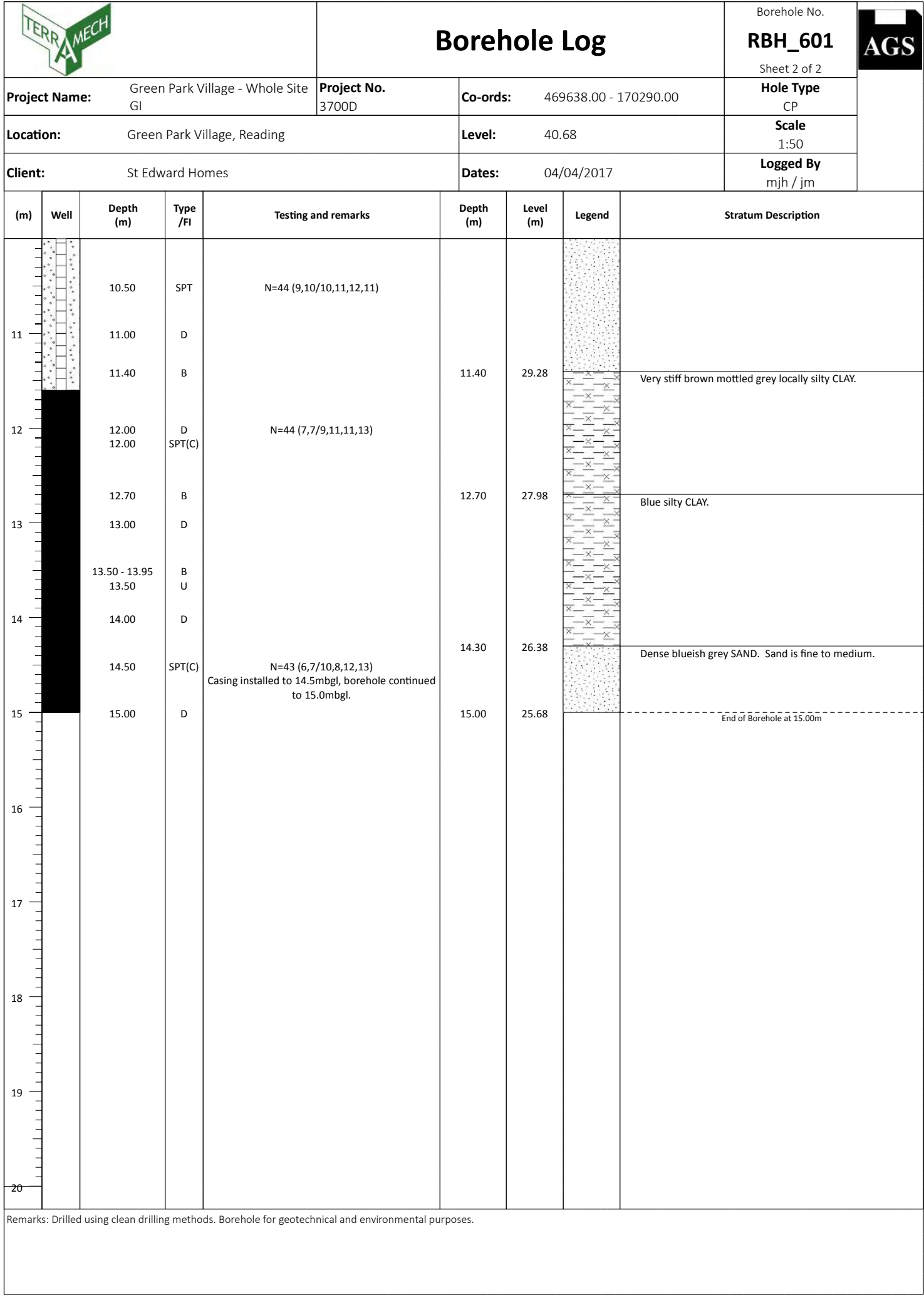
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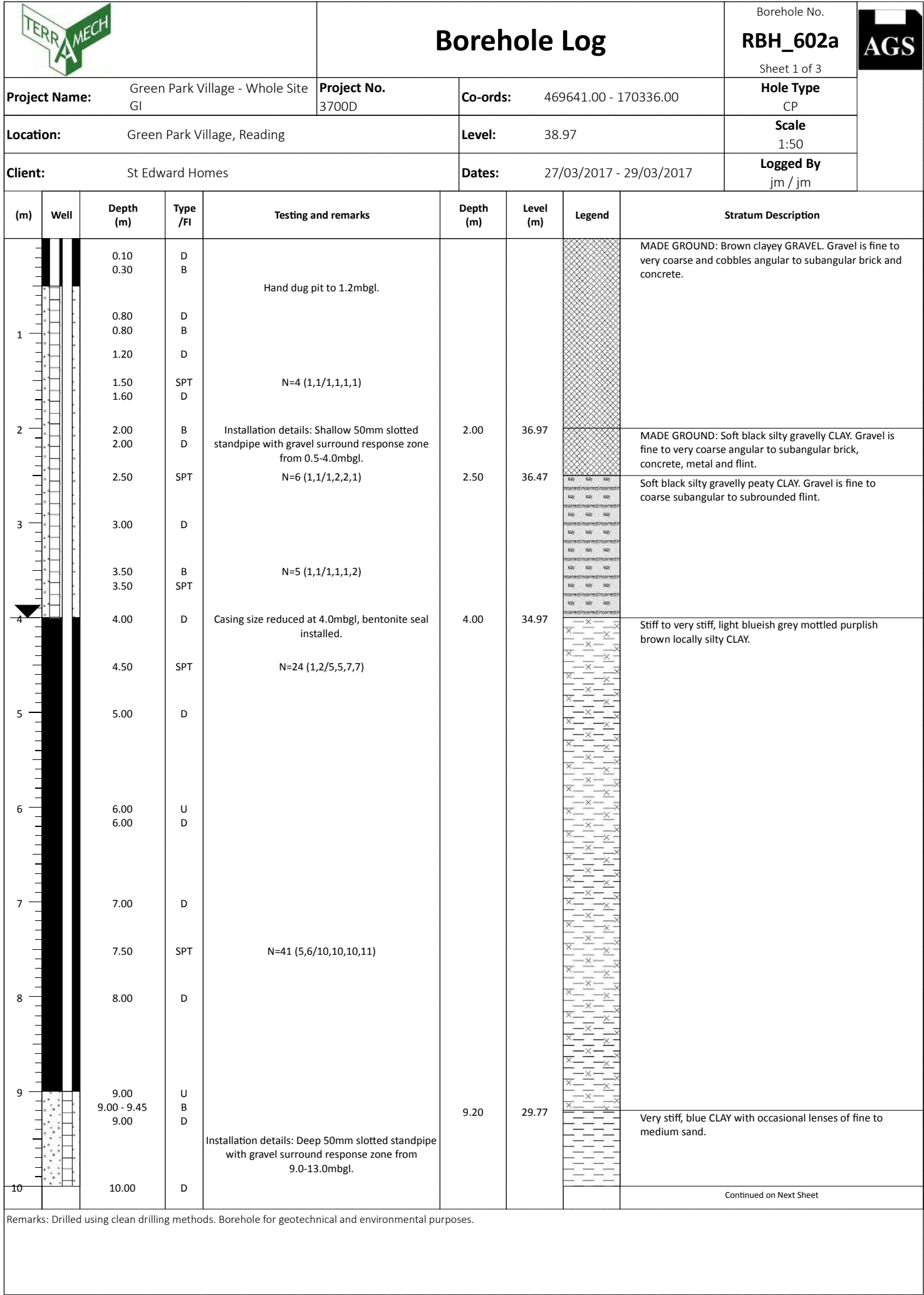
APPENDIX 1

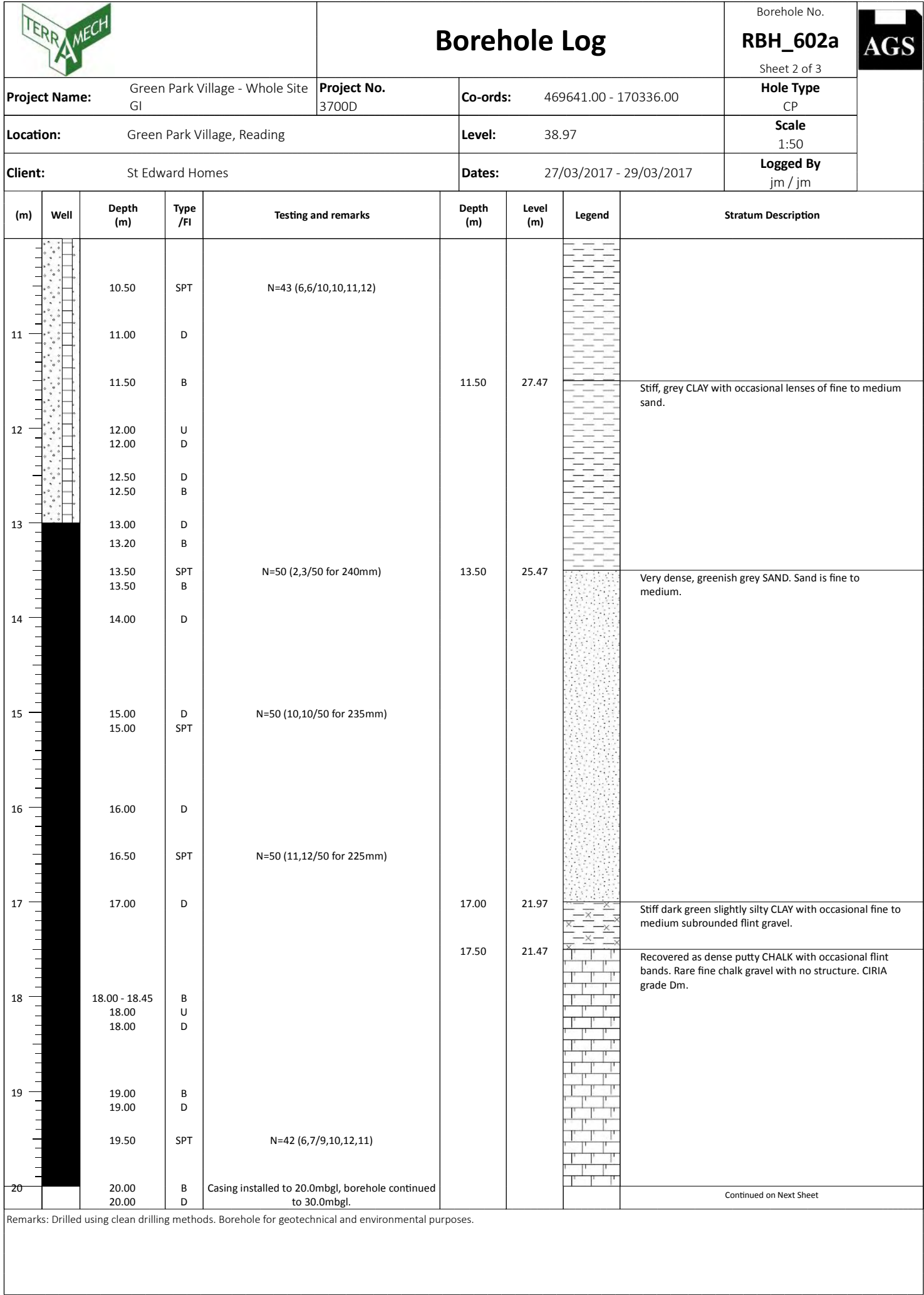
TERRAMECH FACTUAL INFORMATION



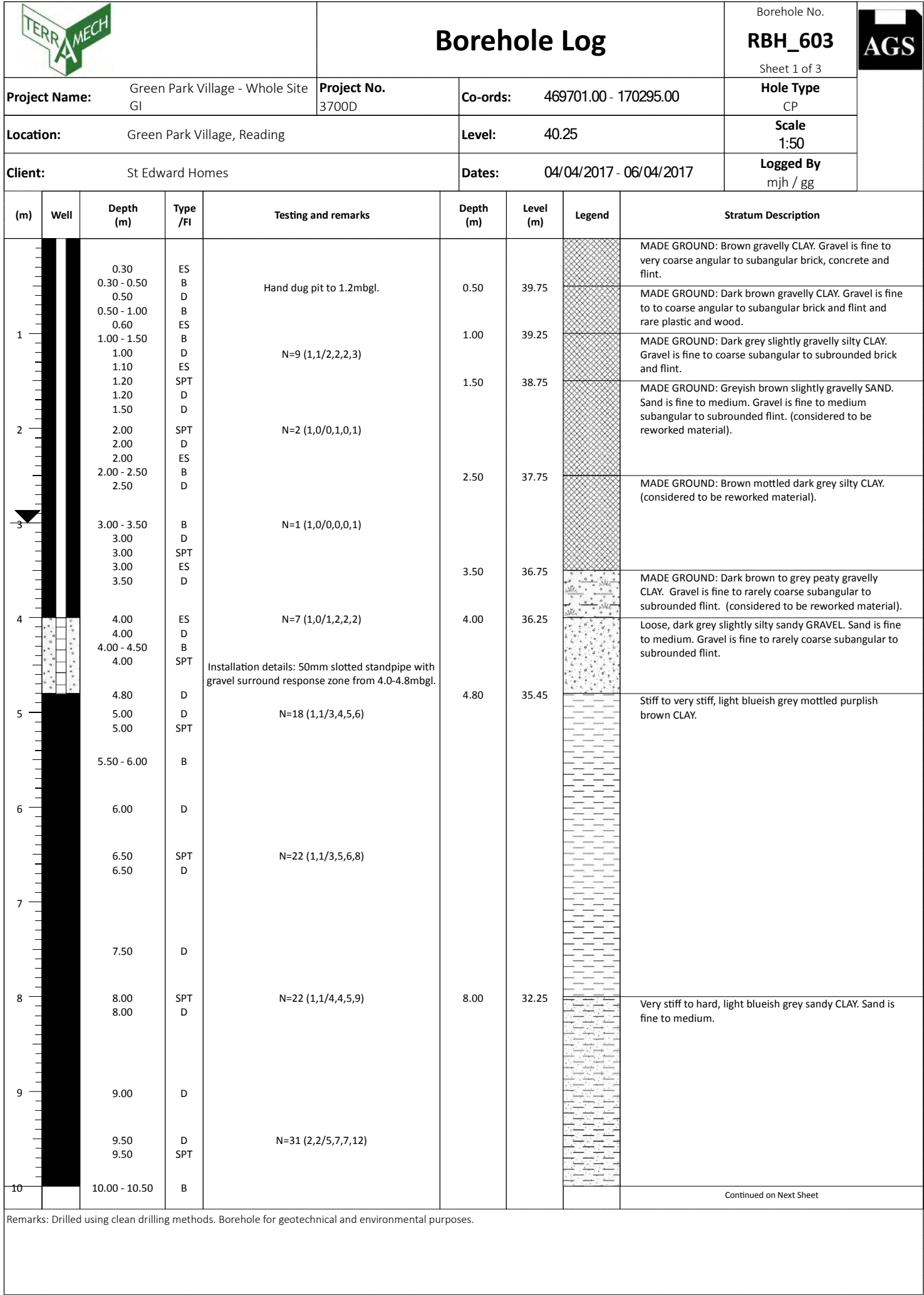


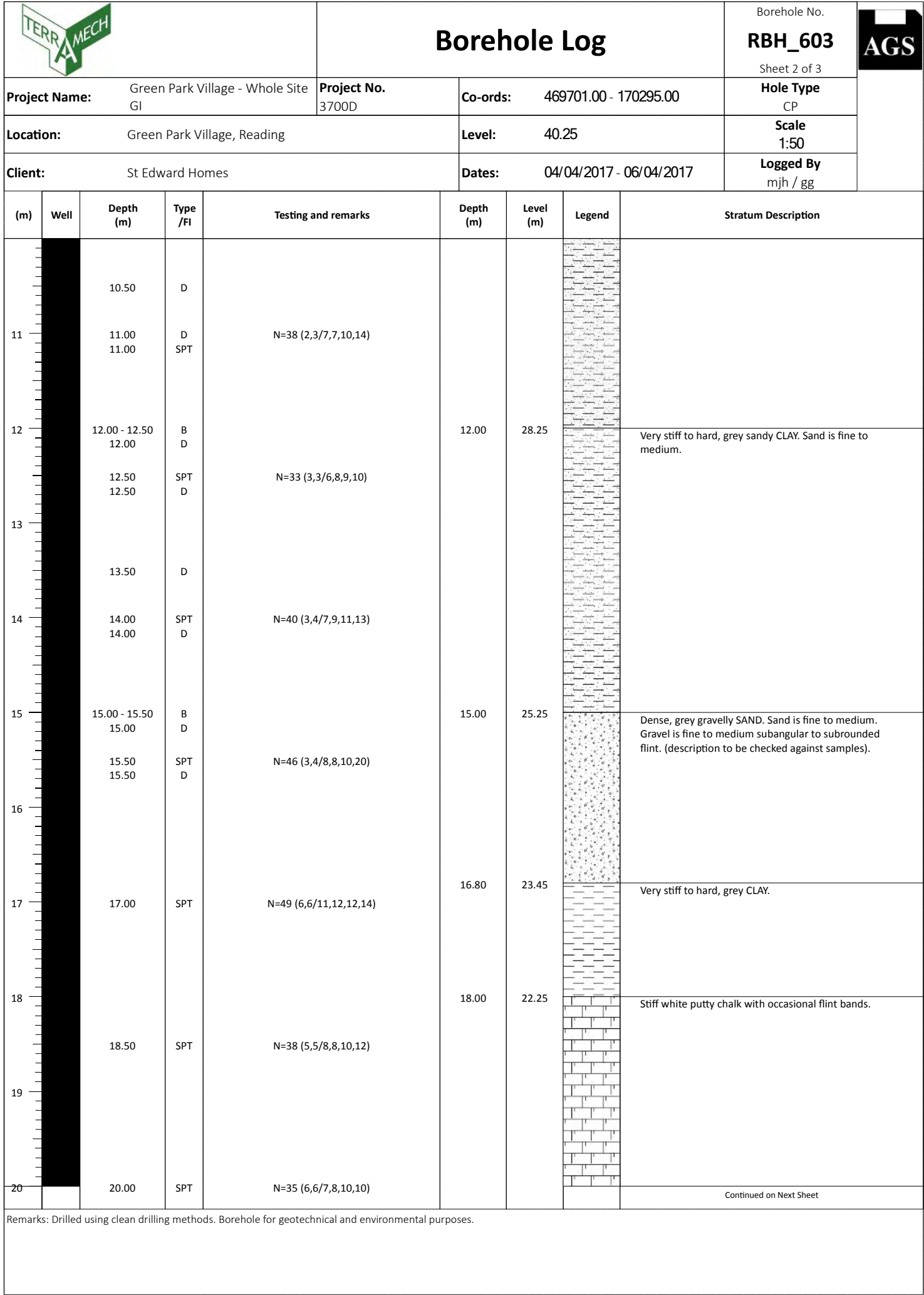
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Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords:			Hole Type CP	
Location: Green Park Village, Reading				Level:			Scale 1:50			
Client: St Edward Homes				Dates: 27/03/2017			Logged By jm / jm			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description		
					0.40			MADE GROUND: Brown clayey GRAVEL. Gravel is fine to very coarse and cobbles angular to subangular brick.		
								----- End of Borehole at 0.40m		
1										
2										
3										
4		4.00	B							
5		5.00	B							
6										
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9										
10										
Remarks: Borehole terminated in hand dug starter pit due to presence of concrete slab.										



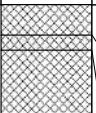
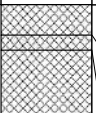
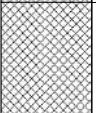
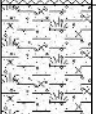
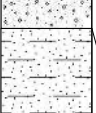
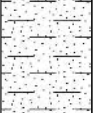
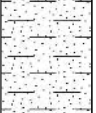
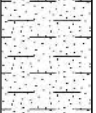
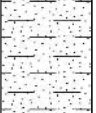
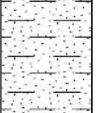
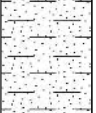


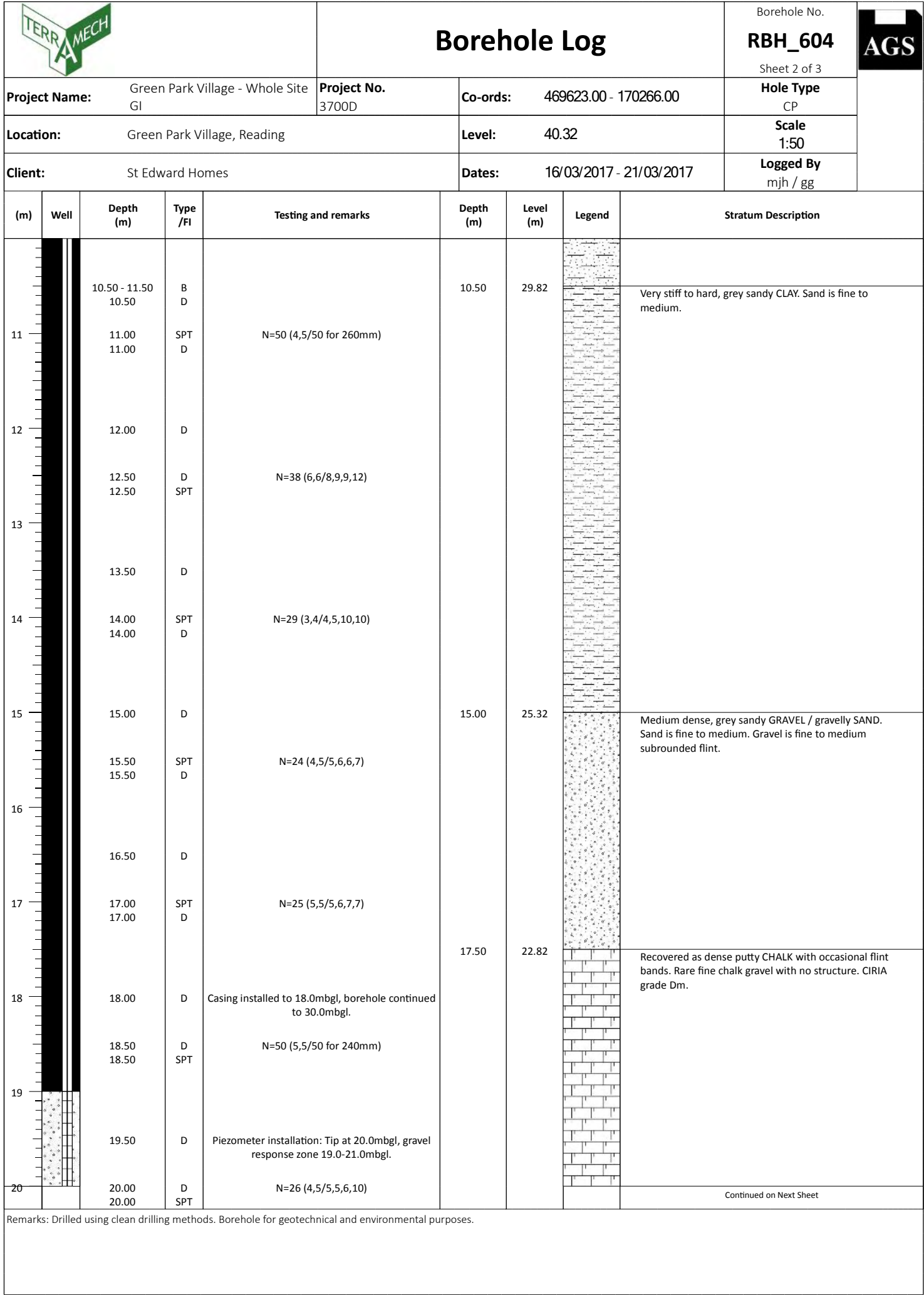
		Borehole Log				Borehole No. RBH_602a Sheet 3 of 3								
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469641.00 - 170336.00		Hole Type CP								
Location: Green Park Village, Reading				Level: 38.97		Scale 1:50								
Client: St Edward Homes				Dates: 27/03/2017 - 29/03/2017		Logged By jm / jm								
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description						
21		20.50	B	N=42 (5,6/10,10,11,11)										
		21.00	SPT											
		21.00	D											
		21.50	B											
		22.00	D											
		22.50	U											
		22	22.50 - 22.95	B										
			23.00	D										
			23											
		24.00												SPT
		24.00												D
		24	24.00	B										
25.00	D													
25.50	SPT													
25														
								26.00	D					
								26						
27.00	SPT													
27.00	D													
27														
								28.00	D					
								28.50	SPT					
28														
								29.00	D					
								29.50	SPT					
29														
								30.00	D					
								Borehole terminated upon reaching target depth.		30.00	8.97	----- End of Borehole at 30.00m		
30														
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.														



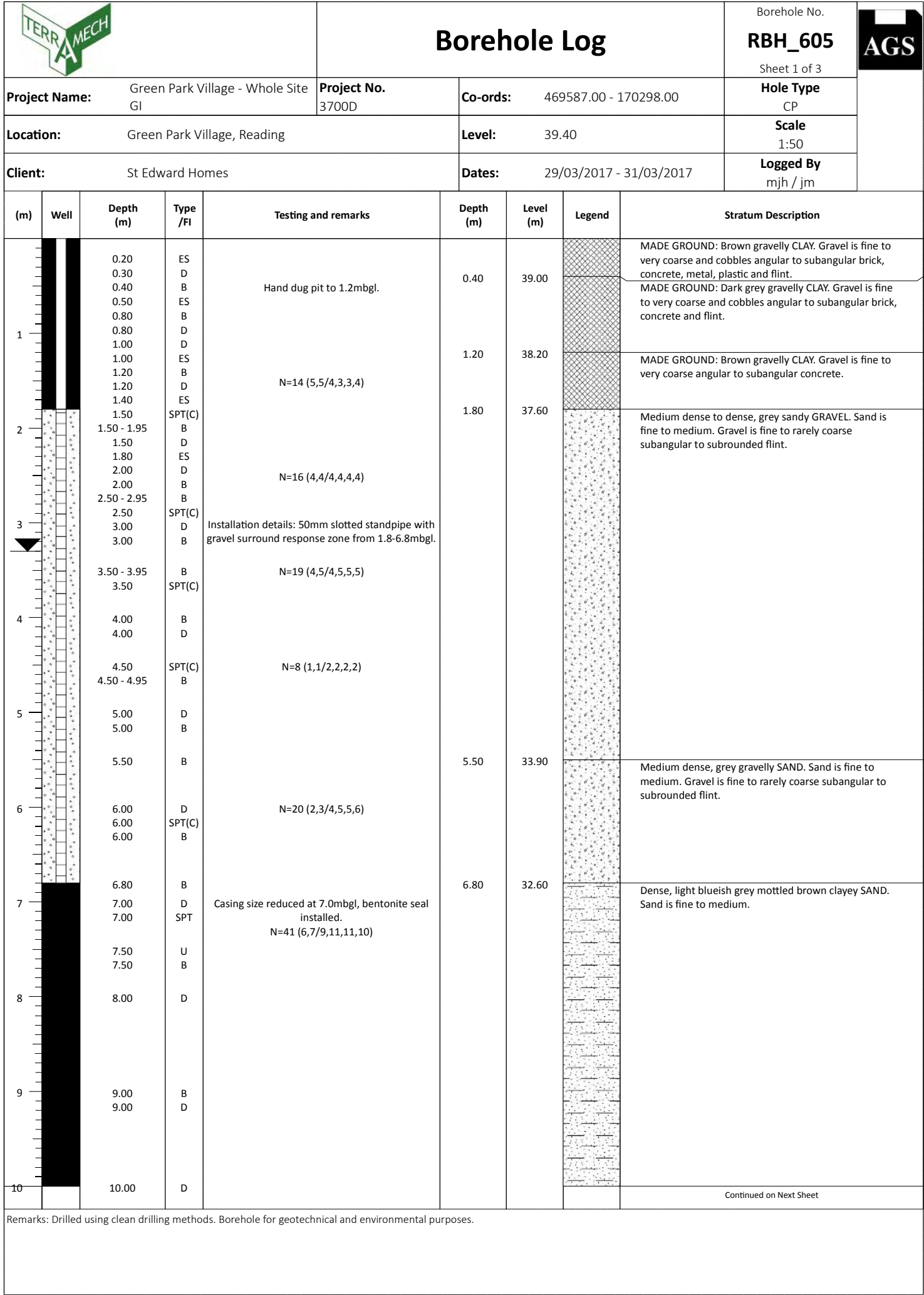


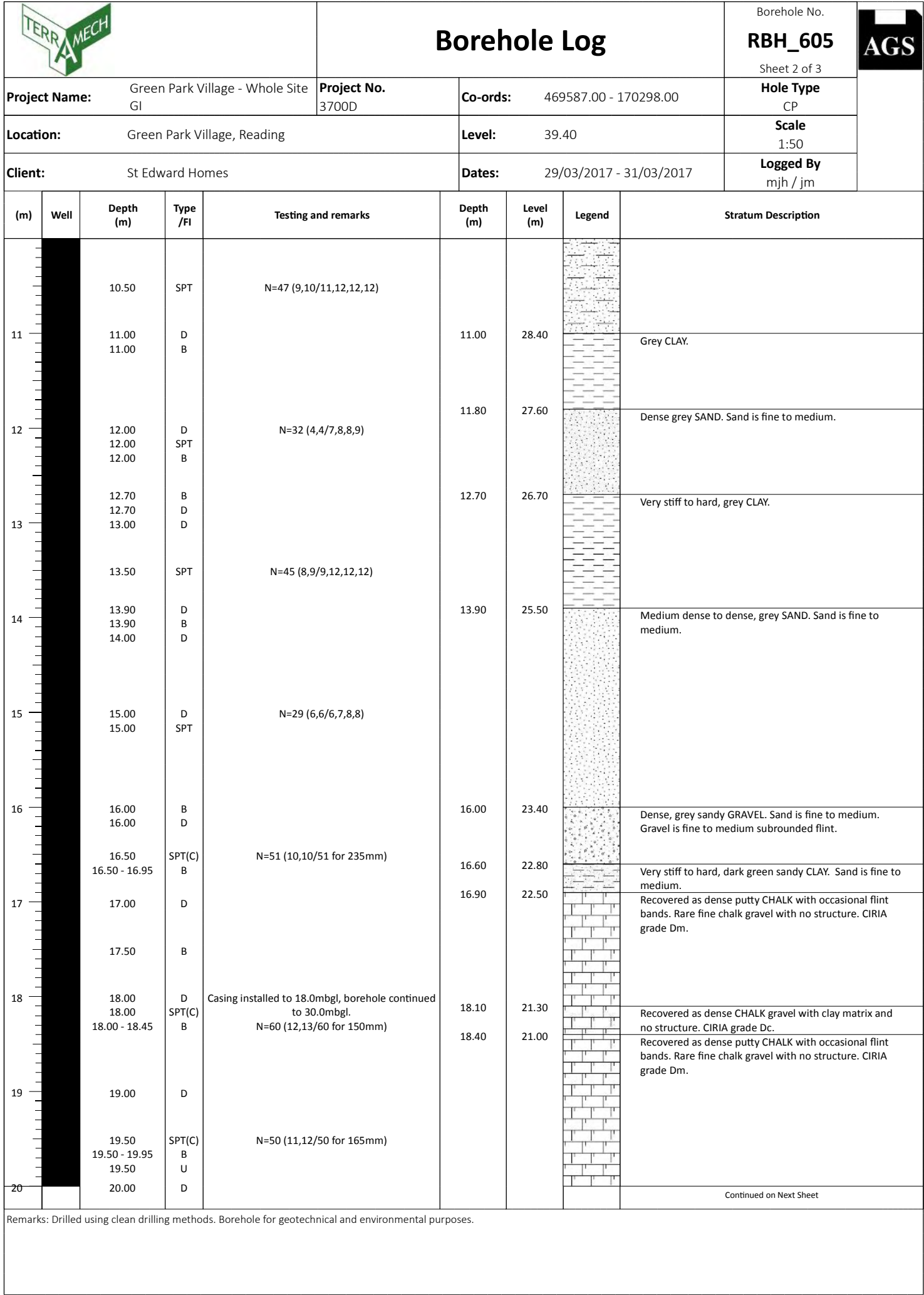
		Borehole Log				Borehole No. RBH_603 Sheet 3 of 3			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469701.00 - 170295.00		Hole Type CP			
Location: Green Park Village, Reading		Level: 40.25		Scale 1:50					
Client: St Edward Homes		Dates: 04/04/2017 - 06/04/2017		Logged By mjh / gg					
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
21		21.50	SPT	N=50 (4,6/6,10,14,20)					
22									
23		23.00	SPT	N=52 (4,5/9,9,12,22)					
24									
25		24.50	SPT	N=43 (4,7/7,11,10,15)					
26		26.00	SPT	N=50 (7,7/50 for 255mm)					
27									
28		27.50	SPT	N=50 (7,8/50 for 255mm)					
29		29.00	SPT	N=47 (7,8/9,10,10,18)					
30									
				Borehole terminated upon reaching target depth.	30.00	10.25		----- End of Borehole at 30.00m	
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.									

		Borehole Log				Borehole No. RBH_604						
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469623.00 - 170266.00		Sheet 1 of 3						
Location: Green Park Village, Reading		Level: 40.32		Hole Type CP								
Client: St Edward Homes		Dates: 16/03/2017 - 21/03/2017		Scale 1:50		Logged By mjh / gg						
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description				
1		0.00 - 0.20	B	Hand dug pit to 1.2mbgl.	0.20	40.12		MADE GROUND: Brown gravelly CLAY. Gravel is fine to very coarse angular to subangular brick, concrete, flint.				
		0.10	ES					0.30	40.02	MADE GROUND: Dark grey occasionally mottled white and brown gravelly CLAY. Gravel is fine to very coarse and cobbles brick, concrete, tile, plastic and metal.		
		0.20	ES									
		0.20 - 0.30	B									
		0.30 - 0.50	B									
		2		0.40	ES	N=5 (1,1/1,1,2)	0.90	39.42		MADE GROUND: Brown gravelly CLAY. Fine to coarse angular to subangular brick, concrete, flint and wood.		
				0.50 - 0.80	B							
				0.50	D							
				0.80 - 1.00	B							
				1.00	ES							
3				1.00 - 1.20	B	Installation details: 50mm slotted standpipe with gravel surround response zone from 0.5-5.0mbgl.	2.80	37.52		MADE GROUND: Brown gravelly sandy CLAY with occasional peat pockets. Sand is fine to medium. Gravel is fine to coarse angular to subangular brick, concrete, wood, tile and flint.		
				1.00	D							
				1.20 - 1.50	B							
				1.20	D							
				1.20	SPT							
		4		1.50	D	N=8 (1,1/2,2,2,2)	4.00	36.32		MADE GROUND: Dark grey peaty gravelly CLAY with rare pockets of brown gravelly clay. Gravel is fine to rarely coarse subangular to subrounded flint and rare fine brick. (Considered to be reworked material).		
				1.50 - 2.00	B							
				2.00	SPT							
				2.00	ES							
				2.00	D							
5				2.00 - 2.50	B	N=15 (1,1/2,3,4,6)	5.00	35.32		Soft, dark grey peaty gravelly CLAY. Gravel is fine to medium subangular to subrounded flint.		
				2.50	D							
				2.50 - 3.00	B							
				3.00	SPT							
				3.00	D							
		6		3.00	ES	N=4 (1,1/1,1,1,1)	5.20	35.12		Loose, grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.		
				3.00 - 3.50	B							
				3.50	D							
				3.50 - 4.00	B							
				4.00	SPT							
7				4.00 - 4.50	B	N=7 (1,1/1,1,1,4)	5.20	35.12		Medium dense, greenish grey slightly clayey SAND. Sand is fine to medium.		
				4.00	ES							
				4.00	D							
				4.50	D							
				4.50	ES							
		8		4.50 - 5.00	B	Casing size reduced at 5.0mbgl, bentonite seal installed.	5.20	35.12		MADE GROUND: Dark grey peaty gravelly CLAY with rare pockets of brown gravelly clay. Gravel is fine to rarely coarse subangular to subrounded flint and rare fine brick. (Considered to be reworked material).		
				5.00	D							
				5.00	SPT							
				5.00	D							
				5.00	ES							
9				5.50 - 6.50	B	N=16 (1,2/3,4,4,5)	8.00	35.12		MADE GROUND: Dark grey peaty gravelly CLAY with rare pockets of brown gravelly clay. Gravel is fine to rarely coarse subangular to subrounded flint and rare fine brick. (Considered to be reworked material).		
				6.00	D							
				6.20	ES							
				6.50	D							
				6.50	SPT							
		10		6.50 - 7.50	B	N=12 (2,3/2,3,3,4)	9.00	35.12		MADE GROUND: Dark grey peaty gravelly CLAY with rare pockets of brown gravelly clay. Gravel is fine to rarely coarse subangular to subrounded flint and rare fine brick. (Considered to be reworked material).		
				7.50	D							
				8.00	D							
				8.00	SPT							
				9.00	D							
11				9.50	SPT	N=13 (2,2/3,2,3,5)	9.50	35.12		MADE GROUND: Dark grey peaty gravelly CLAY with rare pockets of brown gravelly clay. Gravel is fine to rarely coarse subangular to subrounded flint and rare fine brick. (Considered to be reworked material).		
				9.50	D							
				9.50	SPT							
				9.50	D							
				9.50	SPT							
		Continued on Next Sheet										
		Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.										

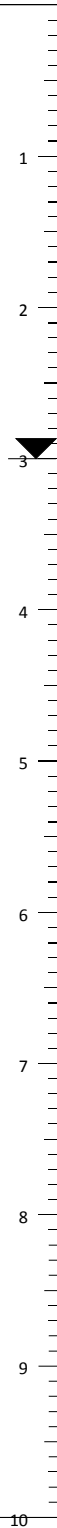
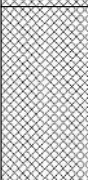
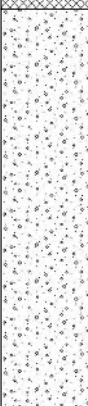


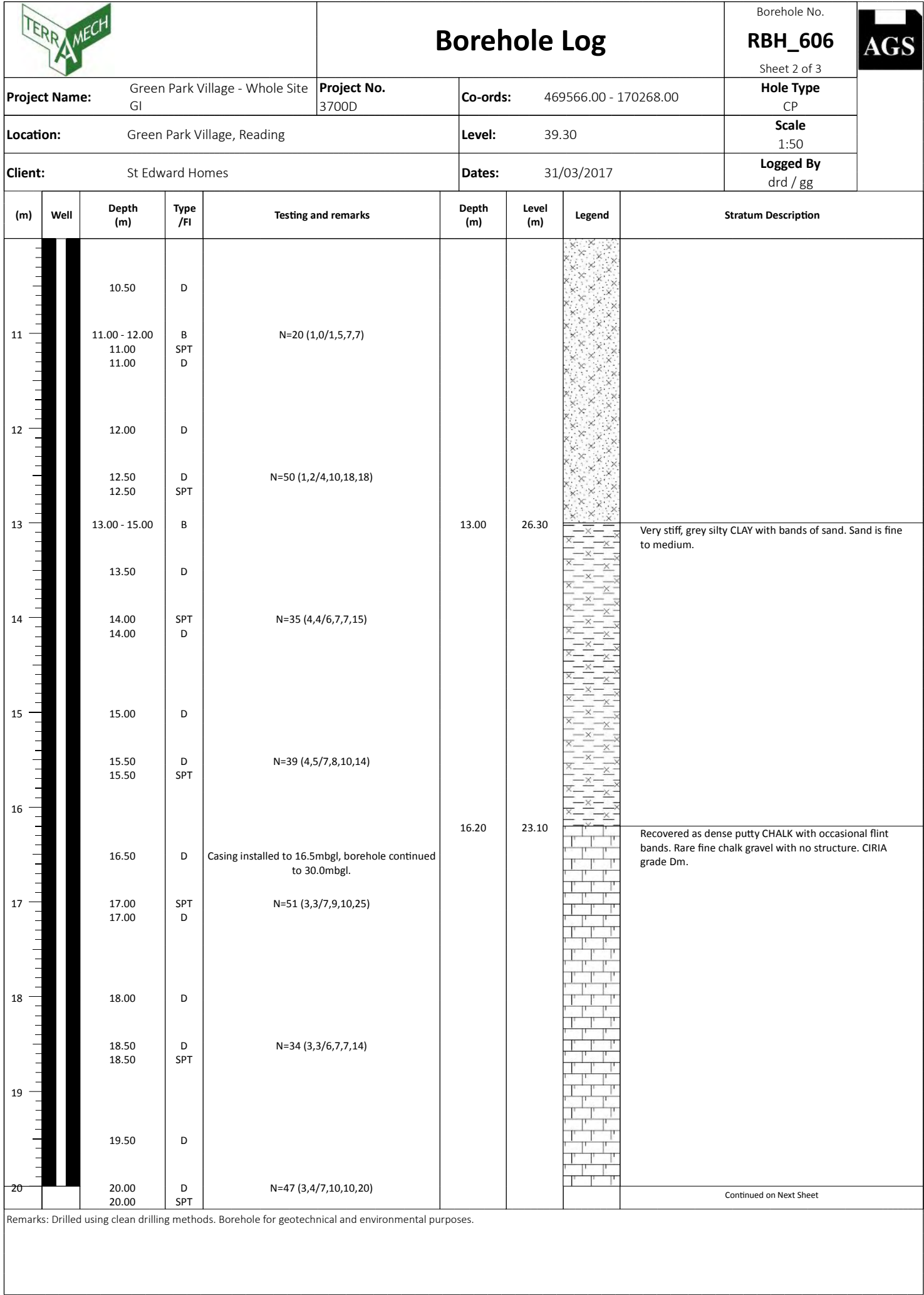
		Borehole Log				Borehole No. RBH_604 Sheet 3 of 3		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469623.00 - 170266.00		Hole Type CP		
Location: Green Park Village, Reading				Level: 40.32		Scale 1:50		
Client: St Edward Homes				Dates: 16/03/2017 - 21/03/2017		Logged By mjh / gg		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
21		21.00	D	N=37 (4,5/6,6,8,17)				
		21.50 21.50	SPT D					
22		22.50	D					
23		23.00 23.00	SPT D	N=48 (4,6/7,7,17,17)				
24		24.00	D					
		24.50 24.50	D SPT	N=49 (5,6/7,7,16,19)				
25		25.50	D					
26		26.00 26.00	SPT D	N=50 (7,7/50 for 225mm)				
27		27.00	D					
		27.50 27.50	D SPT	N=50 (7,8/50 for 210mm)				
28		28.50	D					
29		29.00 29.00	SPT D	N=50 (8,8/50 for 225mm)				
30	30.00 30.00	D SPT	N=50 (9,12/50 for 175mm) Borehole terminated upon reaching target depth.	30.00	10.32	----- End of Borehole at 30.00m		
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.								

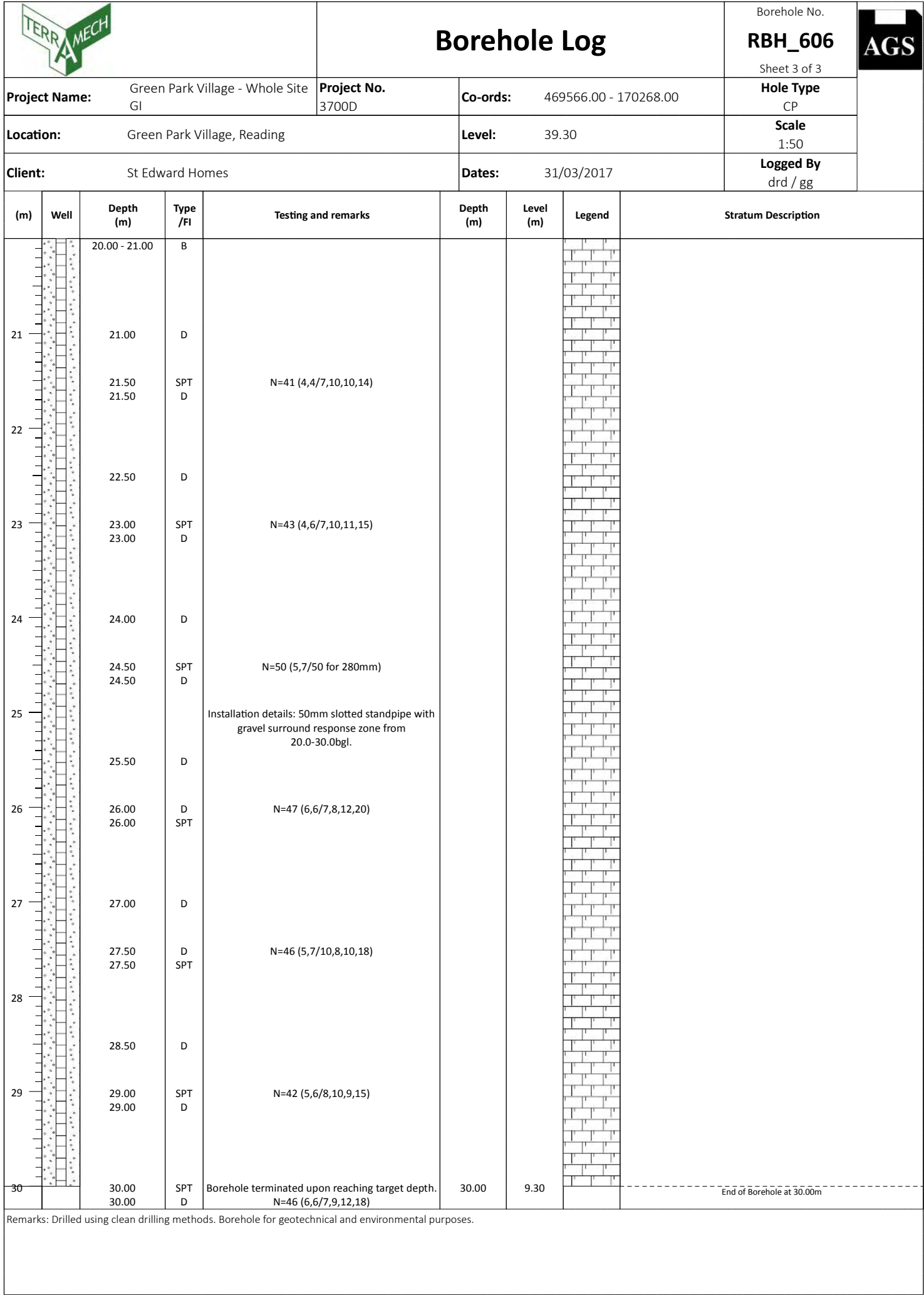


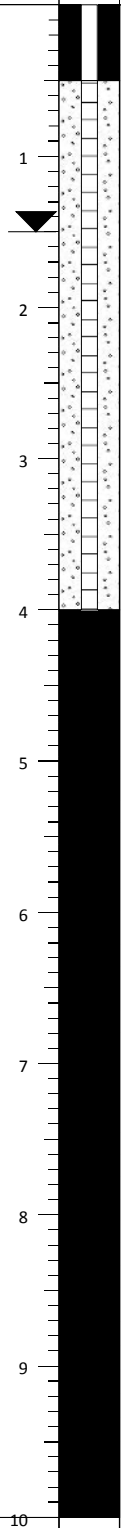
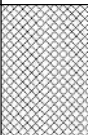
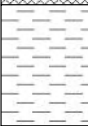


		Borehole Log				Borehole No. RBH_605 Sheet 3 of 3		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469587.00 - 170298.00		Hole Type CP		
Location: Green Park Village, Reading				Level: 39.40		Scale 1:50		
Client: St Edward Homes				Dates: 29/03/2017 - 31/03/2017		Logged By mjh / jm		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
21		21.00 21.00	SPT(C) D	N=50 (11,12/50 for 225mm)				
22		22.00	D					
		22.50	SPT(C)	N=45 (12,13/45 for 225mm)				
23		23.00 23.00	B D					
24		24.00 24.00	D SPT(C)	N=50 (10,10/50 for 250mm)				
25		25.00 25.00	B D					
		25.50	SPT	N=50 (5,5/11,12,15,12)				
26		26.00	D					
27		27.00 27.00 27.00 - 27.45	U D B					
28		28.00	D					
		28.50	SPT	N=50 (6,7/10,12,13,15)				
29		29.00 29.00	D B					
	29.50	SPT	N=50 (8,9/50 for 235mm)					
30	30.00	D	Borehole terminated upon reaching target depth.	30.00	9.40		----- End of Borehole at 30.00m	
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.								

		Borehole Log				Borehole No. RBH_606 Sheet 1 of 3			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469566.00 - 170268.00		Hole Type CP			
Location: Green Park Village, Reading				Level: 39.30		Scale 1:50			
Client: St Edward Homes				Dates: 31/03/2017		Logged By drd / gg			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1		0.00 - 0.40	B	Hand dug pit to 1.2mbgl.	0.60	38.70		MADE GROUND: Greyish brown gravelly CLAY fill. Gravel is fine to very coarse and cobbles angular to subrounded brick, wood, plastic, flint.	
		0.20	ES						
		0.40 - 0.80	B						
		0.50	D						
		0.60	ES						
		2	0.80 - 1.20	B	N=14 (0,1/2,4,4,4)	1.80	37.50		MADE GROUND: Brown gravelly CLAY fill. Gravel is fine to very coarse and cobbles brick, flint, wood and plastic.
			1.00	D					
			1.00	ES					
			1.20	D					
			1.20	SPT					
3	1.50	D	N=11 (1,1/2,2,3,4)	4.50	34.80		Medium dense, grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint.		
	2.00	SPT(C)							
	2.00	D							
	2.00 - 2.50	B							
	2.10	ES							
4	2.50	D	N=13 (1,1/3,3,3,4)	5.50	33.80		Firm to stiff light grey mottled brown slightly sandy clayey SILT. Sand is fine to medium.		
	3.00	SPT(C)							
	3.00	D							
	3.50	D							
	4.00	SPT(C)							
5	4.00	D	Casing size reduced at 4.5mbgl, bentonite seal installed.	5.50	33.80		Medium dense to dense, grey slightly clayey silty SAND with bands of clay. Sand is fine to medium.		
	4.50	D							
	4.60 - 5.00	B							
	4.70	ES							
	5.00	SPT							
6	5.00	D	N=17 (1,2/3,4,4,6)	5.50	33.80		Medium dense to dense, grey slightly clayey silty SAND with bands of clay. Sand is fine to medium.		
	5.70	ES							
	6.00	D							
	6.00 - 6.50	B							
	6.50	D							
7	6.50	SPT	N=12 (1,0/1,2,3,6)	5.50	33.80		Medium dense to dense, grey slightly clayey silty SAND with bands of clay. Sand is fine to medium.		
	6.50	D							
	7.50	D							
	8.00	SPT							
	8.00	D							
8	8.00	D	N=17 (1,1/2,3,5,7)	5.50	33.80		Medium dense to dense, grey slightly clayey silty SAND with bands of clay. Sand is fine to medium.		
	9.00	D							
	9.50	D							
	9.50	SPT							
	9.50	SPT							
9	9.50	D	N=43 (1,2/7,10,12,14)	5.50	33.80		Medium dense to dense, grey slightly clayey silty SAND with bands of clay. Sand is fine to medium.		
	9.50	SPT							
10								Continued on Next Sheet	
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.									

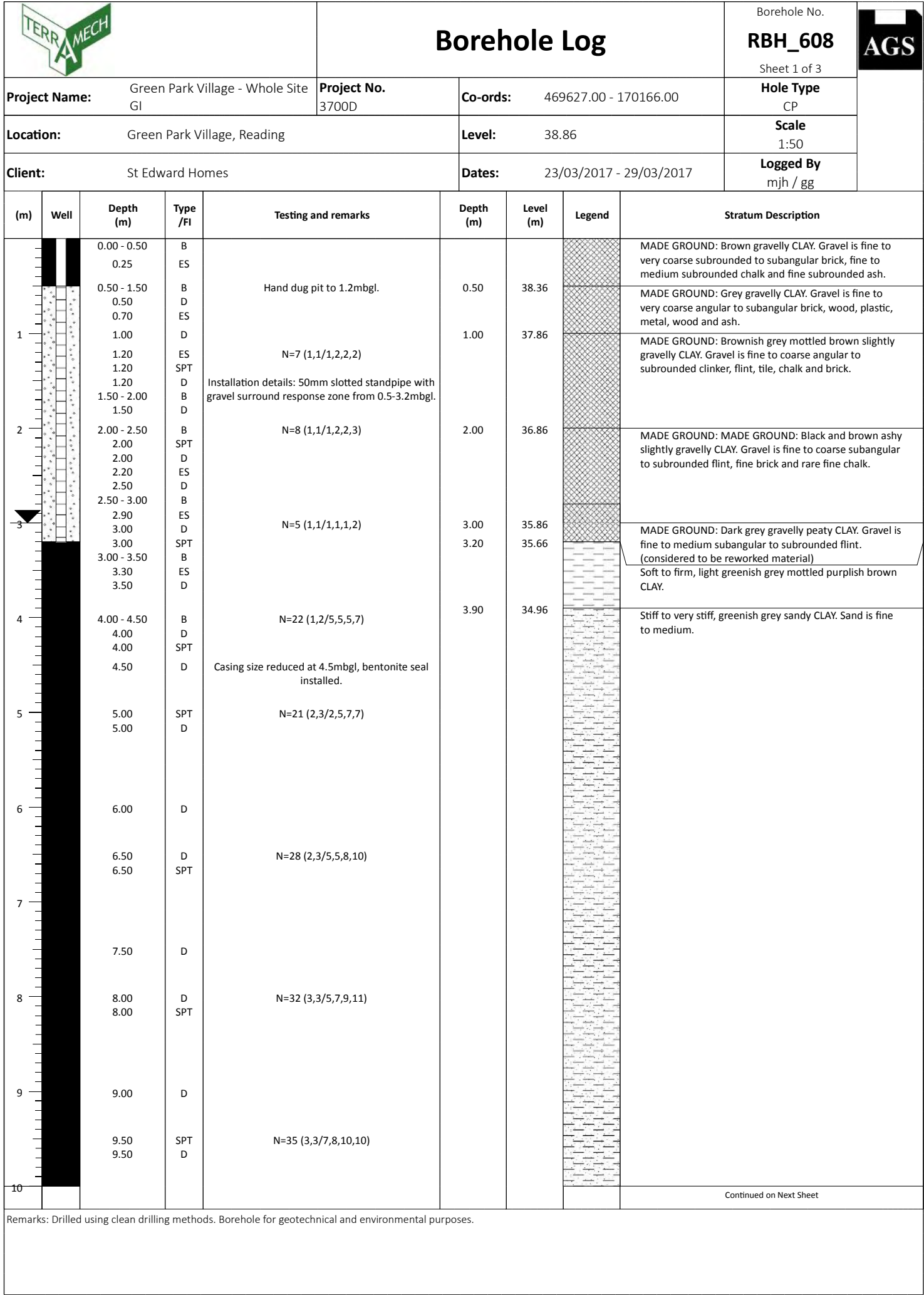


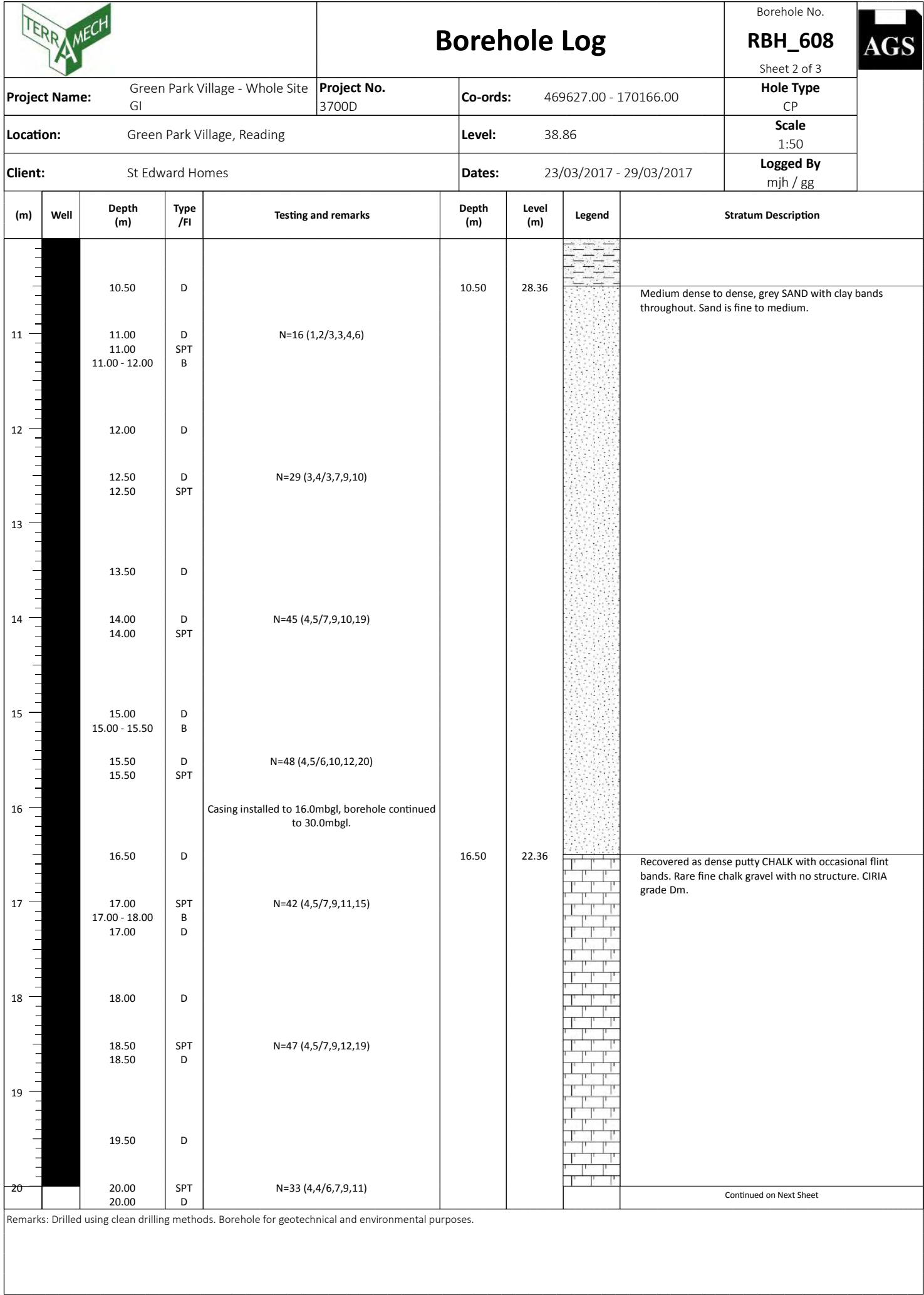


		Borehole Log			Borehole No. RBH_607 Sheet 1 of 3			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469616.00 - 170229.00		Hole Type CP		
Location: Green Park Village, Reading				Level: 40.02		Scale 1:50		
Client: St Edward Homes				Dates: 21/03/2017 - 23/03/2017		Logged By		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
		0.00 - 0.50 0.20	B ES	Hand dug pit to 1.2mbgl.	0.90	39.12		MADE GROUND: Brown clayey GRAVEL. Gravel is fine to very coarse angular to subangular brick, concrete, chalk and wood fragments.
		0.50 - 1.00 0.50 0.50	B ES D					MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint.
	1	1.00 - 1.50 1.00 1.00 1.20 1.20	B ES D D SPT					MADE GROUND: Brownish grey gravelly CLAY. Gravel is subangular to subrounded flint. (considered to be reworked material)
				N=9 (1,2/2,2,2,3)				
				Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-4.0mbgl.				
	2	2.00	SPT	N=26 (10,10/15,4,4,3)				
		2.50 2.50 - 3.00 2.60	D B ES		2.50	37.52		
	3	3.00 3.00	D SPT	N=16 (4,4/4,4,4,4)				
		3.50	D					
	4	4.00 4.00 - 4.50 4.00 4.10 4.50	SPT B D ES D	N=17 (2,3/4,4,4,5)	4.00	36.02		Stiff, light greenish grey mottled purplish brown CLAY.
			Casing size reduced at 4.5mbgl, bentonite seal installed.					
5	5.00 5.00 5.20 - 6.20	D SPT B	N=18 (2,3/4,4,5,5)	4.80	35.22		Medium dense to dense, grey clayey SAND with frequent clay bands throughout. Sand is fine to medium.	
6	6.00	D						
	6.50 6.50	SPT D	N=23 (2,3/4,6,6,7)					
7								
	7.50	D						
8	8.00 8.00	SPT D	N=23 (2,3/4,5,7,7)					
9	9.00	D						
	9.50 9.50	D SPT	N=26 (3,3/4,5,8,9)					
10								Continued on Next Sheet
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.								

				Borehole Log				Borehole No. RBH_607 Sheet 2 of 3		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469616.00 - 170229.00		Hole Type CP		
Location: Green Park Village, Reading				Level: 40.02		Scale 1:50		Logged By		
Client: St Edward Homes				Dates: 21/03/2017 - 23/03/2017						
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description		
11		10.50	D	N=41 (4,4/5,7,8,21)	17.00	23.02				
		11.00 11.00	SPT D							
		12.00	D	N=35 (4,5/7,7,10,11)						
		12.50 12.50	D SPT							
		13.50	D	N=37 (4,5/7,8,11,11)						
		14.00 14.00	SPT D							
		15.00 15.00 - 16.00	D B	N=33 (4,4/6,8,8,11)						
		15.50 15.50	SPT D							
		16.50	D	Casing installed to 17.0mbgl, borehole continued to 30.0mbgl. N=38 (4,4/6,8,12,12)						
		17.00 17.00	D SPT							
18		18.00	D	N=50 (4,5/50 for 280mm)	17.00	23.02		Recovered as dense putty CHALK with occasional flint bands. Rare fine chalk gravel with no structure. CIRIA grade Dm.		
		18.50 18.50	D SPT							
		19.50	D							
		20.00 20.00	SPT D							
20				N=50 (5,5/50 for 230mm)				Continued on Next Sheet		
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.										

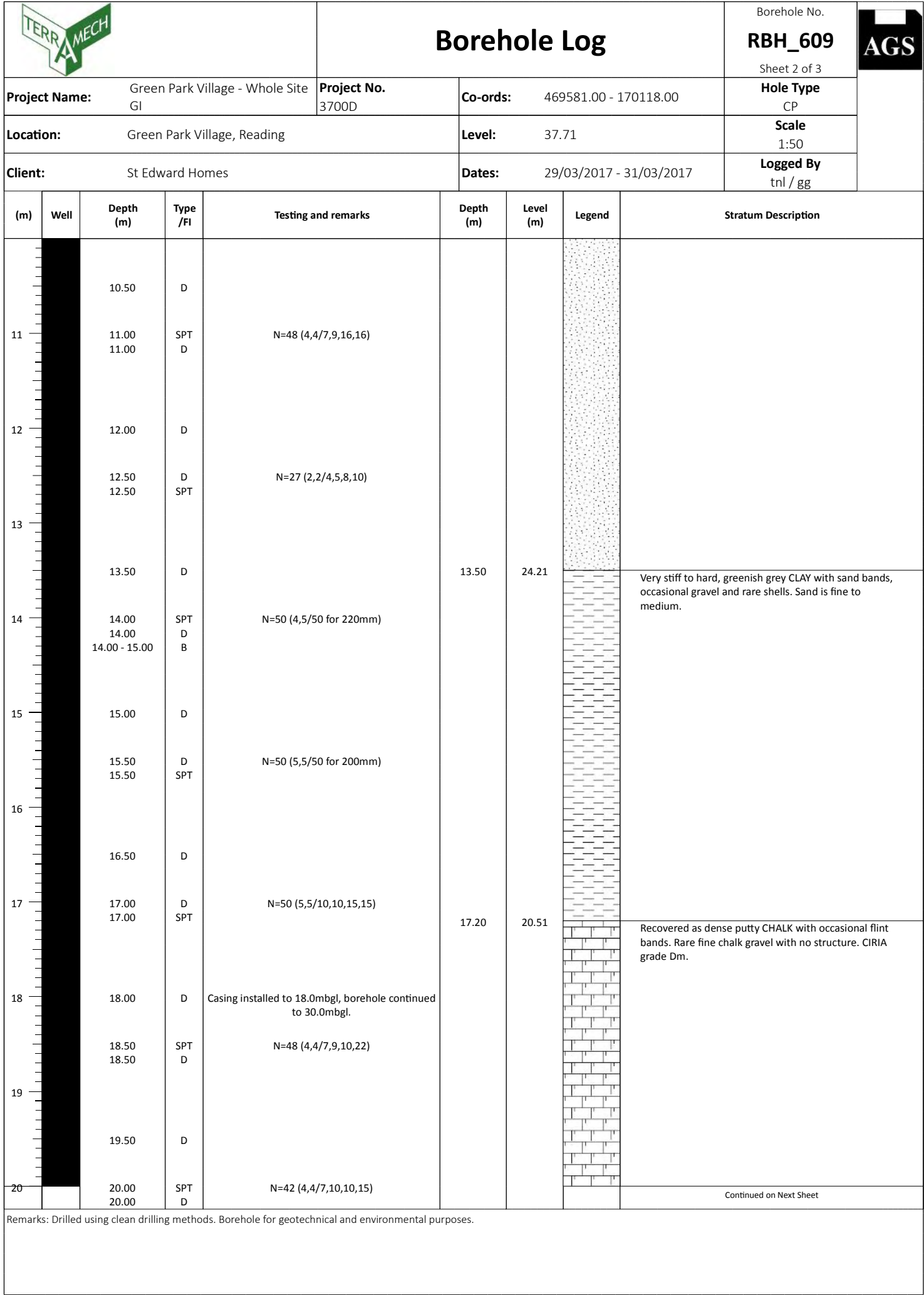
		Borehole Log				Borehole No. RBH_607 Sheet 3 of 3			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469616.00 - 170229.00		Hole Type CP			
Location: Green Park Village, Reading				Level: 40.02		Scale 1:50			
Client: St Edward Homes				Dates: 21/03/2017 - 23/03/2017		Logged By			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
21		21.00	D	N=50 (4,7/50 for 220mm)					
		21.50	D						
		21.50	SPT						
22			22.50	D					N=40 (5,5/5,8,10,17)
			23.00	SPT					
		23.50	D						
23			24.00	D					N=45 (4,5/7,8,15,15)
			24.50	D					
		24.50	SPT						
24			25.50	D					N=50 (8,10/50 for 190mm)
			26.00	SPT					
		26.00	D						
25			27.00	D					N=50 (7,8/50 for 180mm)
			27.50	D					
		27.50	SPT						
26			28.50	D					N=50 (7,10/50 for 160mm)
			29.00	D					
		29.00	SPT						
27		30.00	D	Borehole terminated upon reaching target depth.	30.00	10.02		----- End of Borehole at 30.00m	
28	Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.								
29									
30									



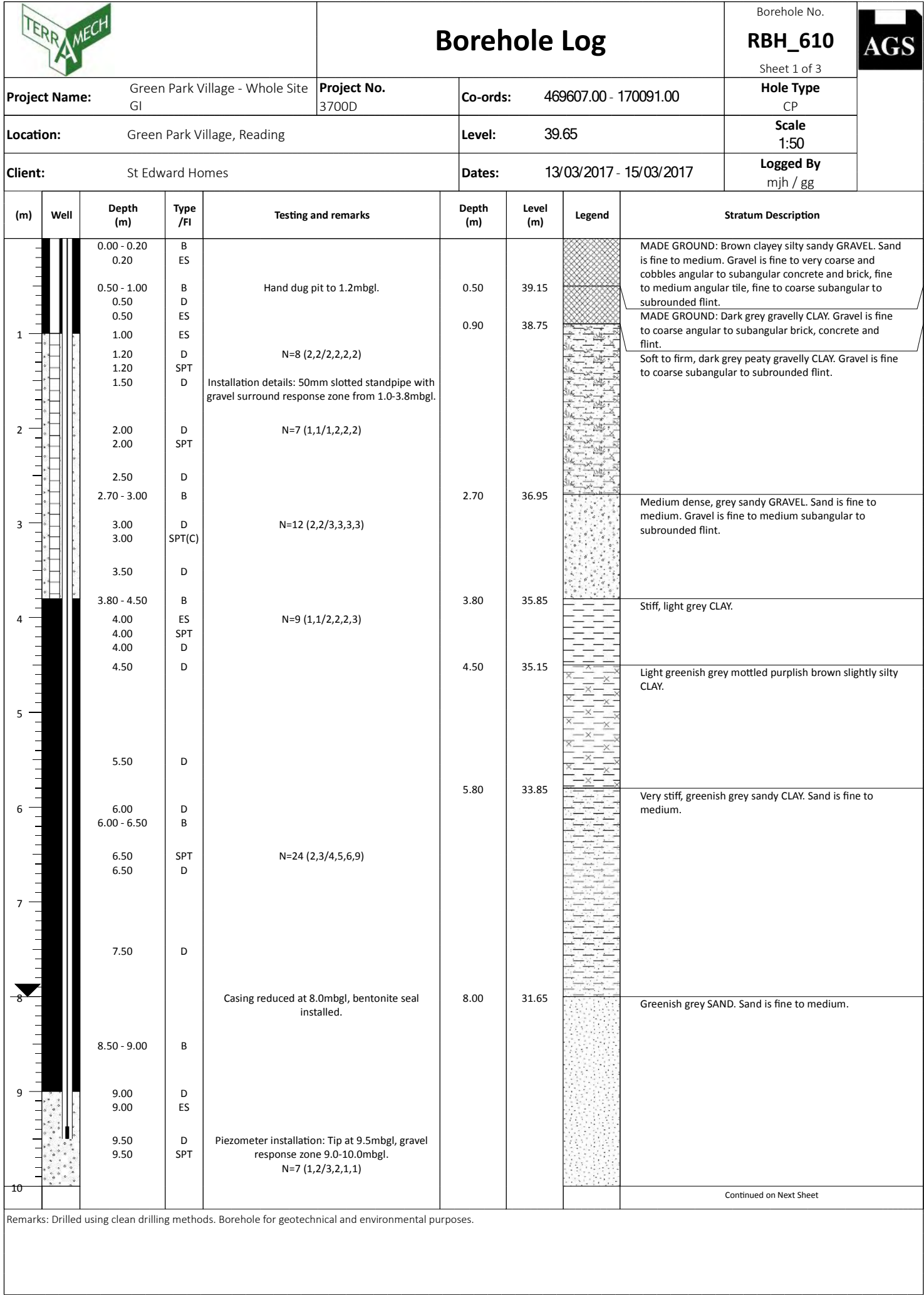


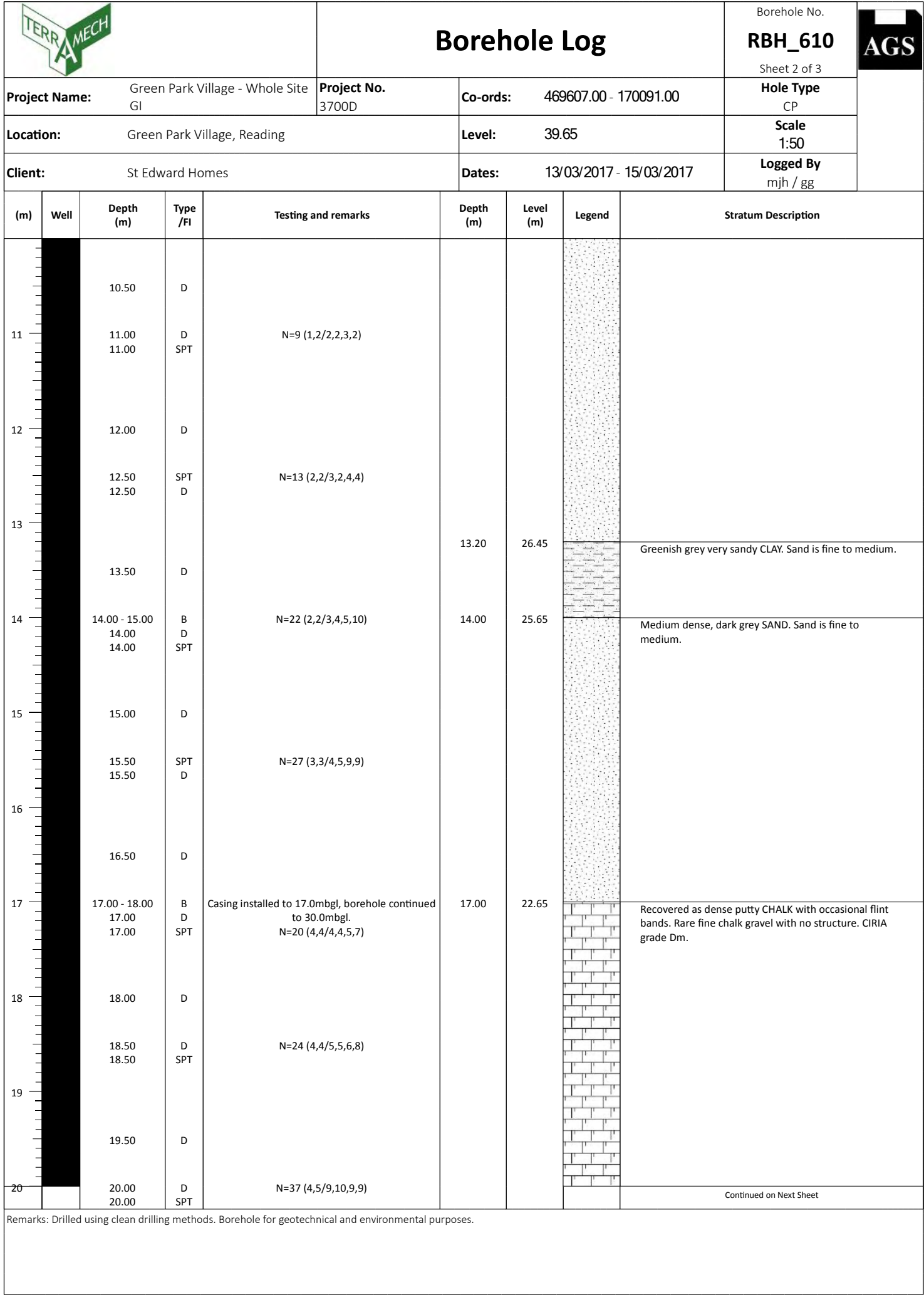
		Borehole Log				Borehole No. RBH_608 Sheet 3 of 3		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469627.00 - 170166.00		Hole Type CP		
Location: Green Park Village, Reading				Level: 38.86		Scale 1:50		
Client: St Edward Homes				Dates: 23/03/2017 - 29/03/2017		Logged By mjh / gg		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
21		21.00	D	N=36 (4,6/7,9,10,10)				
		21.50 21.50	D SPT					
22		22.50	D					
23		23.00 23.00	D SPT	N=50 (4,8/50 for 250mm)				
24		24.00	D					
		24.50 24.50	D SPT	N=39 (5,5/8,11,12,8)				
25		25.50	D					
26		26.00 26.00	SPT D	N=40 (5,5/7,7,9,17)				
27		27.00	D					
		27.50 27.50	D SPT	N=46 (5,7/10,10,12,14)				
28		28.50	D					
29		29.00 29.00	SPT D	N=50 (6,8/50 for 280mm)				
30	30.00	D	Borehole terminated upon reaching target depth.	30.00	8.86	----- End of Borehole at 30.00m		
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.								

		Borehole Log				Borehole No. RBH_609 Sheet 1 of 3				
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469581.00 - 170118.00		Hole Type CP				
Location: Green Park Village, Reading				Level: 37.71		Scale 1:50				
Client: St Edward Homes				Dates: 29/03/2017 - 31/03/2017		Logged By tnl / gg				
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description		
1		0.00 - 0.50	B	Hand dug pit to 1.2mbgl.	0.50	37.21		MADE GROUND: Brown slightly sandy gravelly CLAY with frequent roots. Sand is fine to medium. Gravel is fine to coarse angular to subrounded brick and concrete.		
		0.50 - 1.00	B					MADE GROUND: Brown mottled red sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse angular to subrounded metal, brick and plastic.		
		0.50	D							
		0.70	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 0.5-4.0mbgl.	1.00	36.71		MADE GROUND: Dark grey black mottled brown sandy very gravelly CLAY. Sand is fine to medium. Gravel is fine to very coarse and cobbles angular brick, concrete, wood and metal.		
		1.00 - 1.30	B							
		1.00	D							
		1.20	D							
		1.20	SPT							
		2		1.30 - 1.80	B	N=8 (2,2/3,1,2,2)	3.00	34.71		Medium dense, grey sandy GRAVEL. Gravel is fine to coarse angular to subrounded flint.
				1.50	ES					
1.50	D									
1.80 - 2.30	B									
2.00	D									
3		2.00	SPT	N=9 (0,1/2,2,2,3)	4.00	33.71		Firm to stiff, light greenish grey mottled purplish brown CLAY.		
		2.30 - 2.50	B							
		2.50	D							
		2.50	ES							
		2.50 - 3.00	B							
4		3.00	ES	N=11 (1,1/2,3,3,3)	4.90	32.81		Stiff to very stiff, blueish grey sandy CLAY. Sand is fine to medium.		
		3.00	SPT							
		3.00	D							
		3.50	D							
		4.00 - 4.50	B							
5		4.00	D	N=8 (2,2/2,2,2,2)	7.80	29.91		Medium dense to dense, blueish grey SAND with occasional clay bands. Sand is fine to medium.		
		4.00	SPT							
		4.50	D							
		Casing size reduced at 4.5mbgl, bentonite seal installed.								
		5.00	D							
6		5.00	SPT	N=12 (2,2/2,3,3,4)	9.50	29.91				
		6.00	D							
		6.00 - 6.50	B							
		6.50	D							
		6.50	SPT							
7		7.50	D	N=50 (4,4/50 for 250mm)	7.80	29.91				
		8.00	D							
		8.00	SPT							
		8.00 - 9.00	B							
		9.00	D							
8		9.50	D	N=32 (0,1/3,7,10,12)						
		9.50	SPT							
		9.50	D							
		9.50	SPT							
		9.50	D							
10										
Continued on Next Sheet										
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.										

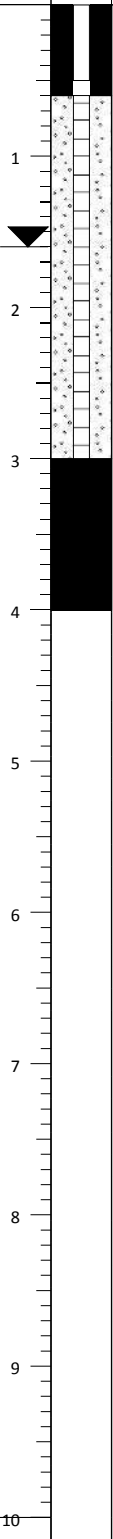
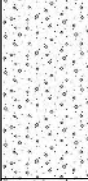
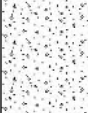


		Borehole Log				Borehole No. RBH_609 Sheet 3 of 3			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469581.00 - 170118.00		Hole Type CP			
Location: Green Park Village, Reading				Level: 37.71		Scale 1:50			
Client: St Edward Homes				Dates: 29/03/2017 - 31/03/2017		Logged By tnl / gg			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
21		21.00	D	N=38 (5,5/7,7,9,15)					
		21.50 21.50	D SPT						
22			22.50	D					
23			23.00 23.00	SPT D					N=47 (5,7/7,10,15,15)
24			24.00	D					
		24.50 24.50	D SPT	N=50 (5,8/50 for 285mm)					
25			25.50 25.50 - 26.00	D B					N=50 (25 for 68mm/50 for 120mm)
26			26.00 26.00	SPT D					
27			27.00	D					
		27.50 27.50	SPT D	N=38 (5,7/9,9,10,10)					
28			28.50	D					
29			29.00 29.00	D SPT					N=33 (5,5/7,8,9,9)
30		30.00	D	Borehole terminated upon reaching target depth.	30.00	7.71		----- End of Borehole at 30.00m	
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.									





				Borehole Log				Borehole No. RBH_610 Sheet 3 of 3		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469607.00 - 170091.00		Hole Type CP		
Location: Green Park Village, Reading				Level: 39.65		Scale 1:50		Logged By mjh / gg		
Client: St Edward Homes				Dates: 13/03/2017 - 15/03/2017						
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description		
21		21.00	D	N=34 (4,5/7,8,10,9)						
		21.50 21.50	SPT D							
22			22.50	D						
23			23.00 23.00	D SPT						N=28 (5,6/6,6,7,9)
24			24.00	D						
		24.50 24.50	D SPT	N=41 (6,7/8,9,9,15)						
25			25.50	D						
26			26.00 26.00	SPT D						N=50 (5,8/50 for 170mm)
27			27.00	D						
		27.50 27.50	D SPT	N=51 (5,8/51 for 155mm)						
28			28.50	D						
29			29.00 29.00	SPT D						50 (25 for 86mm/50 for 200mm)
30		30.00 30.00	D SPT	Borehole terminated upon reaching target depth. N=50 (25 for 140mm/50 for 135mm)	30.00	9.65		----- End of Borehole at 30.00m		
Remarks: Drilled using clean drilling methods. Borehole for geotechnical and environmental purposes.										

		Borehole Log				Borehole No. RWS_601 Sheet 1 of 1			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470338.00 - 170325.00		Hole Type WS			
Location: Green Park Village, Reading				Level: 38.97		Scale 1:50			
Client: St Edward Homes				Dates: 24/03/2017		Logged By mjh			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
		0.20	ES	Hand dug pit to 1.2mbgl.				MADE GROUND: Brown gravelly CLAY. Gravel is fine to coarse, subangular to subrounded flint and rare brick.	
		0.60	ES		0.60	38.37		MADE GROUND: Topsoil with occasional fine to medium, subangular to subrounded brick, glass and tile.	
	1	1.00	ES		0.90	38.07		MADE GROUND: Dark brownish grey gravelly CLAY. Gravel is predominantly fine to medium, subangular to subrounded flint, with rare tile and brick.	
		1.80	ES		1.40	37.57		MADE GROUND: Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint. Terracotta pipe at base.	
	2			Installation details: 50mm slotted standpipe with gravel surround response zone from 0.6-3.0mbgl.	1.75	37.22		Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded flint.	
	3				Casing refusal at 3.0mbgl, borehole taken to 4.0mbgl. Borehole collapsed back to 3.0mbgl upon completion.	3.00	35.97		Grey gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded flint.
	4	3.90	ES			3.80	35.17		Light grey mottled orange brown slightly clayey silty SAND. Sand is fine to medium.
				Borehole terminated upon experiencing blowing sands.	4.00	34.97		End of Borehole at 4.00m	
	5								
	6								
7									
8									
9									
10									
Remarks: Borehole for environmental purposes only.									



Borehole Log

Borehole No.

RWS_602

Sheet 1 of 1



Project Name:

Green Park Village - Whole Site GI

Project No.

3700D

Co-ords:

470174.00 - 170375.00

Hole Type

WS

Location:

Green Park Village, Reading

Level:

39.12

Scale

1:50

Client:

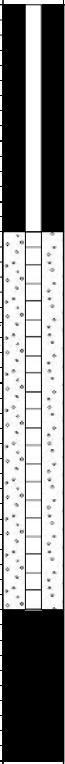
St Edward Homes

Dates:

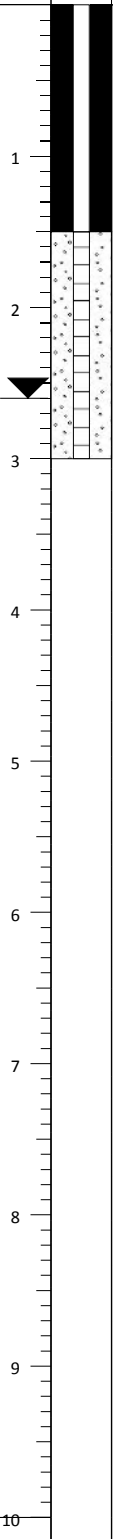
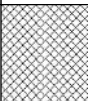
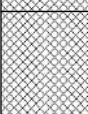
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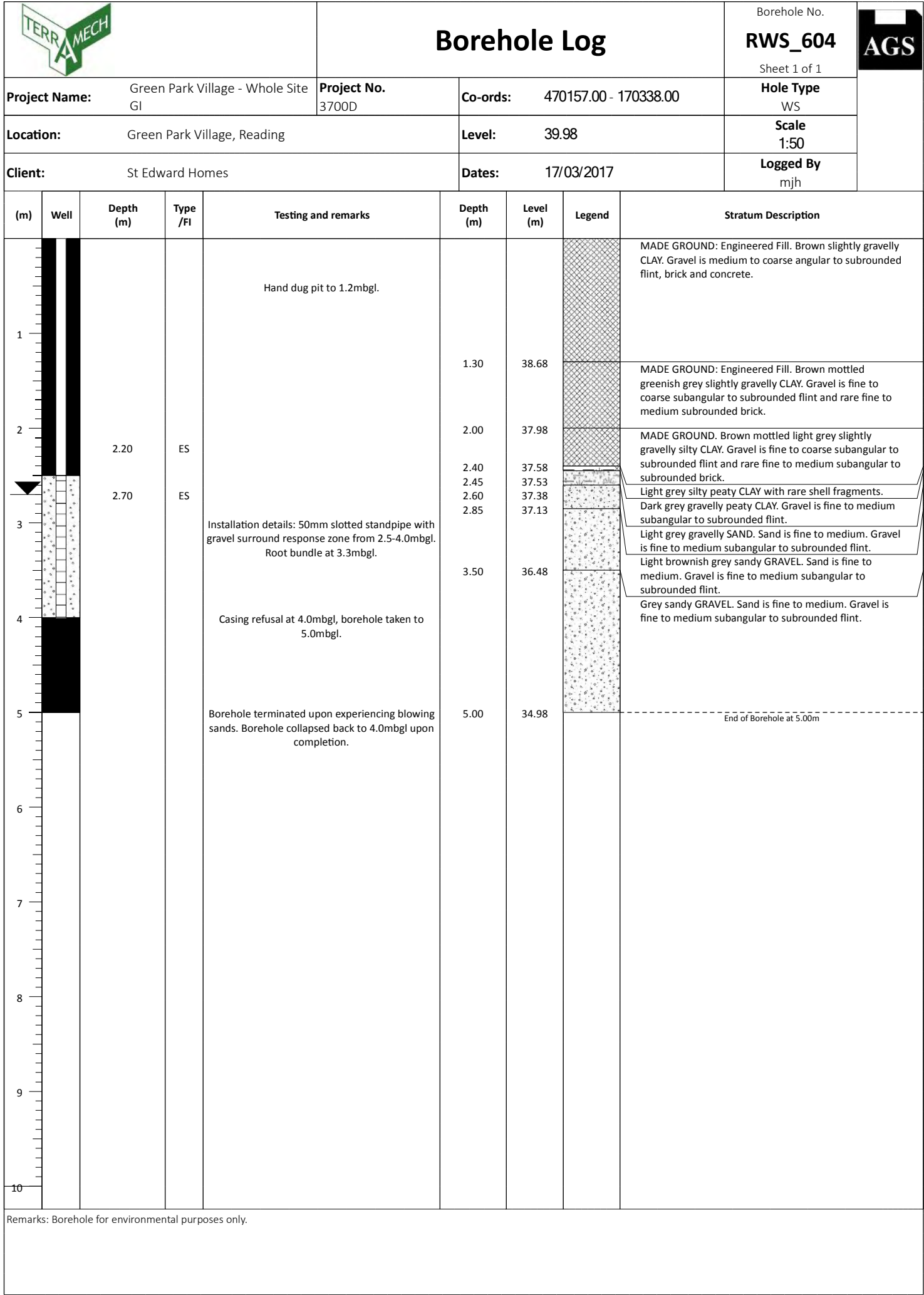
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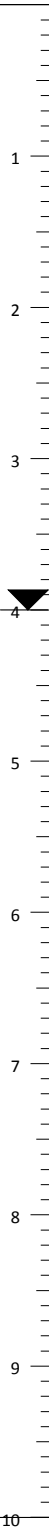
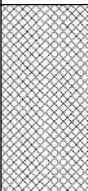
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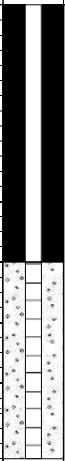
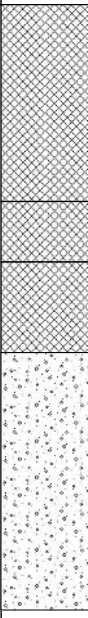
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
1 2 3 4 5 6 7 8 9 10				Hand dug pit to 1.2mbgl.	0.50	38.62		MADE GROUND: Engineered fill. Dark brown slightly gravelly CLAY. Gravel is fine to coarse, angular to subrounded brick and concrete.
		1.30	ES		1.25	37.87		MADE GROUND: Engineered fill. Brown mottled light grey slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded flint, fine to coarse angular to subrounded brick and concrete, and rare chalk.
		1.60	ES		1.40	37.72		MADE GROUND: Light grey mottled purplish brown slightly sandy CLAY.
				1.50	37.62		MADE GROUND: Brown SAND with rare fine to medium subangular to subrounded brick and occasional fabric. Sand is fine to medium.	
		2.20	ES	1.95	37.17		Dark grey peaty CLAY with rare shell fragments.	
				2.60	36.52		Dark grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse, subangular to subrounded flint.	
				3.00	36.12		Grey gravelly SAND. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.	
		3.50	ES					
		4.20	ES	4.00	35.12		Light grey mottled purplish brown CLAY.	
				5.00	34.12			
				Borehole terminated upon penetration of Lambeth Group clay.				End of Borehole at 5.00m

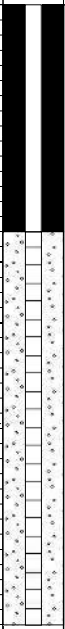
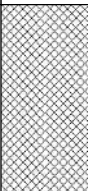
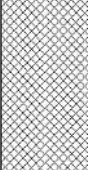
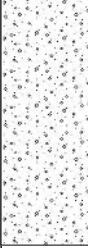
Remarks: Borehole for environmental purposes only.

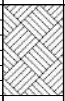
		Borehole Log				Borehole No. RWS_603 Sheet 1 of 1			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470203.00 - 170303.00		Hole Type WS			
Location: Green Park Village, Reading				Level: 39.28		Scale 1:50			
Client: St Edward Homes				Dates: 24/03/2017		Logged By mjh			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
				Hand dug pit to 1.2mbgl.	0.70	38.58		MADE GROUND: Engineered Fill. Dark grey and brown gravelly CLAY. Gravel is fine to coarse, angular to subrounded brick, concrete and rare wood.	
		1.50 - 2.00	ES						
		1.60	ES			1.30	37.98		MADE GROUND: Brown slightly gravelly CLAY. Gravel is fine subrounded to rounded ash, fine to coarse angular to subrounded brick and rare ceramic. Concrete block at base of pit.
		2.10 - 2.30	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-3.1mbgl.	2.00	37.28		MADE GROUND: Black, occasionally dark brown, slightly clayey sandy GRAVEL with high ash content. Sand is fine to medium. Gravel is fine to coarse angular to subrounded brick, concrete, coal, glass and wood - all blackened surfaces.	
					2.35	36.92		Organic layer, with the appearance and texture of hay (relic TOPSOIL?).	
				Borehole collapsed back to 2.6mbgl upon completion.	2.50	36.78		Light grey slightly gravelly SAND. Sand is fine to medium. Gravel is fine to medium subrounded flint.	
				Borehole terminated upon experiencing blowing sands.	3.00	36.28		Brownish grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.	
								End of Borehole at 3.00m	
Remarks: Borehole for environmental purposes only.									



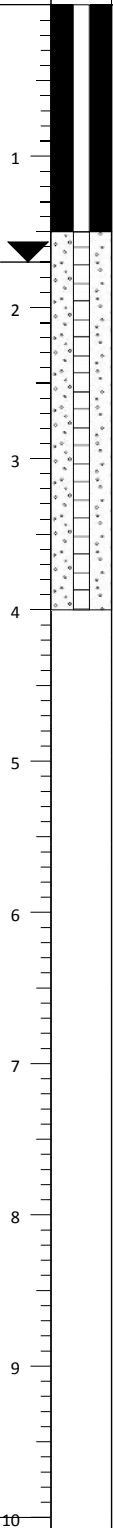
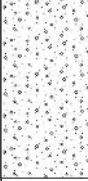
		Borehole Log				Borehole No. RWS_605 Sheet 1 of 1			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470124.00 - 170292.00		Hole Type WS			
Location: Green Park Village, Reading				Level: 39.97		Scale 1:50			
Client: St Edward Homes				Dates: 23/03/2017		Logged By mjh			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
				Hand dug pit to 1.2mbgl.				MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to coarse, subangular to subrounded brick, concrete and occasional flint.	
					1.30	38.67		MADE GROUND: Engineered Fill. Orange brown mottled light grey slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint, with occasional sand pockets.	
					1.80	38.17		MADE GROUND: Engineered Fill. Brown mottled orange brown slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, plastic and occasional flint.	
		2.60	ES		2.50	37.47		MADE GROUND: Dark greenish grey gravelly CLAY. Gravel is fine to coarse subangular to subrounded concrete, brick, flint and rare ash.	
		2.80	ES		2.75	37.22		Dark grey slightly gravelly CLAY. Gravel is fine to medium subrounded flint and fine shell fragments.	
		3.70	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 2.5-3.65mbgl. Casing refusal at 3.65mbgl, borehole taken to 4.0mbgl. Borehole terminated upon experiencing blowing sands. Borehole collapsed back to 3.65mbgl upon completion.	3.60	36.37		Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.	
					4.00	35.97	----- End of Borehole at 4.00m		
Remarks: Borehole for environmental purposes only.									

			Borehole Log				Borehole No. RWS_606 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI			Project No. 3700D		Co-ords: 470173.00 - 170265.00		Hole Type WS		
Location: Green Park Village, Reading					Level: 40.04		Scale 1:50		
Client: St Edward Homes					Dates: 22/03/2017		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1		1.80	ES	Hand dug pit to 1.2mbgl.	1.30	38.74		MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint.	
2				1.70	38.34	MADE GROUND: Engineered Fill. Light grey mottled purplish brown CLAY with frequent gravel. Gravel is fine to coarse subangular to subrounded flint and rare concrete.			
2				2.30	37.74	MADE GROUND: Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint and rare brick at upper boundary. Organic material resembling grass at base.			
3		2.90	ES	Casing refusal at 3.0m, borehole taken to 4.0mbgl. Borehole terminated upon experiencing blowing sands. Borehole collapsed back to 3.0mbgl upon completion.	4.00	36.04		Light grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.	
4								End of Borehole at 4.00m	
5									
6									
7									
8									
9									
10									
Remarks: Borehole for environmental purposes only.									

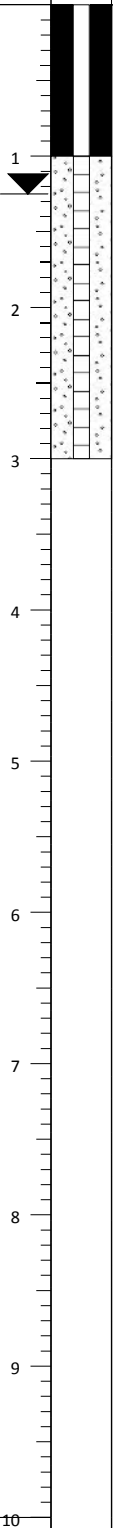
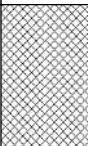
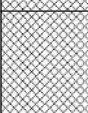
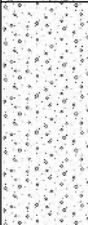
		Borehole Log				Borehole No. RWS_607 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470097.00 - 170268.00		Hole Type WS		
Location: Green Park Village, Reading				Level: 40.35		Scale 1:50		
Client: St Edward Homes				Dates: 22/03/2017		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
1				Hand dug pit to 1.2mbgl.				MADE GROUND: Engineered Fill. Dark brown gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and occasional flint.
		1.45	ES		1.30	39.05		
		1.70	ES		1.40	38.95		MADE GROUND: Light yellowish brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded flint and rare brick.
2				Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-4.1mbgl.	1.65	38.70		MADE GROUND: Dark greenish grey silty CLAY with rare tarmac gravel.
		2.40	ES					MADE GROUND: Light brown mottled green sandy CLAY with occasional fine to medium subangular to subrounded brick and flint gravel. Sand is fine to medium.
3		2.95	ES		2.85	37.50		Light grey mottled black SILT.
		3.50	ES		2.90	37.45		Black / dark grey peaty CLAY.
4				Borehole terminated upon experiencing blowing sands. Borehole collapsed back to 4.1mbgl upon completion.	3.35	37.00		Grey sandy GRAVEL. Gravel is fine to medium subangular to subrounded flint.
5					5.00	35.35		End of Borehole at 5.00m
6								
7								
8								
9								
10								
Remarks: Borehole for environmental purposes only.								

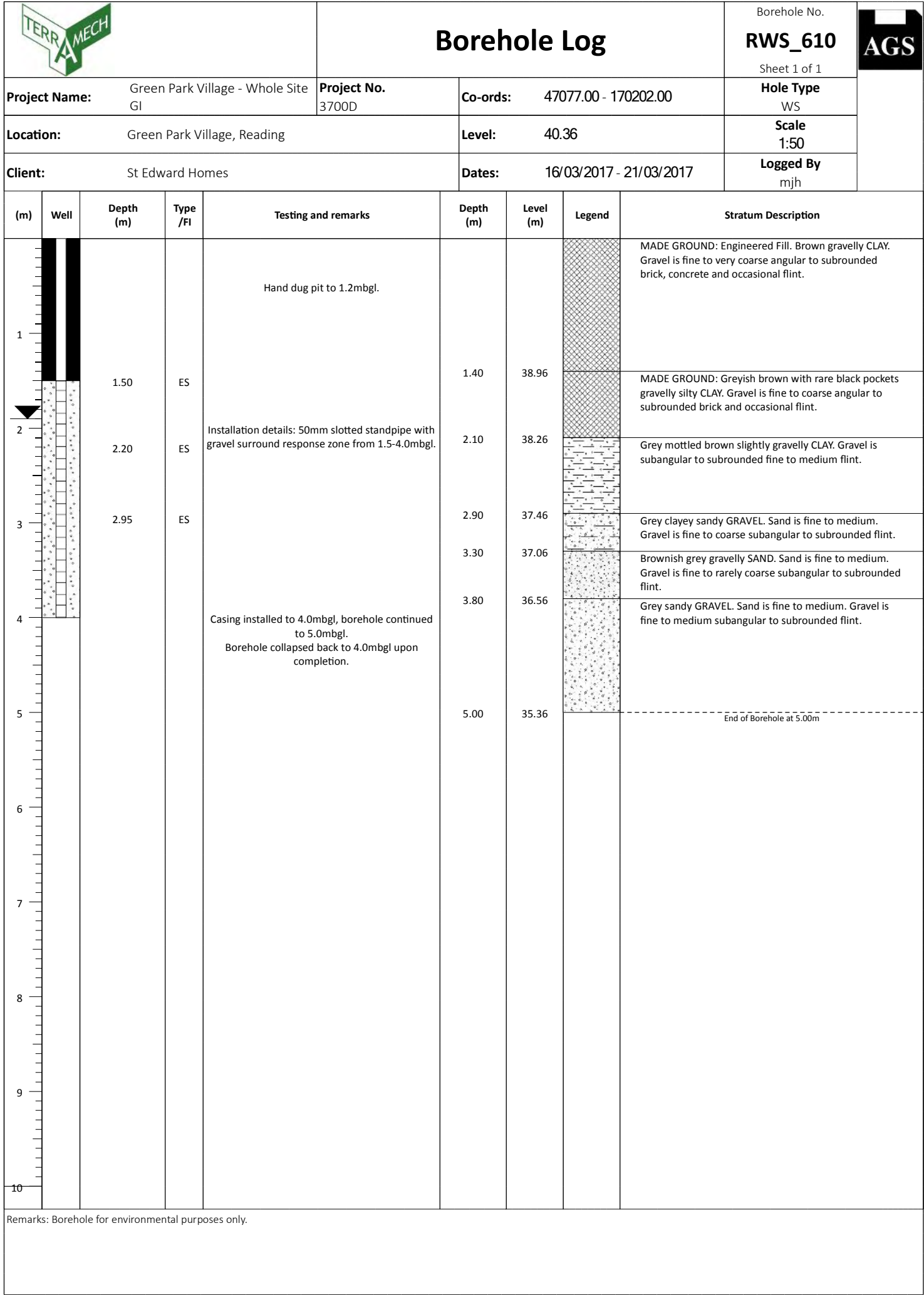
				Borehole Log				Borehole No. RWS_608 Sheet 1 of 1		
Project Name:		Green Park Village - Whole Site GI		Project No.		3700D		Co-ords:		Hole Type WS
Location:		Green Park Village, Reading		Level:				Scale 1:50		
Client:		St Edward Homes		Dates:		16/03/2017		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description		
1				Borehole terminated at 0.6mbgl due to encountering pea shingle.	0.50			MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to coarse angular to subrounded brick and concrete.		
					0.60			MADE GROUND: Pea shingle. ----- End of Borehole at 0.60m		
2										
3										
4										
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Remarks: Borehole for environmental purposes only.										

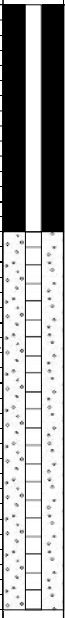
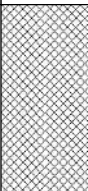
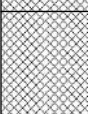
		Borehole Log				Borehole No. RWS_608a		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470129.00 - 170252.00		Sheet 1 of 1 Hole Type WS		
Location: Green Park Village, Reading				Level: 39.90		Scale 1:50		
Client: St Edward Homes				Dates: 21/03/2017		Logged By		

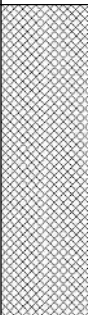
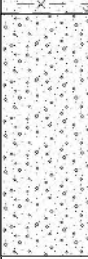
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
		0.70	ES	Hand dug pit to 1.2mbgl	0.60	39.30		MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to coarse, angular to subrounded brick concrete and occasional flint.	
	1	1.20	ES		1.10	38.80		MADE GROUND: Engineered Fill. Dark brown brownish grey gravelly CLAY. Gravel is fine to very coarse angular to subrounded brick, concrete, tarmac and occasional flint.	
								MADE GROUND: Engineered Fill. Light brown mottled light grey slightly gravelly silty CLAY. Gravel is fine to medium subrounded brick and rare concrete and flint.	
	2	2.00	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-4.0mbgl.	1.90	38.00		MADE GROUND: Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint, fine subrounded to rounded brick and rare glass.	
		2.70	ES		2.40	37.50		MADE GROUND: Dark greenish black slightly gravelly CLAY. Gravel is fine to medium subrounded flint. Organic material resembling hay/grass throughout.	
	3	3.10	ES		2.65	37.25		Light grey mottled greenish grey clayey SILT with frequent shell fragments. Light grey CLAY.	
					2.90	37.00			
		3.60	ES		3.40	36.50		Dark grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.	
	4			Casing refusal at 4.0mbgl, borehole taken to 5.0mbgl. Borehole collapsed back to 4.0mbgl upon completion.					
	5				5.00	34.90			End of Borehole at 5.00m
6									
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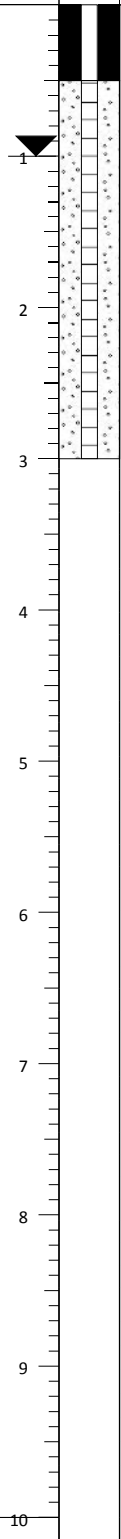
Remarks: Borehole for environmental purposes only.

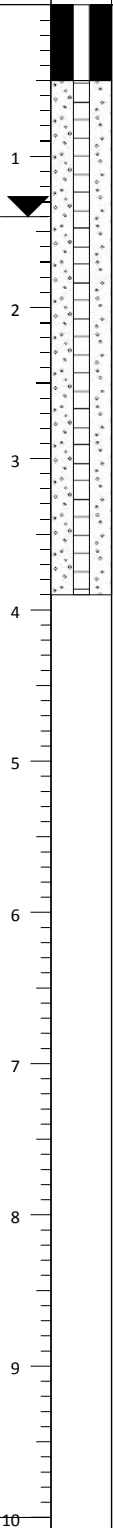
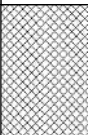
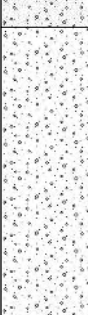
		Borehole Log				Borehole No. RWS_609 Sheet 1 of 1			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470147.00 - 170242.00		Hole Type WS			
Location: Green Park Village, Reading				Level: 40.22		Scale 1:50			
Client: St Edward Homes				Dates: 22/03/2017		Logged By mjh			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
				Hand dug pit to 1.2mbgl.	1.00	39.22		MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded brick, concrete and flint.	
		1.10	ES					MADE GROUND: Greyish brown mottled light grey gravelly sandy CLAY with pockets of CLAY. Sand is fine to medium. Gravel is fine to coarse angular to subangular brick, concrete, flint and rare plastic.	
		1.80	ES			1.70	38.52		MADE GROUND: Grey slightly gravelly clayey SAND. Sand is fine to medium. Gravel is fine to medium subangular to subrounded brick.
		2.20	ES		Installation details: 50mm slotted standpipe with gravel surround response zone from 1.0-3.0mbgl.	2.10	38.12		Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint.
		2.60	ES			2.50	37.72		Light grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.
				Casing installed to 4.0mbgl, blowback to 3.0mbgl. Borehole terminated upon experiencing blowing sands.	4.00	36.22		End of Borehole at 4.00m	
Remarks: Borehole for environmental purposes only.									

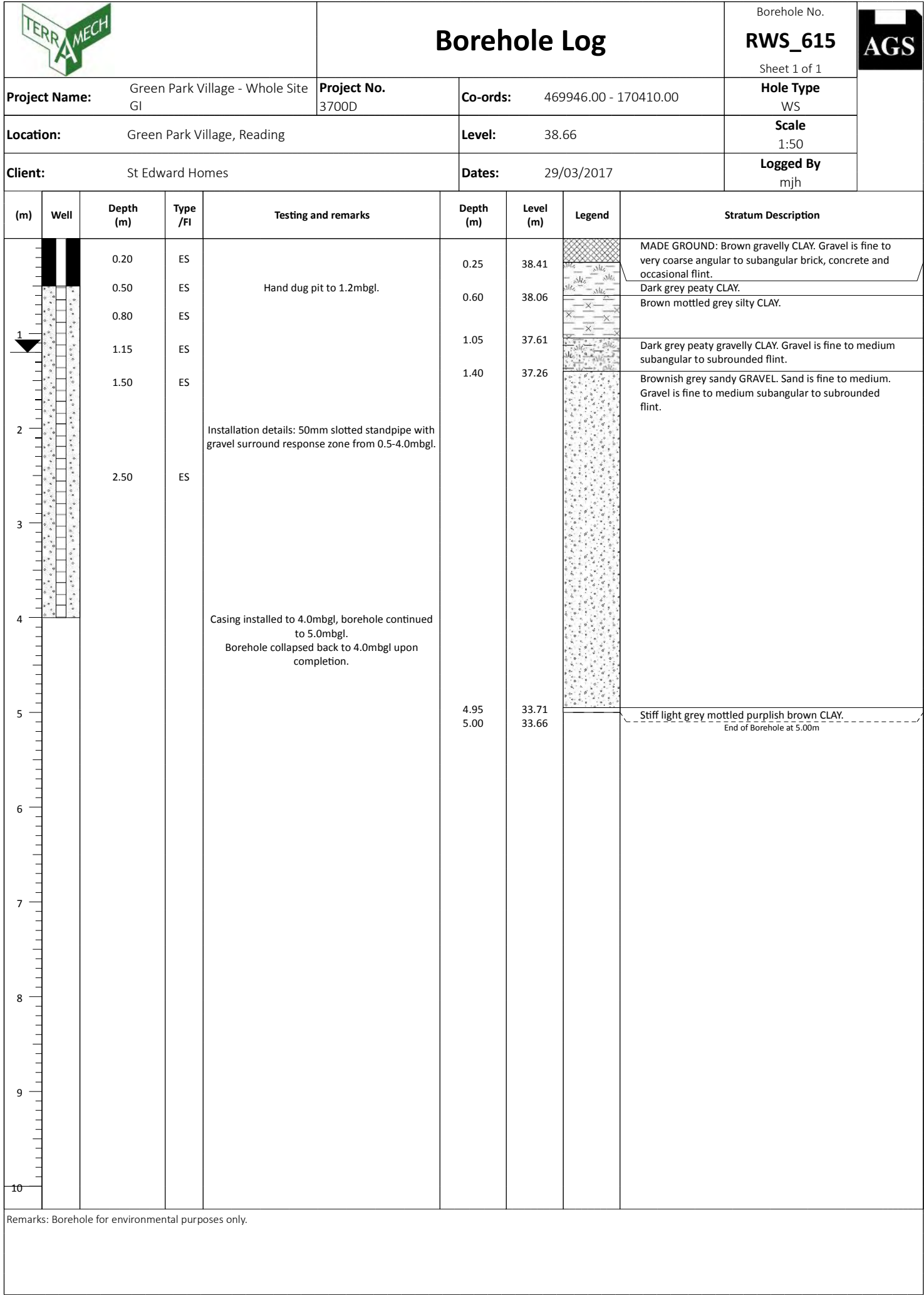


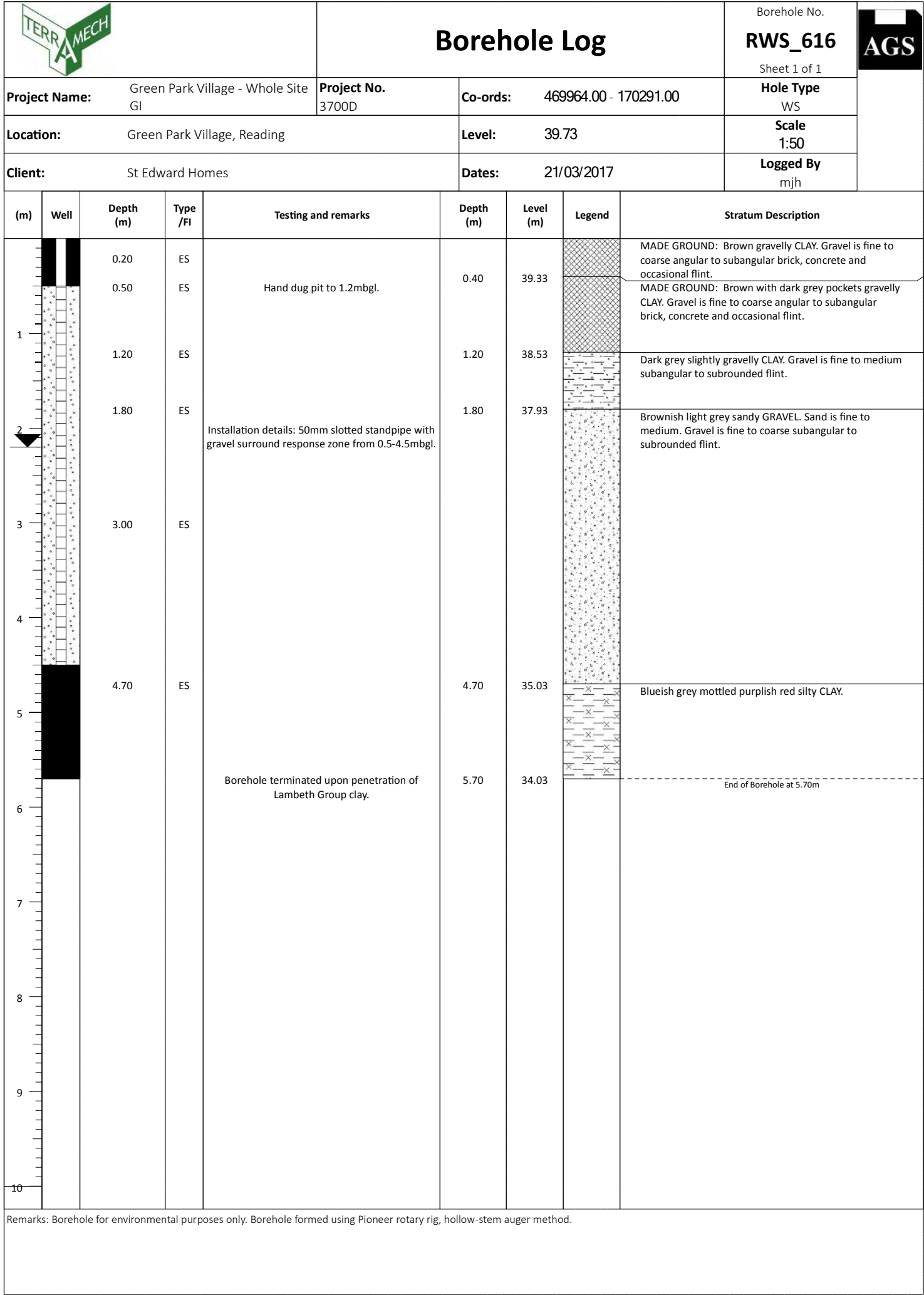
		Borehole Log				Borehole No. RWS_611		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470130.00 - 170389.00		Sheet 1 of 1		
Location: Green Park Village, Reading		Level: 40.00		Hole Type WS				
Client: St Edward Homes		Dates: 27/03/2017		Scale 1:50		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
1		1.40	ES	Hand dug pit to 1.2mbgl.	1.30	38.70		MADE GROUND: Engineered Fill. Brown slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded brick, concrete and rare flint.
2		2.10	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-4.0mbgl.	2.00	38.00		MADE GROUND: Brown mottled orange brown silty CLAY with rare gravel of fine to coarse angular to subrounded brick, concrete and plastic.
		2.40	ES		2.35	37.65		MADE GROUND: Dark grey slightly mottled brown slightly gravelly CLAY. Gravel is fine to medium subrounded flint and rare brick.
		2.65	ES		2.65	37.35		Dark grey gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint.
3								
4				Casing installed to 4.0mbgl, borehole continued to 5.0mbgl. Borehole collapsed back to 4.0mbgl upon completion.				
5					5.00	35.00		End of Borehole at 5.00m
6								
7								
8								
9								
10								
Remarks: Borehole for environmental purposes only.								

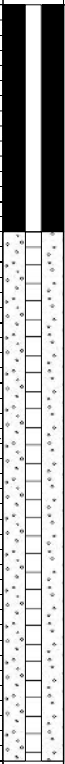
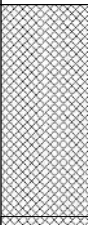
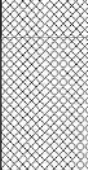
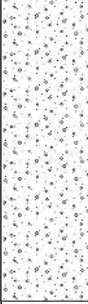
		Borehole Log				Borehole No. RWS_612		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470073.00 - 170309.00		Sheet 1 of 1		
Location: Green Park Village, Reading		Level: 40.27		Hole Type WS				
Client: St Edward Homes		Dates: 28/03/2017		Scale 1:50		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
1				Hand dug pit to 1.2mbgl.				MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to coarse angular to subangular brick, concrete and flint.
2		2.20	ES		2.10	38.17		MADE GROUND: Grey gravelly CLAY. Gravel is fine to very coarse angular to subrounded brick and concrete.
		2.70	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 2.0-4.0mbgl.	2.65	37.62		Dark grey peaty CLAY with occasional fine to medium subrounded flint gravel.
3		3.00	ES		2.95	37.32		Grey sandy silty CLAY / clayey silty SAND. Sand is fine to medium.
		3.60	ES	Root bundle / organic material at 3.5mbgl.	3.40	36.87		Brown sandy GRAVEL, becoming very sandy GRAVEL. Sand is fine to medium. Gravel is fine rarely coarse subangular to subrounded flint.
4				Casing installed to 4.0mbgl, borehole taken to 5.0mbgl. Borehole collapsed back to 4.0mbgl upon completion.				
5					5.00	35.27		End of Borehole at 5.00m
6								
7								
8								
9								
10								
Remarks: Borehole for environmental purposes only.								

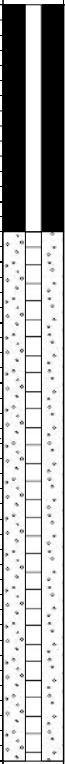
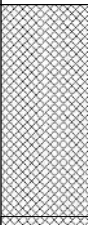
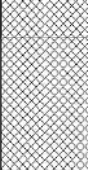
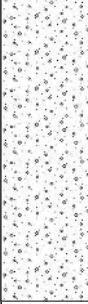
		Borehole Log				Borehole No. RWS_613 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470010.00 - 170362.00		Hole Type WS		
Location: Green Park Village, Reading				Level: 38.17		Scale 1:50		
Client: St Edward Homes				Dates: 28/03/2017		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
		1.30	ES	Hand dug pit to 1.2mbgl.	0.20	37.97		MADE GROUND: Brownish black gravelly CLAY. Gravel is fine to medium subangular to subrounded brick, flint and lithics.
								MADE GROUND: Dark brown clayey GRAVEL. Gravel is fine to rarely coarse angular to subrounded brick and occasional concrete.
				1.00	37.17			Brown gravelly SAND. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.
				2.00	36.17			Grey gravelly SAND. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.
				2.50	35.67			Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.
3				Borehole terminated upon experiencing blowing sands.	3.00	35.17		End of Borehole at 3.00m
4								
5								
6								
7								
8								
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Remarks: Borehole for environmental purposes only.								

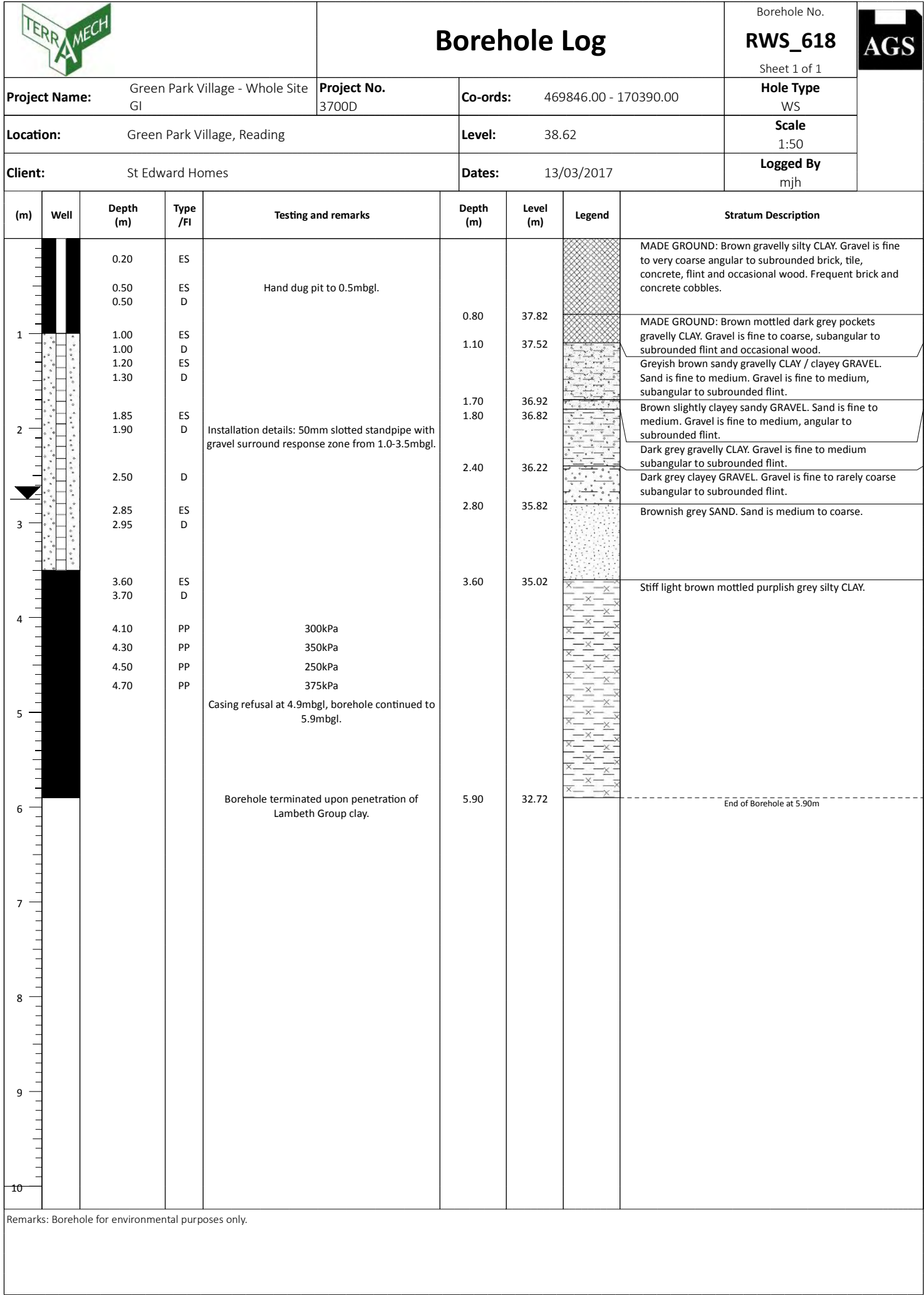
		Borehole Log				Borehole No. RWS_614 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470022.00 - 170284.00		Hole Type WS		
Location: Green Park Village, Reading				Level: 38.61		Scale 1:50		
Client: St Edward Homes				Dates: 28/04/2017		Logged By mjh		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	ES	Hand dug pit to 1.2mbgl.				MADE GROUND: Dark brown gravelly CLAY with orange brown clay pockets. Gravel is fine to very coarse angular to subangular concrete and brick.
	1	1.00	ES		0.90	37.70		Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint.
		1.30	ES		1.20	37.40		Grey very sandy GRAVEL / very gravelly SAND. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.
	2	1.85	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 0.5-4.0mbgl.	1.80	36.80		Dark brown sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.
			2.00		36.60	Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.		
	4	4.10	ES	Casing installed to 4.0mbgl, borehole continued to 5.0mbgl. Borehole collapsed back to 4.0mbgl upon completion.	3.95	34.66		Stiff light greenish grey mottled brown clayey sandy SILT. Sand is fine to medium.
	5				5.00	33.60	End of Borehole at 5.00m	
	6							
	7							
	8							
9								
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Remarks: Borehole for environmental purposes only.								

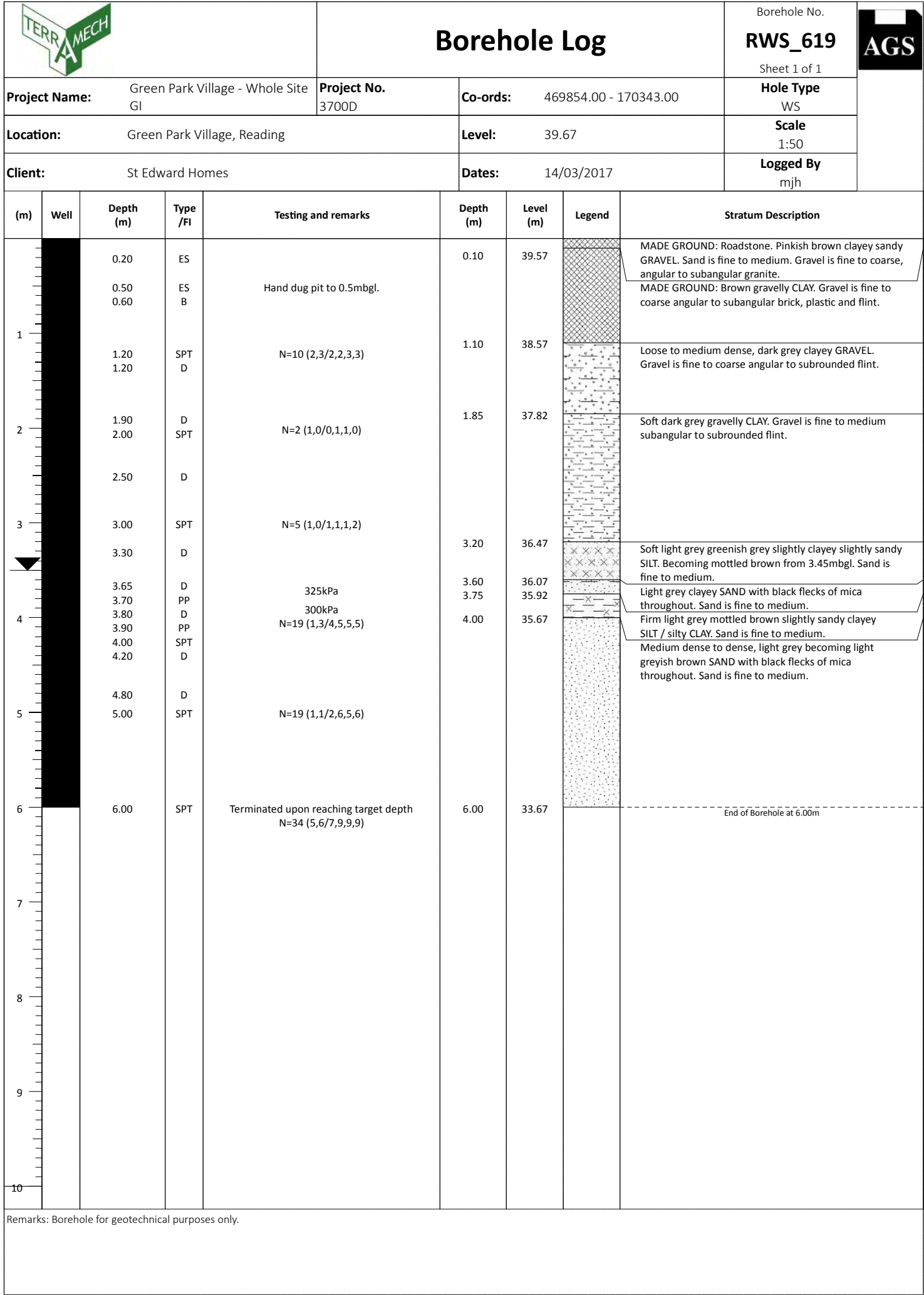


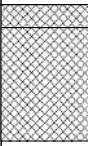


		Borehole Log				Borehole No. RWS_617 Sheet 1 of 1			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469897.00 - 170335.00		Hole Type WS			
Location: Green Park Village, Reading				Level: 40.40		Scale 1:50			
Client: St Edward Homes				Dates: 20/03/2017		Logged By mjh			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1				Hand dug pit to 1.2mbgl.				MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to very coarse subangular to subrounded brick and concrete.	
2						1.70	38.70		MADE GROUND: Dark grey mottled light grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, wood, concrete and flint.
		2.70 - 2.90	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-5.0mbgl.	2.60	37.80		Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint.	
3		3.30 - 3.50	ES		3.00	37.40		Grey gravelly sand / sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded.	
4									
5				Casing installed to 5.0mbgl.	5.00	35.40		End of Borehole at 5.00m	
6									
7									
8									
9									
10									
Remarks: Borehole for environmental purposes only.									

		Borehole Log				Borehole No. RWS_617 Sheet 1 of 1			
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469897.00 - 170335.00		Hole Type WS			
Location: Green Park Village, Reading				Level: 40.40		Scale 1:50			
Client: St Edward Homes				Dates: 20/03/2017		Logged By mjh			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1				Hand dug pit to 1.2mbgl.				MADE GROUND: Engineered Fill. Brown gravelly CLAY. Gravel is fine to very coarse subangular to subrounded brick and concrete.	
2						1.70	38.70		MADE GROUND: Dark grey mottled light grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, wood, concrete and flint.
		2.70 - 2.90	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 1.5-5.0mbgl.	2.60	37.80		Dark grey gravelly peaty CLAY. Gravel is fine to medium subangular to subrounded flint.	
3		3.30 - 3.50	ES		3.00	37.40		Grey gravelly sand / sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded.	
4									
5				Casing installed to 5.0mbgl.	5.00	35.40		End of Borehole at 5.00m	
6									
7									
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9									
10									
Remarks: Borehole for environmental purposes only.									





				Borehole Log				Borehole No. RWS_620 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469854.00 - 170286.00		Hole Type WS		
Location: Green Park Village, Reading				Level: 40.30		Scale 1:50		Logged By mjh		
Client: St Edward Homes				Dates: 14/03/2017						
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description		
1		0.20	ES	Hand dug pit to 0.9mbgl. Terminated upon obstruction in ground.	0.15	40.15		MADE GROUND: Compacted roadstone. Pinkish clayey sandy GRAVEL. Sand is medium to coarse. Gravel is fine to coarse angular to subangular granite.		
		0.50	ES		MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint.					
		End of Borehole at 0.90m								
2										
3										
4										
5										
6										
7										
8										
9										
10										
Remarks: Borehole for geotechnical purposes only.										

				Borehole Log			Borehole No. RWS_620a Sheet 1 of 1		
Project Name:		Green Park Village - Whole Site GI		Project No.		3700D		Co-ords:	
Location:		Green Park Village, Reading		Level:				Hole Type WS	
Client:		St Edward Homes		Dates:		14/03/2017		Scale 1:50	
								Logged By	
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1				Hand dug pit to 0.9mbgl. Terminated upon obstruction in ground.	0.15			MADE GROUND: Compacted roadstone. Pinkish clayey sandy GRAVEL. Gravel is fine to coarse angular to subangular granite.	
					0.90			MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint.	
----- End of Borehole at 0.90m -----									
2									
3									
4									
5									
6									
7									
8									
9									
10									
Remarks: Borehole for geotechnical purposes only.									

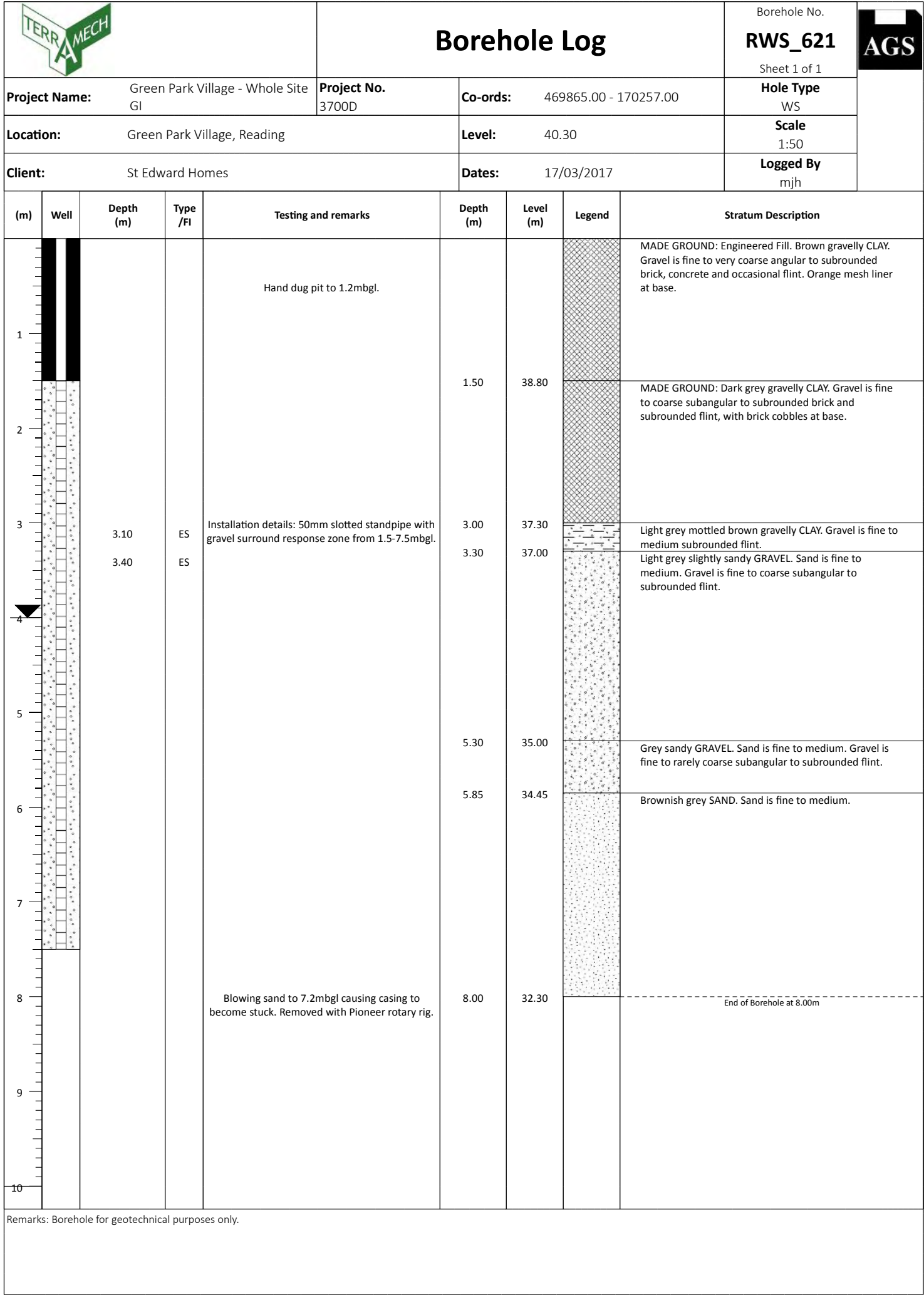
				Borehole Log			Borehole No. RWS_620b Sheet 1 of 1		
Project Name:		Green Park Village - Whole Site GI		Project No.		3700D		Co-ords:	
Location:		Green Park Village, Reading		Level:				Hole Type WS	
Client:		St Edward Homes		Dates:		14/03/2017		Scale 1:50	
								Logged By	
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1				Hand dug pit to 0.9mbgl. Terminated upon obstruction in ground.	0.15			MADE GROUND: Compacted roadstone. Pinkish clayey sandy GRAVEL. Sand is medium to coarse. Gravel is fine to coarse angular to subangular granite.	
					0.90			MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint.	
----- End of Borehole at 0.90m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
Remarks: Borehole for geotechnical purposes only.									

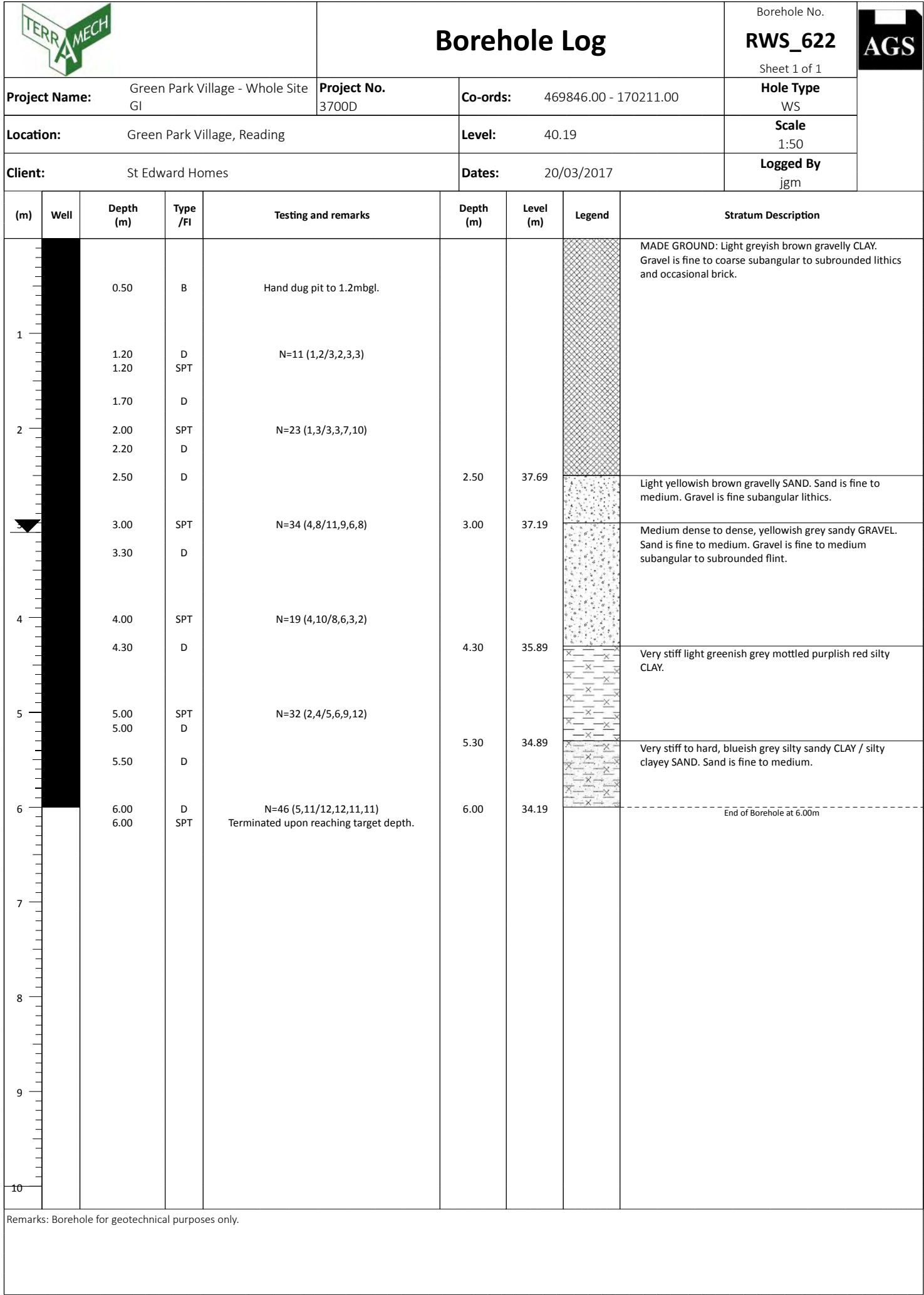
				Borehole Log			Borehole No. RWS_620c Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords:		Hole Type WS	
Location: Green Park Village, Reading				Level:		Scale 1:50			
Client: St Edward Homes				Dates: 15/03/2017		Logged By			
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description	
1				Hand dug pit to 1.05mbgl. Terminated upon obstruction in ground.	0.10			MADE GROUND: Compacted roadstone. Pinkish clayey sandy GRAVEL. Sand is medium to coarse. Gravel is fine to coarse angular to subangular granite.	
					0.40			MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse angular to subrounded brick, concrete and flint.	
					0.60			MADE GROUND: Brown mottled light greenish grey silty CLAY.	
					0.70			MADE GROUND: Brick cobble on west side.	
					1.05			MADE GROUND: Concrete on north side.	
2								End of Borehole at 1.05m	
3									
4									
5									
6									
7									
8									
9									
10									
Remarks: Borehole for geotechnical purposes only.									

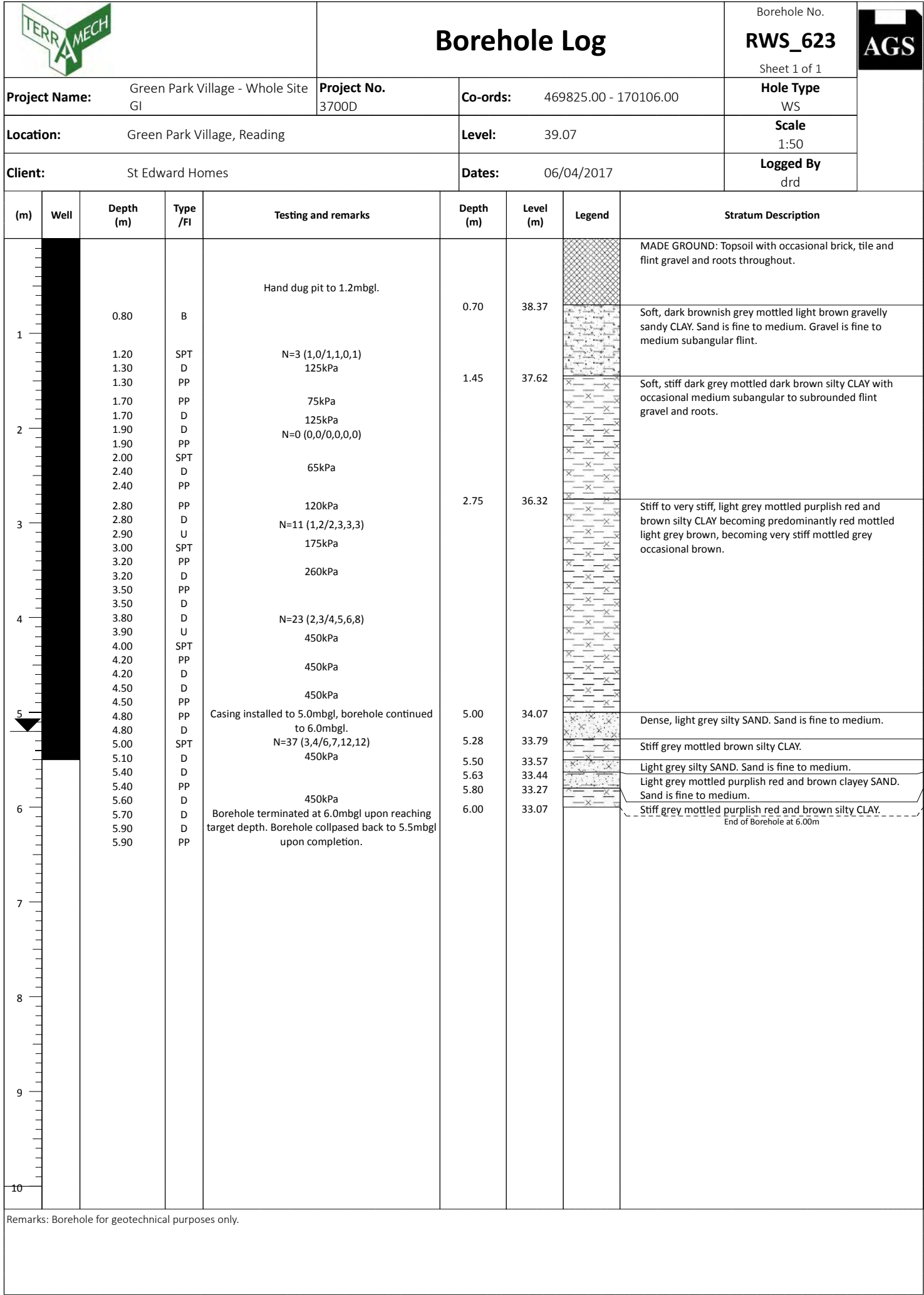
		Borehole Log				Borehole No. RWS_620d		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469854.00 - 170286.00		Hole Type WS		
Location: Green Park Village, Reading				Level: 40.18		Scale 1:50		
Client: St Edward Homes				Dates: 20/03/2017		Logged By		

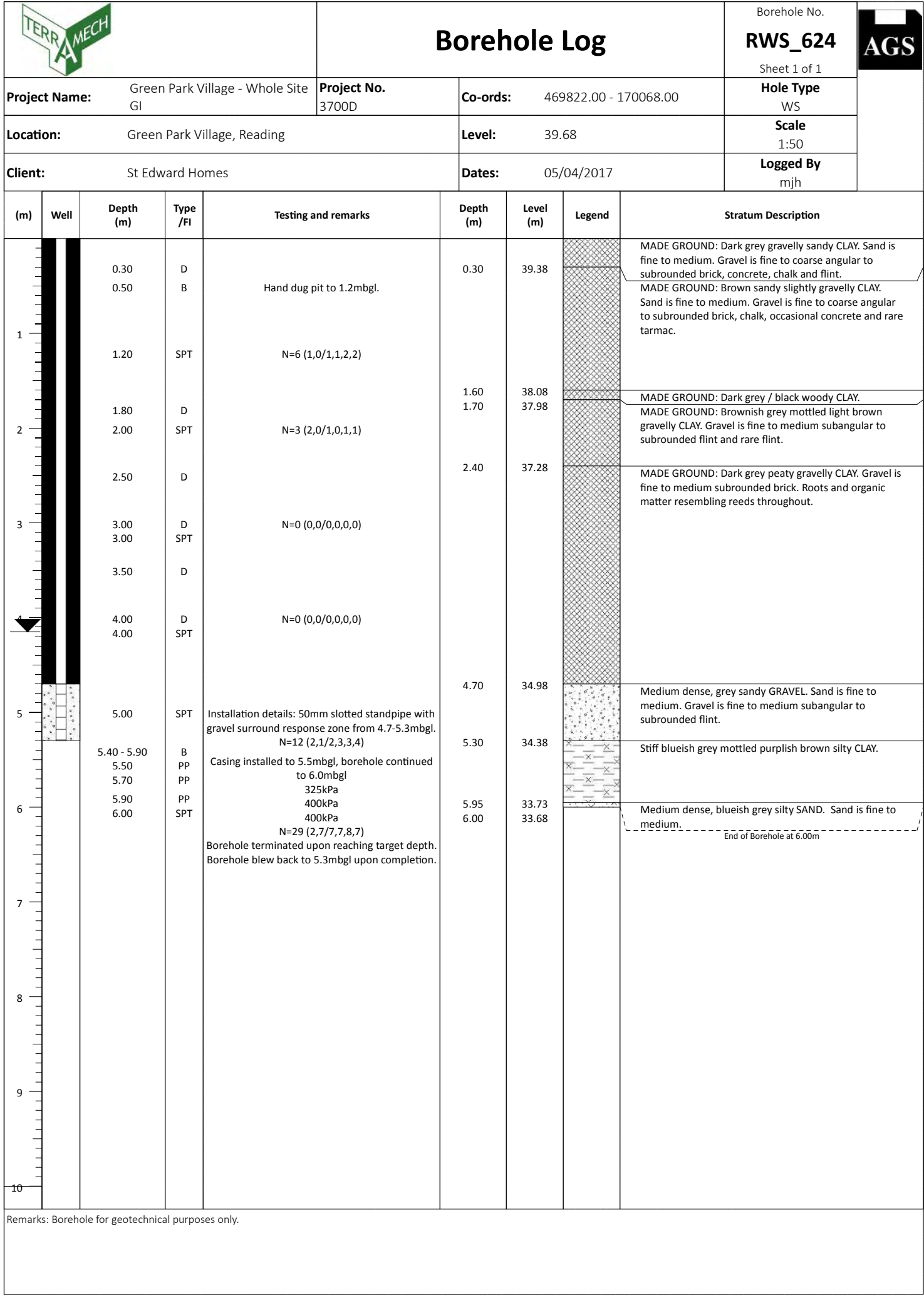
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
				Hand dug pit to 1.2mbgl.				MADE GROUND: Engineered Fill. Dark brown gravelly CLAY. Gravel is fine to very coarse angular to subangular brick and concrete. Orange mesh liner at base.
		1.70 - 2.20	B		1.60	38.58		MADE GROUND: Greyish brown gravelly CLAY. Gravel is fine to very coarse angular to subangular concrete, brick and occasional flint.
		2.50	D		2.30 2.40	37.88 37.78		MADE GROUND: Dark grey slightly gravelly CLAY. Gravel is fine to coarse angular to subangular brick and fine to medium subangular to subrounded flint.
		3.00	D	Installation details: 50mm slotted standpipe with gravel surround response zone from 2.0-5.0mbgl.	2.90	37.28		Dark grey gravelly peaty CLAY. Gravel is fine to rarely coarse subrounded flint.
		3.30	D		3.30	36.88		Light greenish grey gravelly CLAY. Gravel is fine to medium subangular to subrounded flint.
		3.80	D					Light brownish grey slightly sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint.
					5.20	34.98		Light blueish grey silty sandy CLAY / silty clayey SAND. Sand is fine to medium.
					5.70	34.48		End of Borehole at 5.70m

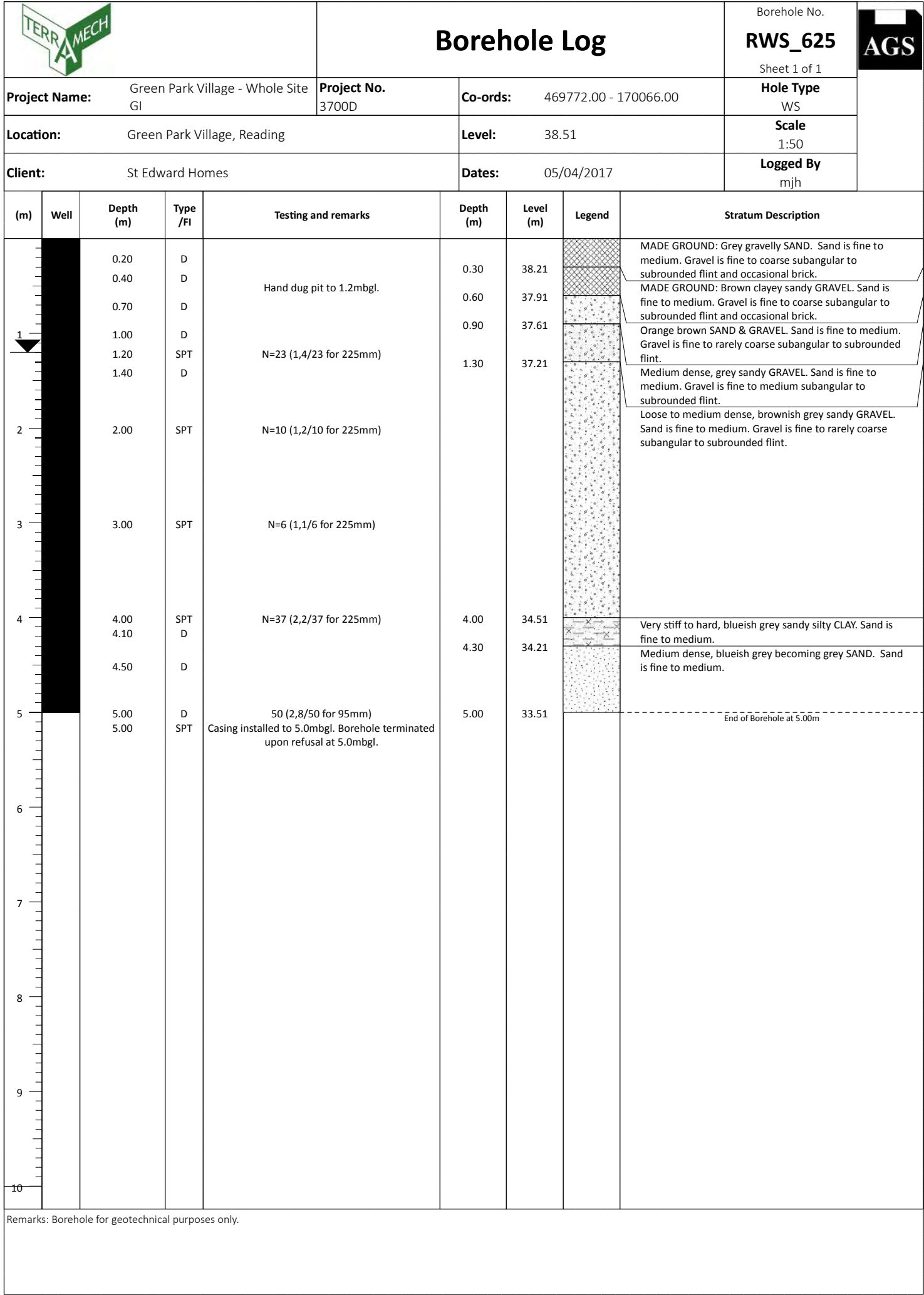
Remarks: Borehole for geotechnical purposes only.

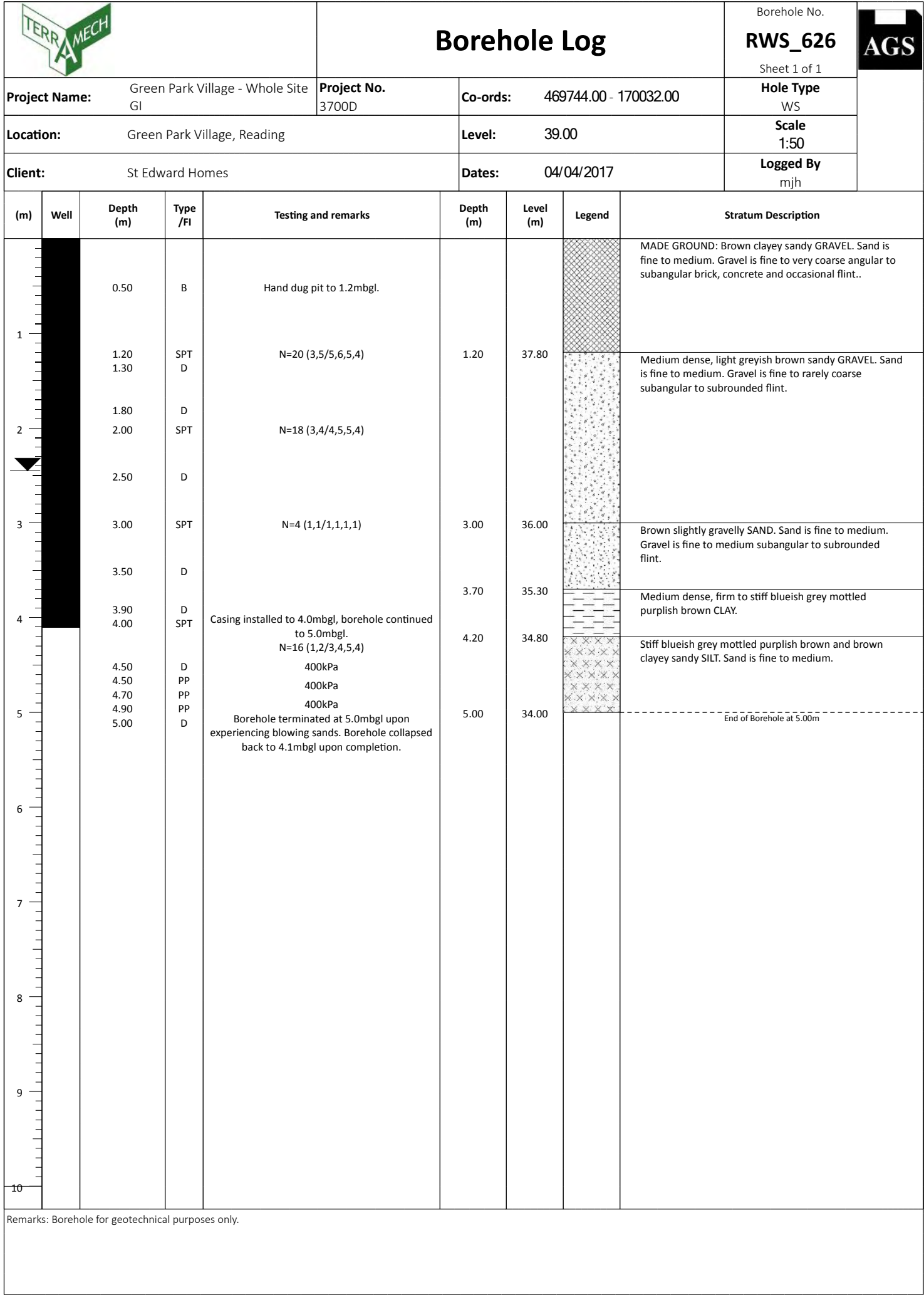


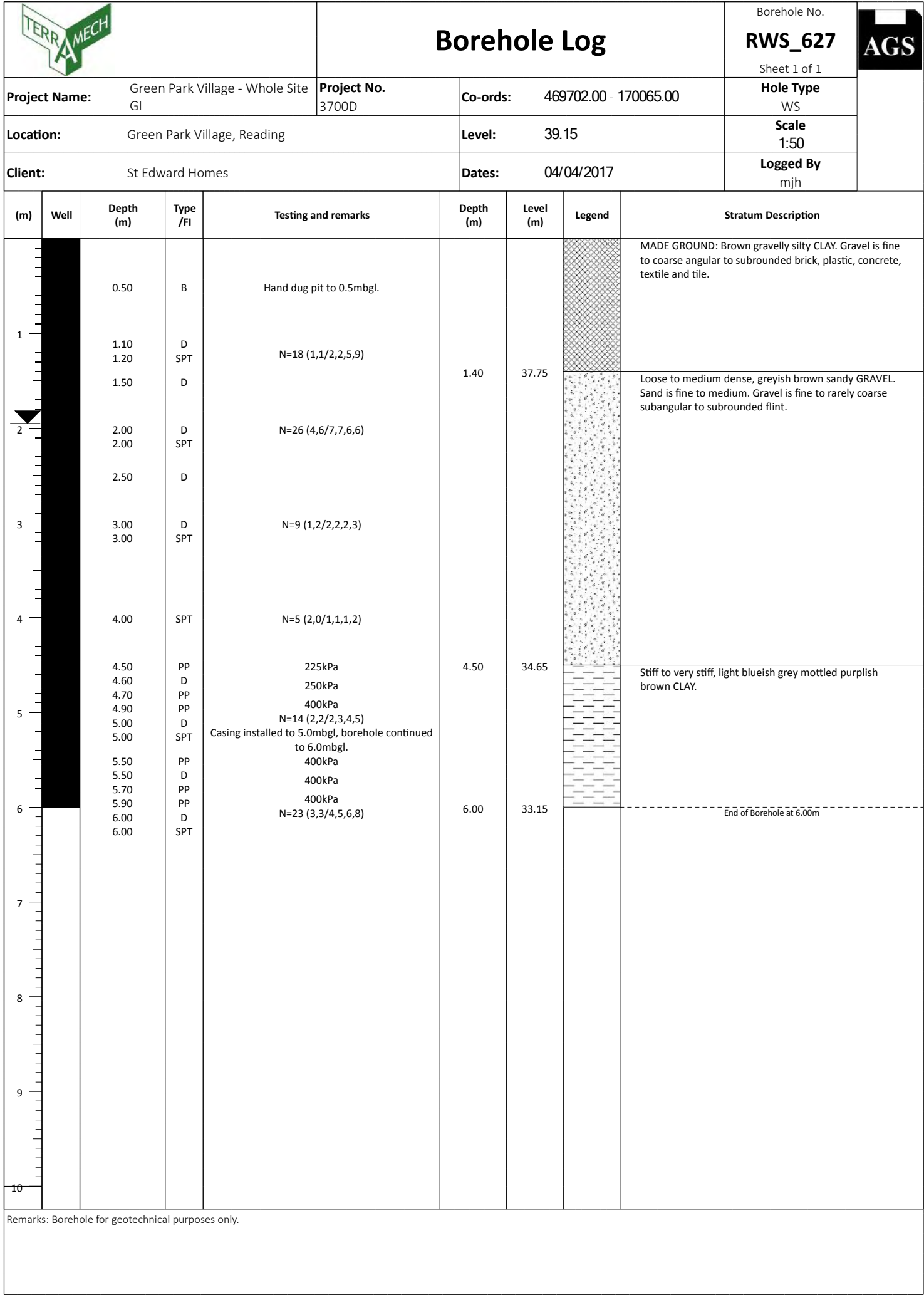


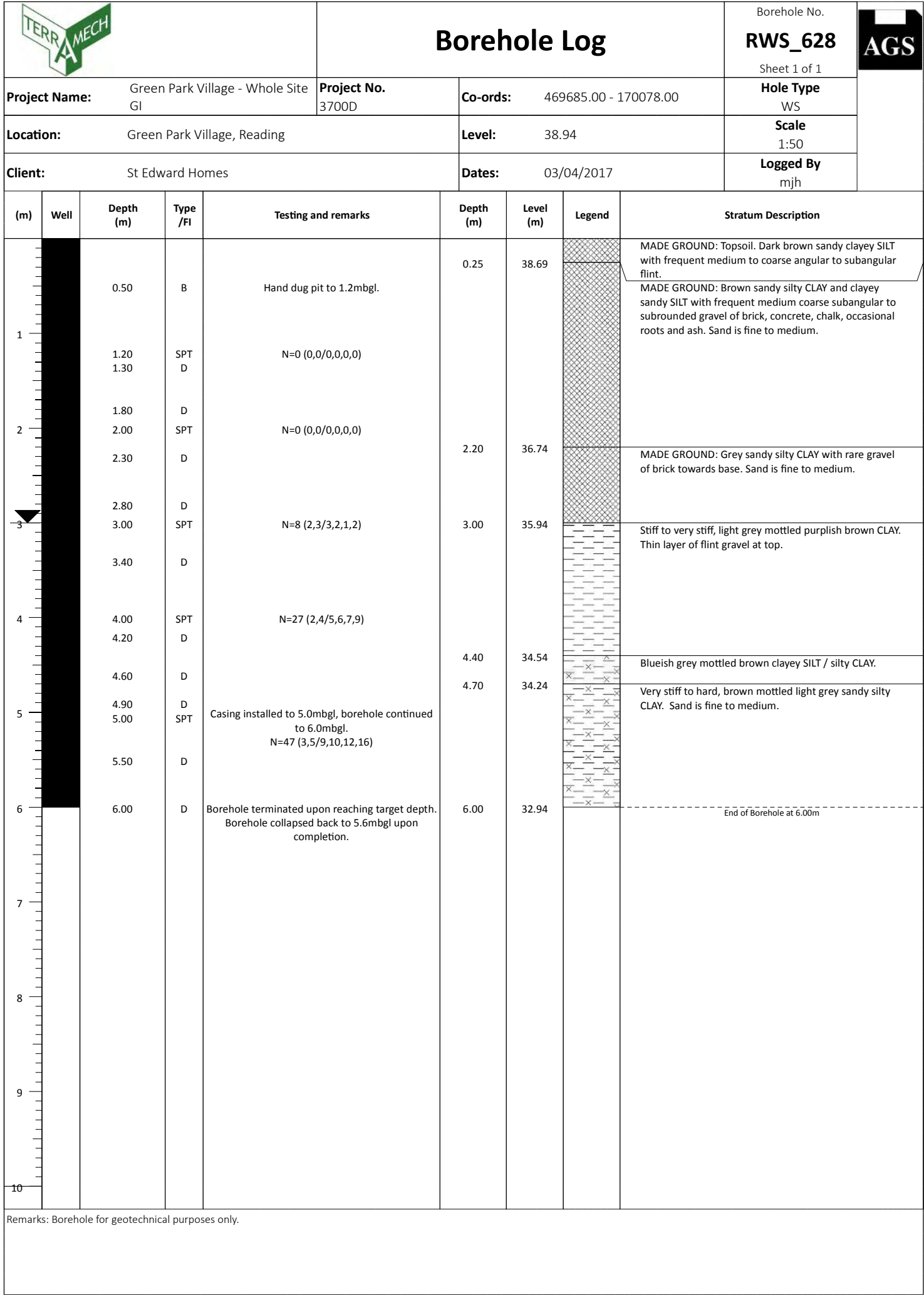


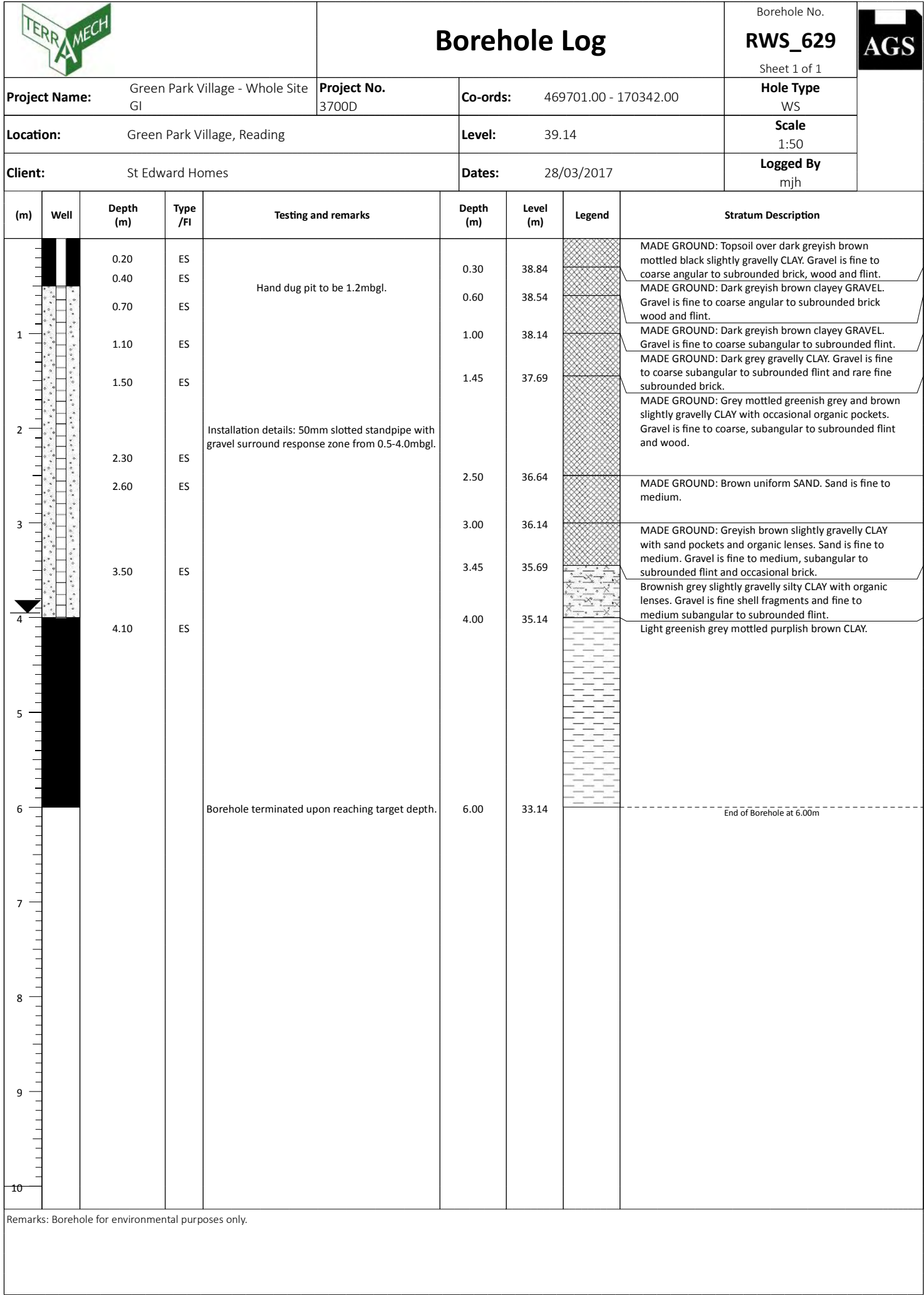


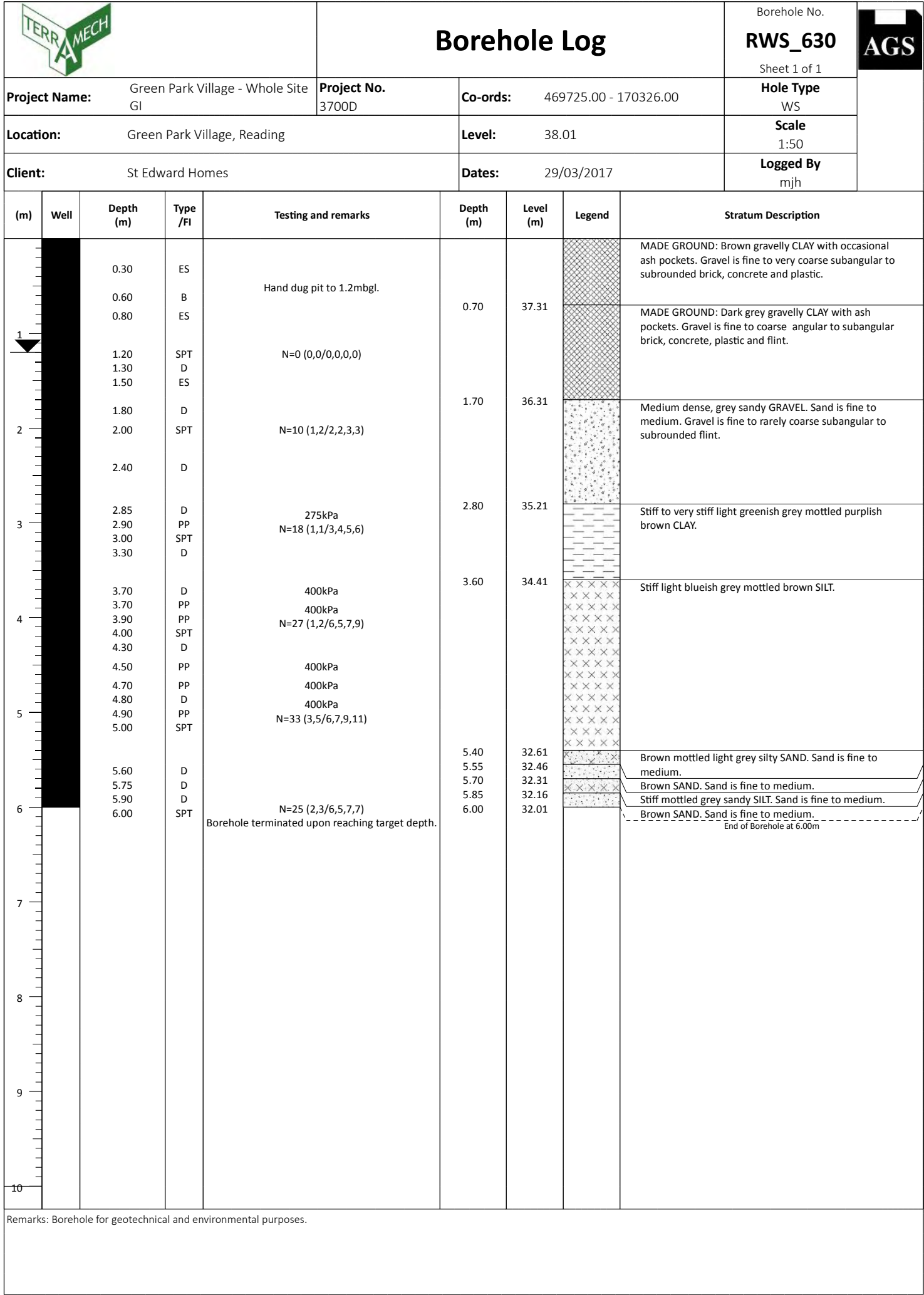


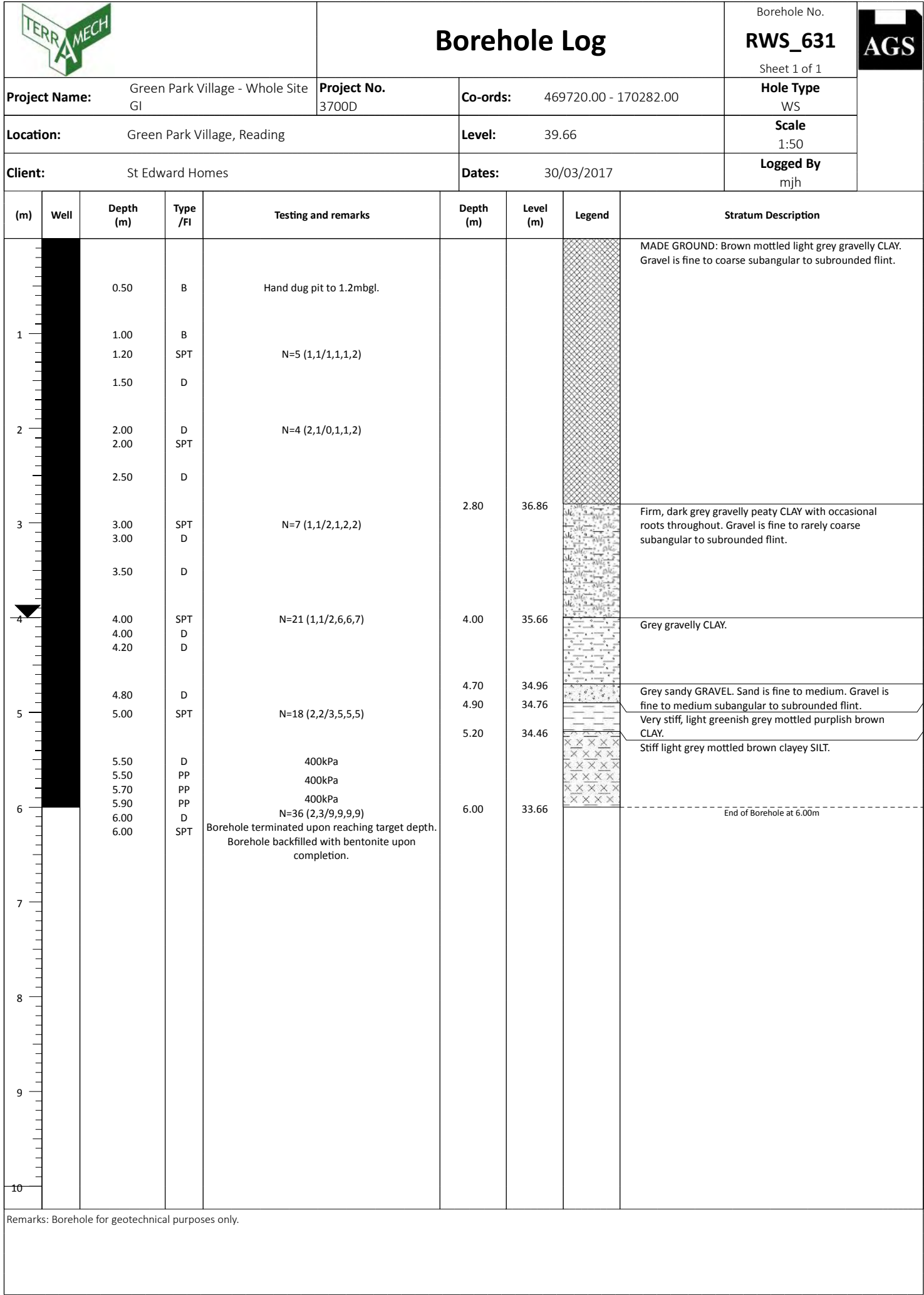


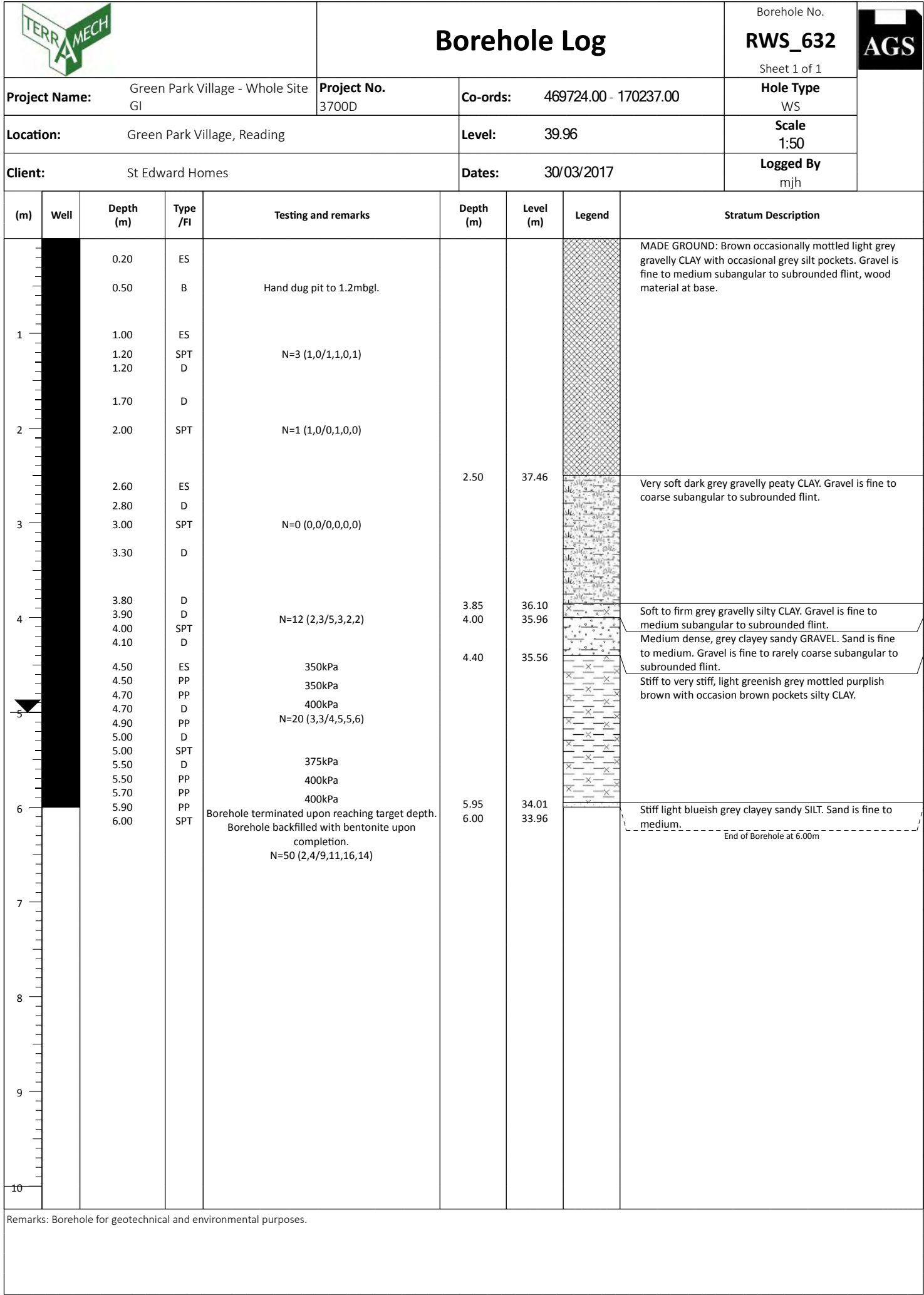


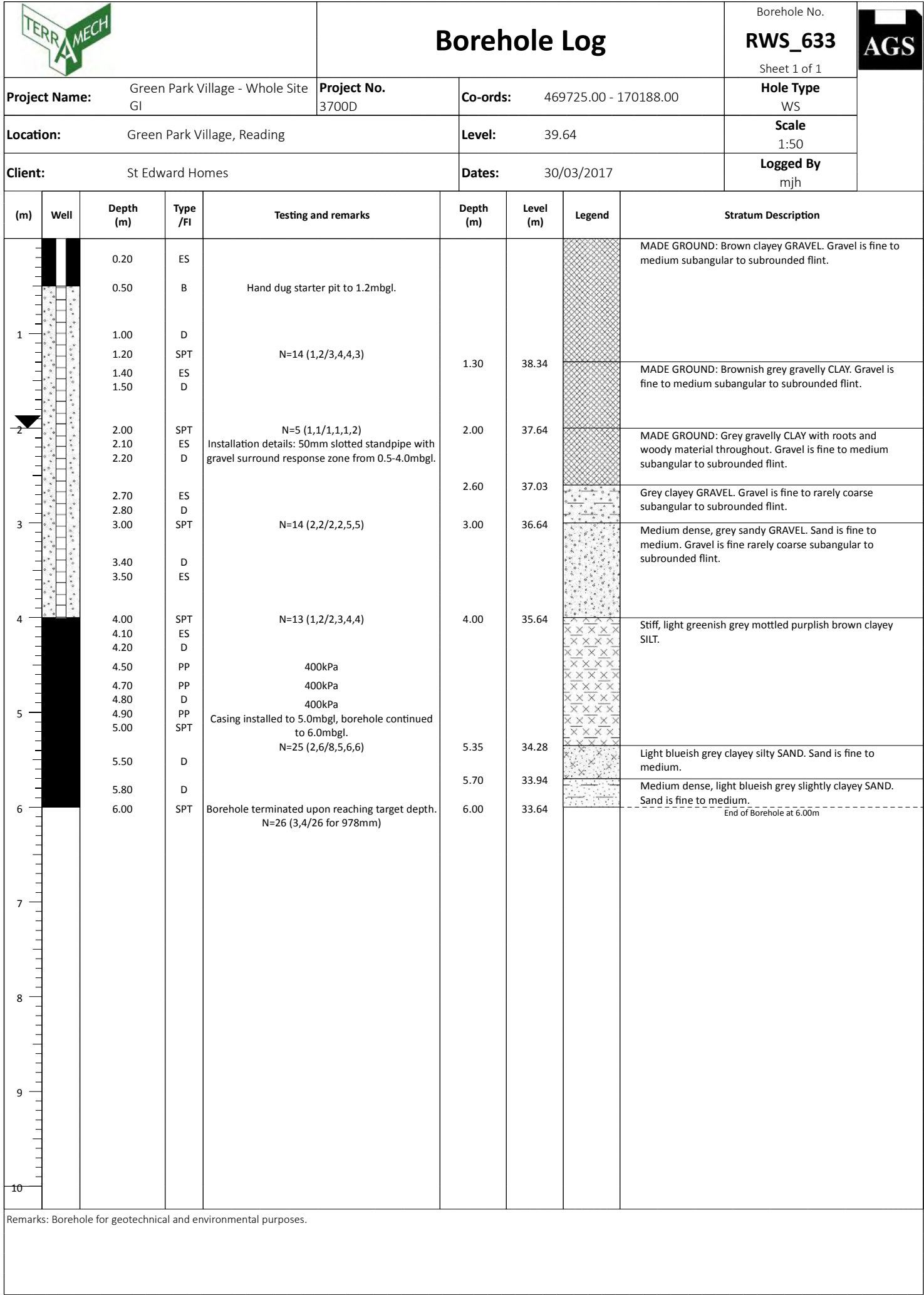


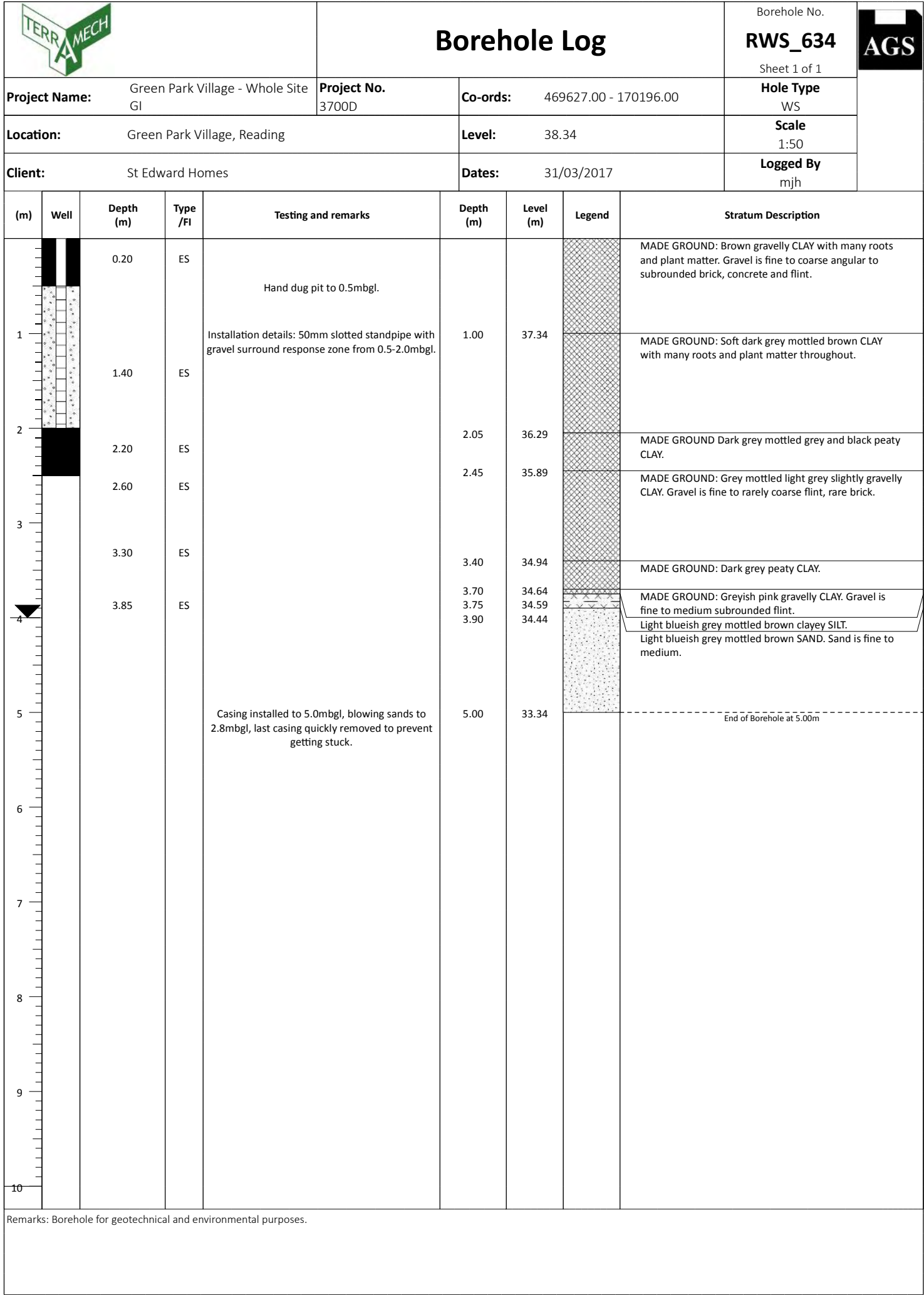


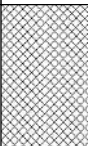
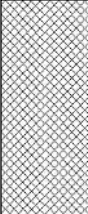
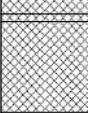
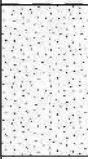


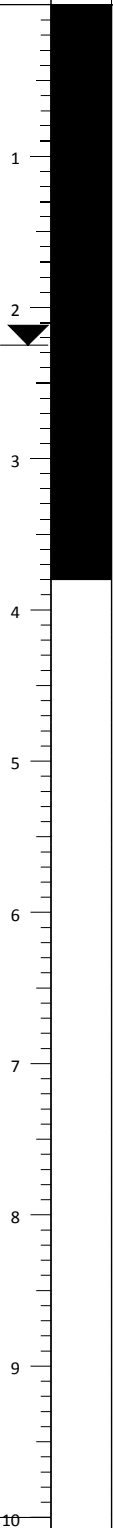
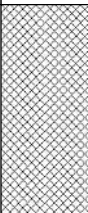
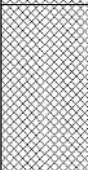
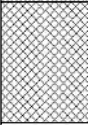




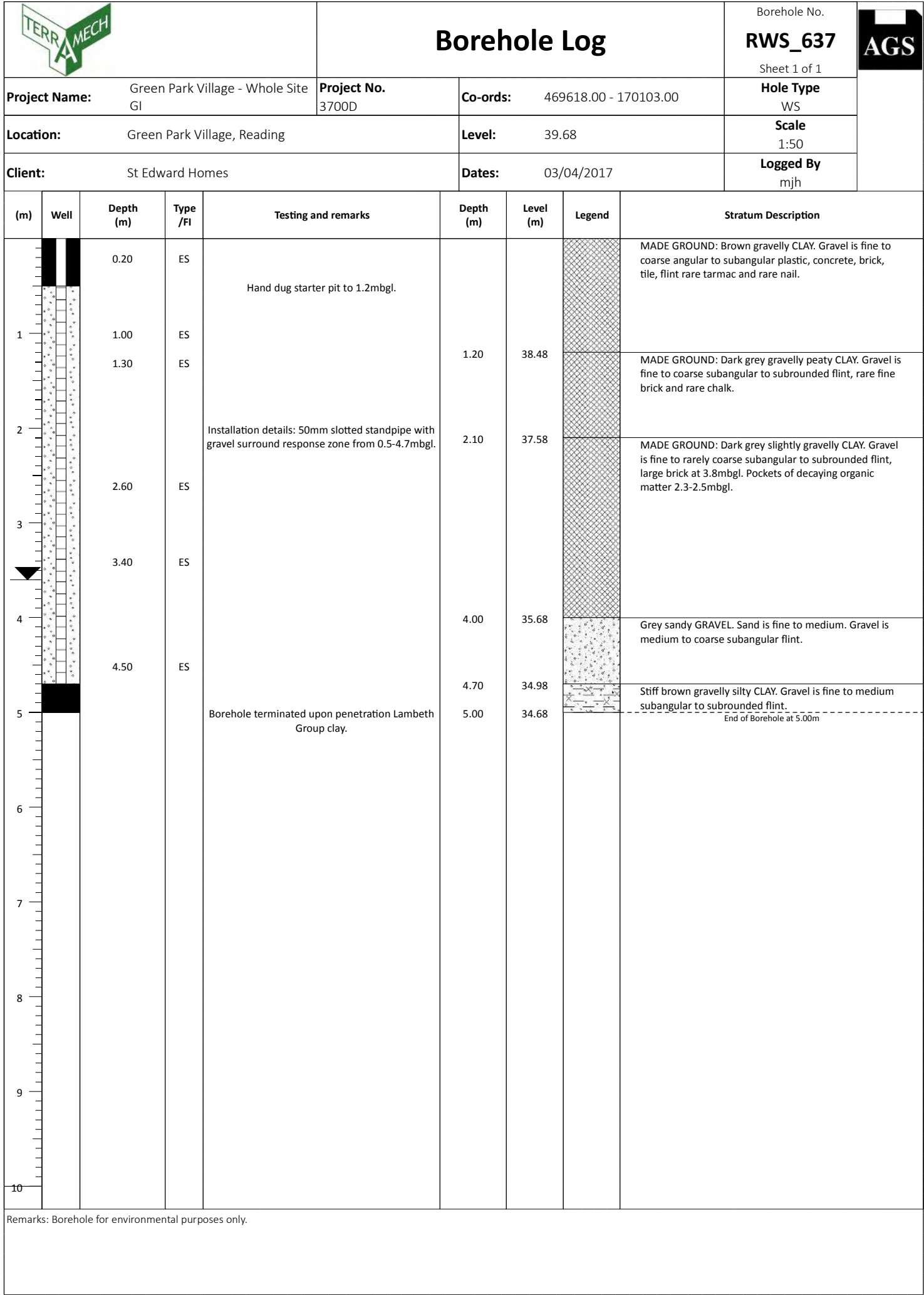


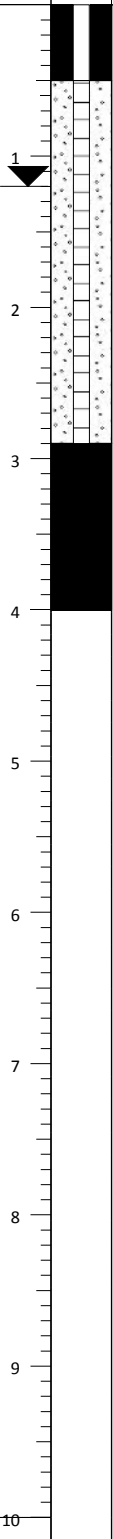
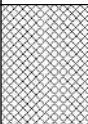
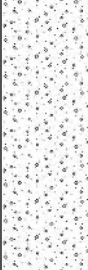


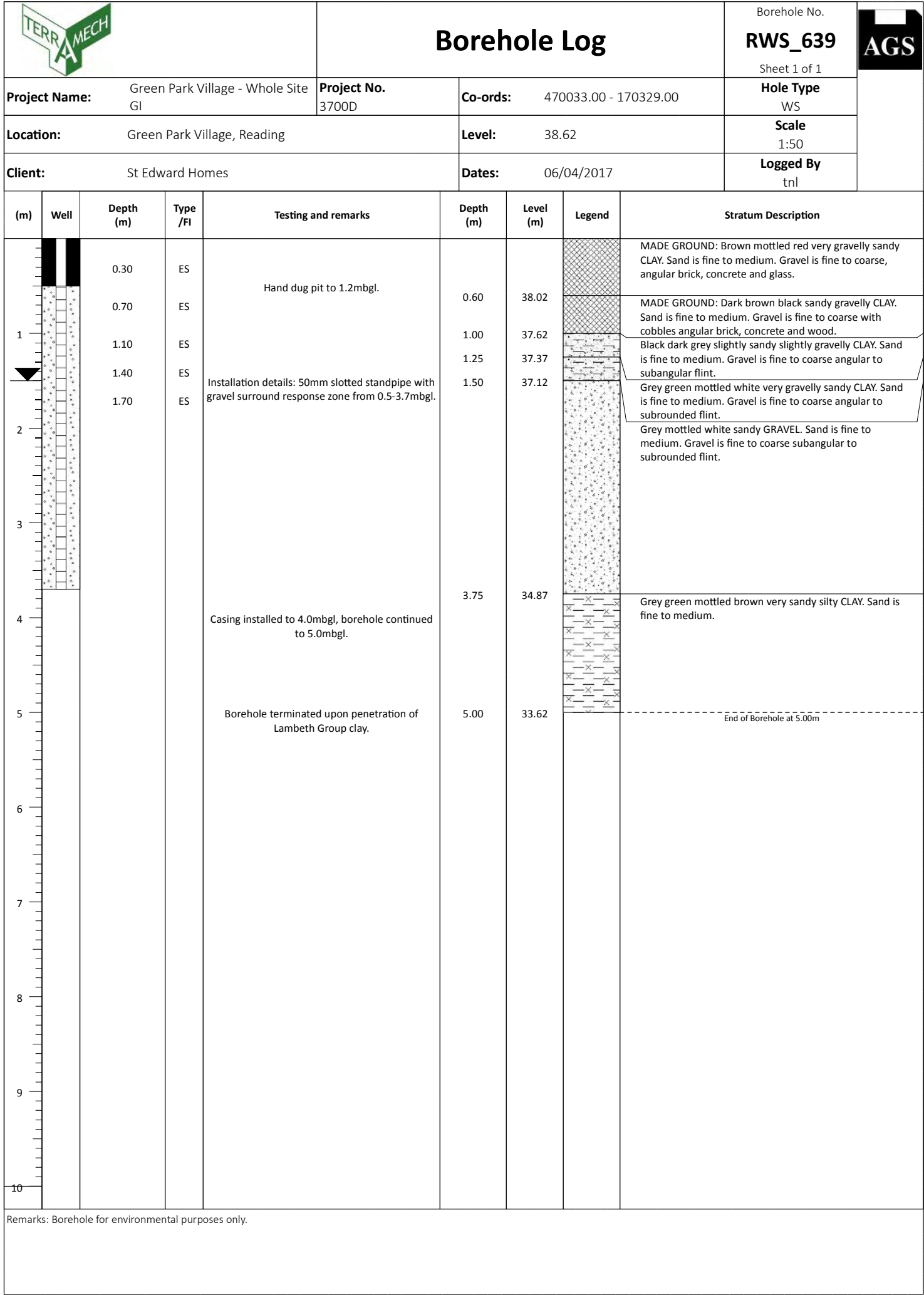
		Borehole Log				Borehole No. RWS_635 Sheet 1 of 1							
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469638.00 - 170153.00		Hole Type WS							
Location: Green Park Village, Reading				Level: 38.90		Scale 1:50							
Client: St Edward Homes				Dates: 31/03/2017		Logged By mjh							
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description					
1		0.50	B	Hand dug pit to 1.2mbgl.				MADE GROUND: Brown gravelly CLAY. Gravel is fine to very coarse brick, fine to medium tile, fine to coarse concrete, rare plastic, rare metal and rare cardboard.					
		0.70	ES										
		1.00	B	N=13 (5,9/7,3,2,1)	1.00	37.90		MADE GROUND: Brown sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium subangular to subrounded flint.					
		1.20	ES										
		1.20	SPT										
		1.30	D										
		2		1.50	D	N=7 (1,1/1,2,2,2)	1.45	37.44		MADE GROUND: Light greenish grey mottled purplish brown CLAY with black peat pockets and occasional fine to medium subrounded flint.			
				1.60	ES								
				2.00	D								
				2.00	SPT								
3		2.50	D	N=18 (2,6/7,6,3,2)	2.95	35.94		MADE GROUND: Dark grey gravelly peaty CLAY. MADE GROUND: Dark grey gravel with wood and one tile. Gravel is fine to medium subrounded flint.					
		3.00	SPT										
		3.50	PP						250kPa	3.60	35.30		Stiff light blueish grey mottled purplish brown CLAY.
		3.70	PP						225kPa				
3.70	D	175kPa											
4		3.90	PP	Casing installed to 4.0mbgl, borehole continued to 5.0mbgl.	4.00	34.90		Medium dense, light grey mottled brown SAND. Sand is fine to medium.					
		4.00	SPT						N=30 (2,5/5,8,8,9)				
		4.20	D										
		4.50 - 5.00	B										
5				Borehole terminated at 5.0mbgl upon encountering blowing sands. Borehole backfilled with bentonite upon completion.	5.00	33.90		End of Borehole at 5.00m					
6													
7													
8													
9													
10													
Remarks: Borehole for geotechnical and environmental purposes.													

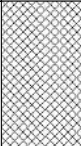
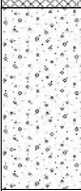
		Borehole Log				Borehole No. RWS_636 Sheet 1 of 1						
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 469637.00 - 170127.00		Hole Type WS						
Location: Green Park Village, Reading				Level: 39.14		Scale 1:50						
Client: St Edward Homes				Dates: 03/04/2017		Logged By mjh						
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description				
1		0.20	ES	Hand dug pit to 1.2mbgl.	1.40	37.74		MADE GROUND: Dark brown to grey gravelly CLAY. Gravel is fine to very coarse brick, concrete, tile, metal and plastic.				
		0.50	B									
		1.00	ES									
		1.20	SPT									
		2		2.00	SPT	N=0 (1,0/0,0,0,0)	2.50	36.64		MADE GROUND: Dark grey gravelly peaty CLAY.		
				2.20	ES							
				2.40	D							
				2.60	ES							
				3		2.80	D	N=14 (1,2/2,3,4,5)	3.30	35.84		MADE GROUND: Light grey mottled pinkish brown CLAY.
						3.00	SPT					
3.40	ES											
3.50	PP											
4						3.60	D	325kPa	4.00	35.14		Light grey mottled pinkish brown CLAY with occasional brown silt pockets.
						3.70	PP					
		3.90	PP									
		4.00	D									
		5				4.00	SPT	Casing installed to 4.0mbgl, borehole continued to 5.0mbgl.	4.50	34.64		Stiff to very stiff, light blueish grey clayey SILT.
						4.50	D					
				4.80	D							
				4.90	D							
				6				N=21 (2,3/3,6,5,7)	5.00	34.14		Brown sandy CLAY. Sand is fine to medium.
7								Borehole terminated upon experiencing blowing sands, rising to 3.8mbgl. Borehole backfilled with bentonite upon completion.				Light blueish grey silty SAND. Sand is fine to medium.
		8										End of Borehole at 5.00m
				9								
10												

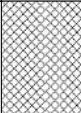
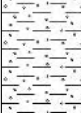
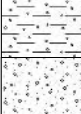
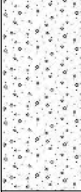
Remarks: Borehole for environmental purposes only.

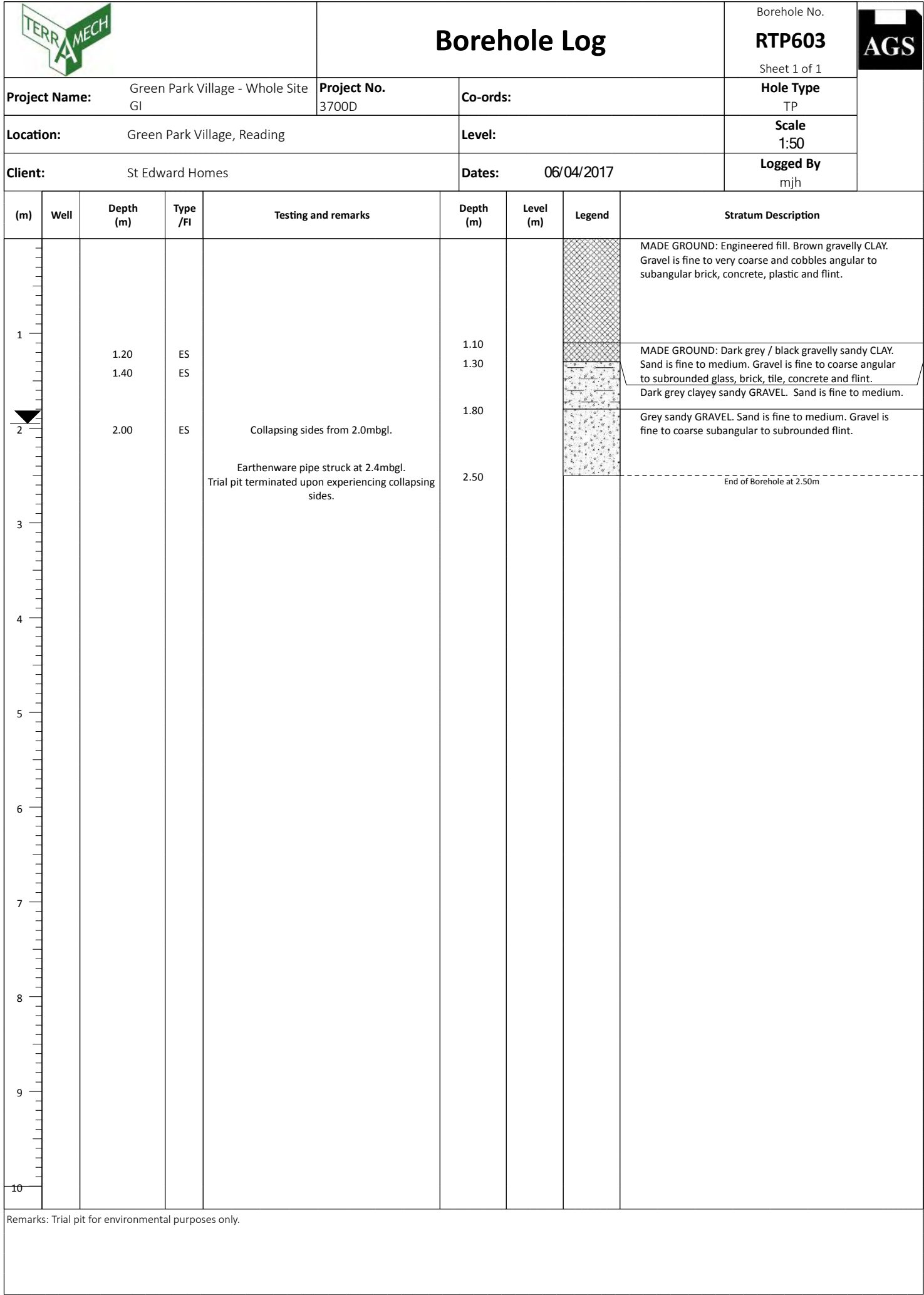


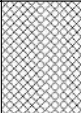
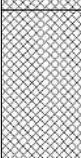
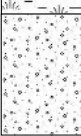
		Borehole Log				Borehole No. RWS_638		
Project Name: Green Park Village - Whole Site GI		Project No. 3700D		Co-ords: 470049.00 - 170363.00		Sheet 1 of 1 Hole Type WS		
Location: Green Park Village, Reading				Level: 38.28		Scale 1:50		
Client: St Edward Homes				Dates: 06/04/2017		Logged By tnl		
(m)	Well	Depth (m)	Type /FI	Testing and remarks	Depth (m)	Level (m)	Legend	Stratum Description
		0.50	ES	Hand dug pit to 1.2mbgl.				MADE GROUND: Dark brown mottled red and black slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to very coarse angular brick, concrete, wood and metal.
		0.90	ES		0.80	37.48		Dark grey green stained black sandy CLAY. Sand is fine to medium.
		1.30	ES	Installation details: 50mm slotted standpipe with gravel surround response zone from 0.5-2.9mbgl.	1.00	37.28		Grey brown mottled white sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse angular to subrounded flint.
		3.40	ES	Casing installed to 3.0mbgl, borehole continued to 4.0mbgl.	2.90	35.38		Firm to stiff grey CLAY.
				Borehole terminated upon penetration of Lambeth Group clay.	4.00	34.28		End of Borehole at 4.00m
Remarks: Borehole for environmental purposes only.								

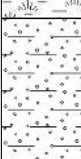
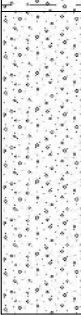


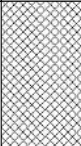
				Trial Pit Log			TrialPit No RTP601 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 470359.00 - 170326.00 Level: 39.74		Date 06/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 3.00 0.80		Scale 1:25	
Client: St Edward Homes						Depth 1.70		Logged mjh	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.30	ES		0.50	39.24		MADE GROUND: Brown gravelly CLAY. Gravel is fine to very coarse angular to subangular flint, brick, rare tile.		
	0.60	ES					MADE GROUND: Black ashy gravelly CLAY. Gravel is fine to coarse angular to subrounded flint, ash and rare tile.		
	1.30	ES		1.10	38.64		Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.		
			Collapsing sides from 1.5mbgl. Trial pit terminated upon experiencing collapsing sides.	1.70	38.04		End of Pit at 1.70m		
1 2 3 4 5									
Remarks: Trial pit for environmental purposes only.									
Stability:									

				Trial Pit Log			TrialPit No RTP602 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 470310.00 - 170299.00 Level: 39.95		Date 06/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 3.00 Depth 1.85 0.80		Scale 1:25	
Client: St Edward Homes								Logged mjh	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.30	ES		0.40	39.55		MADE GROUND: Brown gravelly silty CLAY. Gravel is fine to coarse subangular to subrounded flint.		
	0.50	ES					Dark brownish grey gravelly CLAY. Gravel is fine to medium subangular to subrounded flint.		
	0.90	ES					Dark grey gravelly CLAY. Gravel is fine to medium subangular to subrounded flint.		
	1.60	ES	Sides collapsing from 1.5mbgl. Trial pit terminated upon experiencing collapsing sides.	1.00	38.95		Light grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to rarely coarse subangular to subrounded flint.		
					1.85	38.10	----- End of Pit at 1.85m -----		
1 2 3 4 5									
Remarks: Trial pit for environmental purposes only.									
Stability:									



				Trial Pit Log			TrialPit No RTP605 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 470092.00 - 170358.00 Level: 38.13		Date 06/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 3.20 Depth 2.00		Scale 1:25 Logged mjh	
Client: St Edward Homes									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	ES		0.40	37.73		MADE GROUND: Brown clayey GRAVEL. Gravel is fine to very coarse and cobbles angular to subangular brick, concrete, tarmac, tile and wire.		
	0.60	ES		0.90	37.23		MADE GROUND: Brown gravelly CLAY. Gravel is fine to very coarse and cobbles angular to subangular brick, concrete, chalk and rare slate.		
	1.00	ES		1.60	36.53		Dark grey becoming grey peaty CLAY.		
	1.70	ES	Collapsing sides from 1.6mbgl.	2.00	36.13		Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint.		
			Trial pit terminated upon experiencing collapsing sides.				----- End of Pit at 2.00m -----		
1 2 3 4 5									
Remarks: Trial pit for environmental purposes only.									
Stability:									

				Trial Pit Log			TrialPit No RTP606 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469987.00 - 170326.00 Level: 38.30		Date 06/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 3.40 Depth 2.00		Scale 1:25 Logged mjh	
Client: St Edward Homes									
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	ES	Collapsing sides from 1.35mbgl. Trial pit terminated upon experiencing collapsing sides.	0.15	38.15		MADE GROUND: Brown gravelly CLAY. Gravel is medium to very coarse brick and occasional flint. Dark grey peaty CLAY.		
	0.30	ES		0.50	37.80				
	0.60	ES		1.00	37.30		Dark grey clayey GRAVEL. Gravel is fine to coarse subangular to subrounded flint. Light brownish grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint.		
	1.20	ES							
	1.80	ES							
							End of Pit at 2.00m		
Remarks: Trial pit for environmental purposes only.									
Stability:									

				Trial Pit Log			TrialPit No RTP607 Sheet 1 of 1	
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: - Level:		Date 06/04/2017
Location: Green Park Village, Reading						Dimensions (m):		Scale 1:25
Client: St Edward Homes						Depth 0.50		Logged mjh
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
				0.50			MADE GROUND: Dark grey to black silty CLAY with much roots, reeds and decomposing organic matter. No evidence of material liner.	
							End of Pit at 0.50m	
								1
								2
								3
								4
								5
Remarks: Trial pit to identify lining of lake. Observations made from bucket of excavator and not from the pit itself.								
Stability:								

				Trial Pit Log			TrialPit No RTP608 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469594.00 - 170282.00 Level: 39.53		Date 06/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 4.10 0.90		Scale 1:25	
Client: St Edward Homes						Depth 3.70		Logged mjh	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
				0.15	39.38		MADE GROUND: Pink roadstone hardcore.		
	0.30	ES					MADE GROUND: Brown clayey GRAVEL fill. Gravel is fine to very coarse angular to subangular brick, concrete, wood and rare tile.		
	0.60	ES		0.50	39.03		MADE GROUND: Dark grey mottled dark brown clayey GRAVEL fill. Gravel is fine to very coarse and cobbles angular to subrounded brick, metal, concrete, fabric, wool, tile, pipe, wood and plastic.		
	1.00	ES							
	1.50	ES		1.50	38.03		MADE GROUND: Dark grey gravelly CLAY (considered to be reworked material). Gravel is fine to coarse subangular to subrounded flint.		
	1.60	ES							
	3.70	ES	Trial pit terminated upon reaching maximum extent of excavator.	3.70	35.83		End of Pit at 3.70m		

Remarks: Trial pit for environmental purposes only.

 Stability:





Trial Pit Log

TrialPit No
RTP609
Sheet 1 of 1

Project Name: Green Park Village - Whole Site GI

Project No.
3700D

Co-ords: 469612.00 - 170264.00
Level: 39.48

Date
10/04/2017

Location: Green Park Village, Reading

Dimensions (m): 4.00

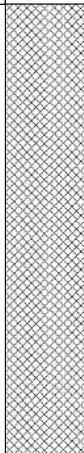
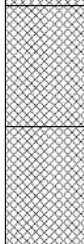
Scale
1:25

Client: St Edward Homes

Depth
3.50

0.85

Logged
mih

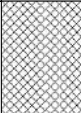
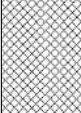
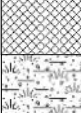
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
	0.30	ES	Collapsing sides from 2.0mbgl.	1.50	37.98		MADE GROUND: Brown gravelly CLAY fill. Gravel is fine to very coarse and cobbles brick, concrete, plastic, metal, tire and paving slab.
	0.90	ES					
	1.60	ES					
	1.90	ES					
	2.30 2.30	B ES		2.30	37.18		MADE GROUND: Light grey slightly clayey sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint.
3.40 3.40	B ES	Trial pit terminated upon experiencing collapsing sides.	3.50	35.98	MADE GROUND: Dark grey slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint and rare fine to medium subrounded brick. (considered to be reworked material).		
							End of Pit at 3.50m

Remarks: Trial pit for environmental purposes only.				

Stability:



				Trial Pit Log			TrialPit No RTP610 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469595.00 - 170239.00 Level: 39.22		Date 10/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 5.10 Depth 3.70		Scale 1:25	
Client: St Edward Homes								Logged mjh	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.30	ES	Trial pit extended 2.5m south to avoid hard ground encountered at 0.4mbgl.	1.00	38.22		MADE GROUND: Brown gravelly CLAY fill. Gravel is fine to coarse and cobbles concrete, brick, plastic, wood and metal.		
	0.60	ES							
	1.20	ES							
	1.70	ES							
	3.00	ES							
	3.70	ES	Trial pit terminated upon reaching maximum extent of excavator.	3.60	35.62		Stiff grey mottled brown silty CLAY.		
				3.70	35.52		End of Pit at 3.70m		
Remarks: Trial pit for environmental purposes only.									
Stability:									

				Trial Pit Log			TrialPit No RTP611 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469562.00 - 170222.00 Level: 39.10		Date 10/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 3.90 Depth		Scale 1:25	
Client: St Edward Homes						Depth 2.40		Logged mjh	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.10	ES					MADE GROUND: Brown gravelly CLAY. Gravel is fine to very coarse and cobbles brick and flint.		
	0.50	ES		0.40	38.70		MADE GROUND: Dark brown clayey GRAVEL with pockets of crushed concrete. Gravel is fine to very coarse angular to subangular flint, brick, concrete and plastic.		
	1.00	ES		0.90	38.20		MADE GROUND: Grey gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint and occasional brick.		
	1.50	ES	Collapsing sides from 1.4mbgl.	1.40	37.70		Dark grey gravelly peaty CLAY. Gravel is fine to coarse subangular to subrounded flint.		
	2.30	ES	Trial pit terminated upon experiencing collapsing sides.	2.00	37.10		Grey sandy GRAVEL. Sand is fine to medium. Gravel is fine to coarse subangular to subrounded flint.		
				2.40	36.70	End of Pit at 2.40m			
1 2 3 4 5									
Remarks: Trial pit for environmental purposes only.									
Stability:									



Trial Pit Log

TrialPit No
RTP613
Sheet 1 of 1

Project Name: Green Park Village - Whole Site GI

Project No.
3700D

Co-ords: 469616.00 - 170133.00
Level: 39.47

Date
10/04/2017

Location: Green Park Village, Reading

Dimensions (m): 4.20

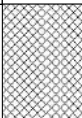
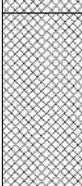
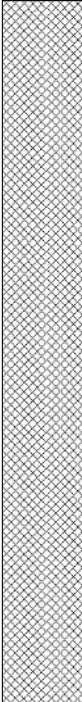
Scale
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Client: St Edward Homes

Depth
3.90

0.90

Logged
mih

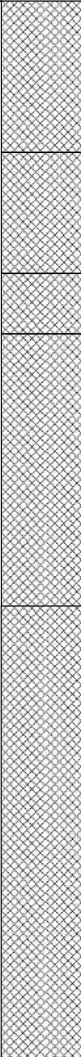
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
▼	0.20	ES		0.40	39.07		MADE GROUND: Brown gravelly CLAY. Gravel is fine to coarse and cobbles brick, concrete, tile.
	0.50	ES					MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse subangular to subrounded brick, tarmac, wood and flint.
	1.00	ES		0.80	38.67		MADE GROUND: Dark grey slightly gravelly silty CLAY with pockets of light grey mottled purplish brown clay. Gravel is fine to coarse angular to subangular brick, concrete and wood.
	1.50	ES		1.40	38.07		
	1.90	PID	PID=1				
	2.10 2.10	ES PID	PID=0				
	3.00	ES					
				3.75	35.72		Light blueish grey silty CLAY.
				3.90	35.57		End of Pit at 3.90m

Remarks:	Trial pit for environmental purposes only.
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Stability:

AGS

				Trial Pit Log			TrialPit No RTP614 Sheet 1 of 1	
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: - Level:		Date 10/04/2017
Location: Green Park Village, Reading						Dimensions (m): 0.90 4.20		Scale 1:25
Client: St Edward Homes						Depth 0.60		Logged mjh
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES					MADE GROUND: Brown slightly gravelly CLAY. Gravel is fine to very coarse angular to subangular brick and concrete. One fragment of potential ACM discovered.	
	0.50	B	Concrete slab encountered at 0.6m,bgl, approximately 0.2m thick. Trial pit moved 5m south.	0.60				
								1
								2
								3
								4
								5
Remarks: Trial pit for environmental purposes only.								
Stability:								

				Trial Pit Log			TrialPit No RTP614a Sheet 1 of 1	
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469617.00 - 170097.00 Level: 39.64		Date 10/04/2017
Location: Green Park Village, Reading						Dimensions (m):		Scale 1:25
Client: St Edward Homes						Depth 3.50		Logged
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	1.30	ES	Trial pit moved 5m south from previous location.	0.50	39.14		MADE GROUND: Brown slightly gravelly CLAY. Gravel is fine to very coarse angular to subangular brick and concrete.	1
							MADE GROUND: Tarmac.	
							MADE GROUND: Brick layer.	
							MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to very coarse, angular to subrounded brick, glass, concrete and fabric.	
	2.00	ES	Sides collapsing from 1.2mbgl.	2.00	37.64		MADE GROUND: Dark grey gravelly CLAY with pockets of brown sand and occasional peat. Gravel is fine to coarse subangular to subrounded flint. (considered to be reworked material).	2
3.50	ES	Trial pit terminated upon maximum extent of excavator.	3.50	36.14		End of Pit at 3.50m	3	
								4
								5

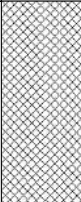
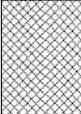
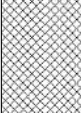
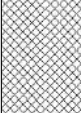
Remarks: Trial pit for environmental purposes only.

Stability:



				Trial Pit Log			TrialPit No RTP615 Sheet 1 of 1		
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469621.00 - 170105.00 Level: 39.62		Date 10/04/2017	
Location: Green Park Village, Reading						Dimensions (m): 4.10 Depth 4.00		Scale 1:25	
Client: St Edward Homes								Logged mjh	
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
	Depth	Type	Results						
	0.20 0.20	B ES		0.60	39.02		MADE GROUND: Brown very gravelly CLAY. Gravel is fine to very coarse and cobbles angular to subangular brick, concrete, rope, plastic, metal, cable and chalk.		
	0.80	ES					MADE GROUND: Light brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is fine to very coarse angular to subrounded brick, tile and occasional chalk.		
	1.40 1.40 1.40	B ES PID	PID=0	1.20	38.42		MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse subangular to subrounded flint. Much fine roots throughout. (considered to be reworked material).		
	2.70	ES	Sides collapsing from 2.5mbgl. Light grey sandy GRAVEL encountered from 2.6mbgl at east end of pit only. Slight hydrocarbon sheen on surface of water.						
			Trial pit terminated upon reaching maximum extent of excavator.	4.00	35.62		End of Pit at 4.00m		
Remarks: Trial pit for environmental purposes only.									
Stability:									



				Trial Pit Log			TrialPit No RTP616 Sheet 1 of 1				
Project Name: Green Park Village - Whole Site GI				Project No. 3700D		Co-ords: 469614.00 - 170108.00 Level: 39.49		Date 10/04/2017			
Location: Green Park Village, Reading						Dimensions (m): 4.20 Depth 4.10 0.80		Scale 1:25			
Client: St Edward Homes								Logged mjh			
Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
	Depth	Type	Results								
	0.40	ES	Concrete slab at 0.15mbgl, trial pit moved 1m to the east.				MADE GROUND: Brown clayey GRAVEL. Gravel is fine to very coarse and cobbles angular to subangular to brick, plastic, concrete, wool, tile, rope, metal and teddy bear.				
				0.70	38.79			MADE GROUND: Dark brownish grey mottled black slightly gravelly CLAY. Gravel is fine to coarse angular to subangular brick and wood.			
	0.90	ES							MADE GROUND: Dark grey gravelly CLAY. Gravel is fine to coarse subangular to subrounded predominantly flint and rare brick.		
	1.20	ES		1.10	38.39				MADE GROUND: Dark grey slightly gravelly CLAY with pockets of light blueish grey clay. Gravel is fine to coarse subangular to subrounded flint. (considered to be reworked material).		
				1.50	37.99			MADE GROUND: Dark grey clay with pockets of gravelly clay and silt. Gravel is fine to coarse subangular to subrounded flint.			
	2.20	ES		2.00	37.49						
				3.90	35.59		Light blueish grey mottled purplish brown CLAY.				
			Trial pit terminated upon reaching maximum extent of excavator.	4.10	35.39		----- End of Pit at 4.10m				

Remarks: Trial pit for environmental purposes only.

 Stability:



APPENDIX 2

LEGISLATIVE CONTEXT AND METHODOLOGIES

1. LEGISLATIVE CONTEXT

Environmental risks are assessed in accordance with Contaminated Land (England) (Amendment) Regulations 2012, Part IIA of the Environmental Protection Act 1990, and Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, DEFRA 2012. Part IIA provides a statutory definition of contaminated land. To fall within this definition it is necessary that, as a result of the condition of the land, substances may be present on or under the land such 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.

Risk from contamination is assessed by consideration of possible linkages between contaminant sources and potential receptors which could be harmed or polluted and the potential pathways between them. For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- A source - a substance that is capable of causing pollution or harm;
- A receptor - something which could be adversely affected by the contaminant; and
- A pathway - a route by which the contaminant can reach the receptor.

If one of these elements is absent there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

The Environment Agency Contaminated Land Report CLR 11 Model Procedures for the Management of Land Contamination provides the technical framework for structured decision making about land contamination. CLR 11 advocates a phased approach to risk assessment comprising:

- Preliminary Risk Assessment (PRA) – desk study and qualitative assessment
- Generic Quantitative Risk Assessment (GQRA) – assessment of contaminant concentrations against generic assessment criteria.
- Detailed Quantitative Risk Assessment (DQRA) – detailed site specific risk assessment and development of site-specific assessment criteria.

Each of these phases follows the same basic steps but adds site specific details and further certainty into the assessment as the stages progress. The basic steps are:

- Hazard identification and hazard assessment – development or refinement of the source-pathway-receptor conceptual model, and identification of potential pollutant linkages.
- Risk Estimation – qualitative risk estimation predicting magnitude and probability of potential consequences that may arise as a result of a hazard.
- Risk Evaluation – deciding whether a risk is unacceptable.

2. RISK ESTIMATION

An assessment of environmental risks is made for each potential pollutant linkage identified.

Risk estimation has been completed in accordance with the guidance provided in:

- NHBC and Environment Agency 2008. Guidance for the Safe Development of Housing on Land Affected by Contamination. R&D Publication 66: 2008.

The following is taken directly from NHBC/EA 2008. The key to the classification is that the designation of risk is based upon the consideration of both:

- a) the magnitude of the potential consequence (*i.e.*, severity) [takes into account both the potential severity of the hazard and the sensitivity of the receptor];
- b) the magnitude of probability (*i.e.*, likelihood) [takes into account both the presence of the hazard and receptor and the integrity of the pathway].

Table 1: Classification of Consequence (after NHBC/EA 2008)

Category	Definition
Severe	Highly elevated concentrations likely to result in "significant harm" to human health as defined by the EPA 1990, Part 2A, if exposure occurs. Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.
Medium	Elevated concentrations which could result in "significant harm" to human health as defined by the EPA 1990, Part 2A if exposure occurs. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.
Mild	Exposure to human health unlikely to lead to "significant harm". Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce. Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population. Minor damage to crops, buildings or property.
Minor	No measurable effect on humans. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.

* For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.

The likelihood of an event (probability) takes into account both the presence of the hazard and target and the integrity of the pathway and has been assessed based on the categories given below.

Table 2: Classification of Probability (after NHBC/EA 2008)

Category	Definition
High Likelihood	There is pollutant linkage and an event would appear very likely in the short-term and almost inevitable over the long-term, or there is evidence at the receptor of harm or pollution.
Likely	There is pollutant linkage and all the elements are present and in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
Low Likelihood	There is pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a long period such an event would take place, and is less likely in the shorter term.
Unlikely	There is pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

Table 3: The Classification of Risk (after NHBC/EA 2008)

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high	High	Moderate	Low
	Likely	High	Moderate	Moderate/ Low	Low
	Low Likelihood	Moderate	Moderate/ Low	Low	Very low
	Unlikely	Moderate/ Low	Low	Very low	Very low

Very high risk

There is a high probability that severe harm could arise to a designated receptor from an identified hazard at the site without remediation action OR there is evidence that severe harm to a designated receptor is already occurring. Realisation of that risk is likely to present a substantial liability to be site owner/or occupier. Investigation is required as a matter of urgency and remediation works likely to follow in the short-term.

High risk

Harm is likely to arise to a designated receptor from an identified hazard at the site without remediation action. Realisation of the risk is likely to present a substantial liability to the site owner/or occupier. Investigation is required as a matter of urgency to clarify the risk. Remediation works may be necessary in the short-term and are likely over the longer term.

Moderate risk

It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Further investigative work is normally required to clarify the risk and to determine the potential liability to site owner/occupier. Some remediation works may be required in the longer term.

Low risk

It is possible that harm could arise to a designated receptor from identified hazard, but it is likely at worst, that this harm if realised would normally be mild. It is unlikely that the site owner/or occupier would face substantial liabilities from such a risk. Further investigative work (which is likely to be limited) to clarify the risk may be required. Any subsequent remediation works are likely to be relatively limited.

Very low risk

It is a low possibility that harm could arise to a designated receptor, but it is likely at worst, that this harm if realised would normally be mild or minor.

No potential risk

There is no potential risk if no pollution linkage has been established.

3. GQRA METHODOLOGIES

In order to assess the significance of the chemical concentrations recorded, generic assessment criteria (GAC) must be selected. The GAC are screening concentrations which are used initially for direct comparison to the measured site concentrations.

The GAC are defined based on the critical receptors identified at the site. Receptors are considered in relation to:

- Human health receptors (*e.g.*, site users);
- The water environment (*e.g.*, groundwater and surface water).

Potential risks to human health are considered primarily using measured concentrations of chemicals in soil. Potential risks to the water environment are considered primarily using soil leachate and groundwater concentrations as indicative of the potentially mobile fraction of any soil impact.

Additional receptors may be relevant dependent on the site *e.g.*, flora/fauna, water supply pipes, buried concrete.

3.1. Human Health Assessment

3.1.1. Initial Screening Assessment

The GAC adopted for assessment of soils in relation to Human Health follow the hierarchy listed below:

- C4SLs (Category 4 Screening Levels) published by DEFRA 2014. The C4SL guidance is an update on previous DEFRA guidance with the main changes being a few alterations to human health exposure assumptions and use of 'low' risk toxicological inputs instead of the previously used 'minimal' risk inputs. C4SLs have only been generated for 6 compounds typically only at a soil organic matter content of 6%. Other guidance is therefore required.
- LQM/CIEH, 2014 S4ULs (Suitable for Use Levels). These are an update on the previous LQM/CIEH 2009 guidance, and keep the existing 'minimal' risk toxicological values alongside the DEFRA 2014 updated exposure parameters.
- EIC/AGS/CL:AIRE Dec 2009. The Soil Generic Assessment Criteria for Human Health Risk Assessment.
- Ramboll in-house screening criteria (derived in accordance with the published CLEA framework) are used if no published guideline value is available.

Soil Guideline Values (EA/DEFRA, 2009) may also be referred to if relevant.

Contaminant concentrations below the adopted GAC are not considered to present a significant risk to identified receptors and therefore are not considered to warrant further study. Contaminants which are recorded at concentrations above their respective GAC are considered to present a potential risk to identified receptors and resultantly these determinants are subject to further assessment.

3.1.2. Contaminant Distribution Assessment

Concentrations above the GAC are considered further in relation to vertical and lateral distribution across the site and through statistical analysis, where appropriate. This analysis is used to define 'averaging areas' within which contamination concentrations and distribution are considered likely to be similar.

For each averaging area, where appropriate, statistical analysis is then used to calculate a 'representative' concentration for each contaminant within that area and identify

possible outliers of the underlying distribution of contaminant concentrations. This analysis is completed in accordance with CIEH 2008 guidance.

The initial statistical tests are used to calculate the 95% probability that the true population mean falls below the critical concentration (GAC). In practise, this involves comparing the 95th Upper Confidence Limit of the true population mean with the GAC. The Maximum Value test is then used to identify whether the maximum concentration is likely to lie outside of the assumed distribution trend and as such would represent an outlier of the general population of data across the site. Outliers above the GAC may represent localised contaminant hotspots and require further consideration.

Constituent non-detects are conservatively assigned a value equal to the reported analytical laboratory limit of detection. Any identified true outliers are excluded from the datasets used in calculation of the 95%UCL value.

3.2. Assessment for the Water Environment

Assessment of risks to water resources is completed in general accordance with guidance provided in the Environment Agency 2013, Groundwater Protection Principles and Practice (GP3).

Generic assessment criteria for waters must be selected to assess potential risks to the identified environmental receptors. There are numerous UK and European guidelines for waters based on the site situation and different receptors.

For the majority of site situations, it is considered that use of UK drinking water standards (for non-hazardous substances) and minimum reporting values (for hazardous substances) will be most appropriate for assessment of risks to groundwater resources; and use of environmental quality standards for freshwater or marine waters will be most appropriate for assessment of risks to the surface water environment.

Water and leachate data may also be compared to e.g. bathing water standards etc. where this pollutant linkage may be present.

All water quality standards are sourced from the EA Chemical Standards Database online resource where possible.

4. GROUND GAS RISK ASSESSMENT

Ground gas risk is characterised using guidance provided in the following:

- CIRIA C665, 2007. Assessing risks posed by hazardous ground gases to buildings. (Supersedes CIRIA 659).
- NHBC / RSK, 2007. Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present. Report Ed 4.
- BS8485: 2015. Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
- BS8576:2013. Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)

The risk posed by a gas regime is assessed initially by calculating a Gas Screening Value using a combination of the gas flow rate and recorded concentrations of carbon dioxide and methane. This Gas Screening Value is then used in combination with the maximum recorded gas concentrations to determine the site's Characteristic Situation (CIRIA 665 – all site uses except low rise residential) or Traffic Light Classification (NHBC/RSK 2007 low rise residential sites only). Table A below outlines the method for defining the Characteristic Situation as detailed in CIRIA 665 and Table B outlines the method for defining the Traffic Light classification as detailed in NHBC/RSK 2007.

Table A: Proposed method for classifying gassing sites (after CIRIA C665 2007)

Characteristic Situation	Risk classification	Gas screening value of CH ₄ or CO ₂ (l/hr) ^a	Additional limiting factors	Typical source of generation
1	Very low risk	<0.07	Typically methane ≤ 1% and/or carbon dioxide ≤ 5%. Otherwise consider increase to Situation 2	Natural soils with low organic content. "Typical" Made Ground
2	Low risk	<0.7	Borehole air flow rate not to exceed 70l/hr. Otherwise consider increase to Characteristic Situation 3	Natural soil, high peat/organic content. "Typical" Made Ground
3	Moderate risk	<3.5	-	Old landfill, inert waste, mineworking flooded
4	Moderate to high risk	<15	Quantitative risk assessment required to evaluate scope of protective measures	Mineworking -susceptible to flooding, completed landfill, inert waste (WMP 26B criteria)
5	High risk	<70	-	Mineworking unflooded inactive with shallow workings near surface
6	Very high risk	>70	-	Recent landfill site

^a Gas screening value = gas concentration (%) x measured borehole flow rate (l/hr)

Table B: Proposed method for classifying gassing sites (after NHBC/RSK 2007)

Traffic Light	Methane ¹		Carbon Dioxide ¹	
	Typical Maximum Concentration ⁵ (%v/v)	Gas Screening Value (GSV) ^{2,4,6} litres per hour	Typical Maximum Concentration ⁵ (%v/v)	Gas Screening Value (GSV) ^{2,3,4,5} litres per hour
Green				
Amber 1	1	0.16	5	0.78
Amber 2	5	0.63	10	1.56
Red	20	1.56	30	3.13

The CIRIA, NHBC and BS8485 guidance documents are then used to determine requirements for gas protection measures based on the site classification.

APPENDIX 3

LABORATORY RESULTS



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e: Jørn Pace

Analytical Report Number : 17-42861

Project / Site name:	Green Park Village, Reading	Samples received on:	14/03/2017
Your job number:	1620000492	Samples instructed on:	16/03/2017
Your order number:	PO1620013202	Analysis completed by:	22/03/2017
Report Issue Number:	1	Report issued on:	22/03/2017
Samples Analysed:	2 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-42861

Project / Site name: Green Park Village, Reading

Your Order No: PO1620013202

Lab Sample Number				718975	718976			
Sample Reference				RWS618	RBH610			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0.50			
Date Sampled				13/03/2017	13/03/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	14	9.6			
Total mass of sample received	kg	0.001	NONE	1.2	1.3			

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile & Amosite	Chrysotile & Amosite			
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected			
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002	< 0.001			
Asbestos Quantification Total	%	0.001	ISO 17025	0.002	< 0.001			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	11.6	9.1			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	340	3200			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.17	1.6			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	0.31	0.19			
Fluorene	mg/kg	0.1	MCERTS	0.27	0.13			
Phenanthrene	mg/kg	0.1	MCERTS	4.1	1.1			
Anthracene	mg/kg	0.1	MCERTS	0.89	0.43			
Fluoranthene	mg/kg	0.1	MCERTS	7.3	2.2			
Pyrene	mg/kg	0.1	MCERTS	5.5	2.0			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	3.2	1.4			
Chrysene	mg/kg	0.05	MCERTS	2.7	1.0			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	4.2	1.7			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	1.3	0.65			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	2.4	1.3			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	1.4	0.79			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.42	0.19			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.7	0.85			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	35.6	13.9			
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Analytical Report Number: 17-42861

Project / Site name: Green Park Village, Reading

Your Order No: PO1620013202

Lab Sample Number				718975	718976			
Sample Reference				RWS618	RBH610			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0.50			
Date Sampled				13/03/2017	13/03/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.7	7.4			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.50	0.42			
Boron (water soluble)	mg/kg	0.2	MCERTS	1.1	2.9			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (III)	mg/kg	1	NONE	23	17			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	17			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	54			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	210	94			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	14			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	21			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	330	110			

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.0	1.6			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	6.7	8.5			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	14	19			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	99	130			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	120	160			

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	4.9	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	36	19			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	300	98			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	340	120			



Analytical Report Number: 17-42861
Project / Site name: Green Park Village, Reading
Your Order No: PO1620013202

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
718975	RWS618	0.50	127	Loose Fibres & Sheeting/ Board Debris	Chrysotile & Amosite	0.002	0.002
718976	RBH610	0.50	115	Loose Fibres	Chrysotile & Amosite	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number : 17-42861

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
718975	RWS618	None Supplied	0.50	Brown loam and clay with gravel and brick.
718976	RBH610	None Supplied	0.50	Brown loam and clay with gravel and rubble.

Analytical Report Number : 17-42861

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Iss No 17-42861-1 Green Park Village, Reading 1620000492

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

The results included within the report are representative of the samples submitted for analysis.

Page 6 of 6



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e: Jørn Pace

Analytical Report Number : 17-43197

Project / Site name:	Green Park Village, Reading	Samples received on:	17/03/2017
Your job number:	1620000492	Samples instructed on:	20/03/2017
Your order number:		Analysis completed by:	27/03/2017
Report Issue Number:	1	Report issued on:	27/03/2017
Samples Analysed:	1 leachate sample - 4 soil samples		

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-43197

Project / Site name: Green Park Village, Reading

Lab Sample Number				720981	720982	720983	720984	
Sample Reference				RWS615	RWS616	RBH604	RBH604	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.20	0.50	0.10	3.00	
Date Sampled				16/03/2017	16/03/2017	16/03/2017	16/03/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	27	16	16	20	
Total mass of sample received	kg	0.001	NONE	1.2	1.5	1.3	2.0	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Amosite	Chrysotile	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Detected	
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	< 0.001	
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	< 0.001	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	9.7	8.2	7.9	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	130	860	120	290	
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.066	0.43	0.060	0.15	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	mg/kg	0.1	MCERTS	0.59	< 0.10	< 0.10	< 0.10	
Fluorene	mg/kg	0.1	MCERTS	0.28	< 0.10	< 0.10	< 0.10	
Phenanthrene	mg/kg	0.1	MCERTS	3.2	0.38	1.2	< 0.10	
Anthracene	mg/kg	0.1	MCERTS	0.42	< 0.10	0.16	< 0.10	
Fluoranthene	mg/kg	0.1	MCERTS	2.2	0.55	1.2	< 0.10	
Pyrene	mg/kg	0.1	MCERTS	1.4	0.45	0.89	< 0.10	
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.73	0.32	0.60	< 0.10	
Chrysene	mg/kg	0.05	MCERTS	0.74	0.40	0.68	< 0.05	
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.65	0.54	0.81	< 0.10	
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.38	0.19	0.32	< 0.10	
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.56	0.36	0.66	< 0.10	
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.34	0.19	0.29	< 0.10	
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.47	0.29	0.43	< 0.05	

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	11.9	3.67	7.16	< 1.60	
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	14	13	17	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	0.73	0.64	0.98	
Boron (water soluble)	mg/kg	0.2	MCERTS	2.5	3.4	2.7	3.7	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.6	< 0.2	< 0.2	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	
Chromium (III)	mg/kg	1	NONE	29	28	28	48	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	28	28	49	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	48	30	41	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	30	96	48	71	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	1.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	43	18	18	22	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	30	28	33	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	92	150	110	150	



Analytical Report Number: 17-43197

Project / Site name: Green Park Village, Reading

Lab Sample Number				720981	720982	720983	720984	
Sample Reference				RWS615	RWS616	RBH604	RBH604	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.20	0.50	0.10	3.00	
Date Sampled				16/03/2017	16/03/2017	16/03/2017	16/03/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.1	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.8	3.8	< 2.0	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	22	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	48	110	< 8.0	< 8.0	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	60	140	< 10	< 10	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	7.3	8.3	3.1	3.0	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	26	29	16	< 10	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	77	100	40	30	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	110	140	59	41	



Analytical Report Number: 17-43197

Project / Site name: Green Park Village, Reading

Lab Sample Number				720985				
Sample Reference				RBH604				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				16/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5				
Total Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO ₄	mg/l	0.1	ISO 17025	6.8				
Ammoniacal Nitrogen as N	µg/l	15	NONE	< 15				
Hardness - Total	mgCaCO ₃ /l	1	NONE	43.3				

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01				
Acenaphthylene	µg/l	0.01	NONE	< 0.01				
Acenaphthene	µg/l	0.01	NONE	< 0.01				
Fluorene	µg/l	0.01	NONE	< 0.01				
Phenanthrene	µg/l	0.01	NONE	< 0.01				
Anthracene	µg/l	0.01	NONE	< 0.01				
Fluoranthene	µg/l	0.01	NONE	< 0.01				
Pyrene	µg/l	0.01	NONE	< 0.01				
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01				
Chrysene	µg/l	0.01	NONE	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01				
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	6.3				
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Boron (dissolved)	µg/l	10	ISO 17025	56				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (III)	µg/l	1	NONE	3.9				
Chromium (dissolved)	µg/l	0.4	ISO 17025	3.9				
Copper (dissolved)	µg/l	0.7	ISO 17025	19				
Lead (dissolved)	µg/l	1	ISO 17025	7.5				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	4.2				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Vanadium (dissolved)	µg/l	1.7	ISO 17025	12				
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.5				

Calcium (dissolved)	mg/l	0.012	ISO 17025	15				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	1.2				



Analytical Report Number: 17-43197

Project / Site name: Green Park Village, Reading

Lab Sample Number				720985				
Sample Reference				RBH604				
Sample Number				None Supplied				
Depth (m)				0.10				
Date Sampled				16/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				



Analytical Report Number: **17-43197**
Project / Site name: **Green Park Village, Reading**
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
720983	RBH604	0.10	129	Sheeting/board debris	Amosite	< 0.001	< 0.001
720984	RBH604	3.00	136	Loose fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number : 17-43197

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
720981	RWS615	None Supplied	0.20	Brown clay and sand with gravel.
720982	RWS616	None Supplied	0.50	Brown clay and sand with gravel.
720983	RBH604	None Supplied	0.10	Brown clay and sand with gravel and brick.
720984	RBH604	None Supplied	3.00	Brown clay and sand with gravel.

Analytical Report Number : 17-43197

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE

Iss No 17-43197-1 Green Park Village, Reading 1620000492

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The results included within the report are representative of the samples submitted for analysis.

Page 8 of 9

Analytical Report Number : 17-43197

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-43760

Project / Site name:	Green Park Village, Reading	Samples received on:	24/03/2017
Your job number:	1620000492	Samples instructed on:	24/03/2017
Your order number:		Analysis completed by:	31/03/2017
Report Issue Number:	1	Report issued on:	31/03/2017
Samples Analysed:	1 leachate sample - 7 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-43760

Project / Site name: Green Park Village, Reading

Lab Sample Number				723860	723861	723862	723863	723864
Sample Reference				RWS610	RWS608	RWS609	RWS609	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.00	1.80	2.20	2.40
Date Sampled				21/03/2017	21/03/2017	22/03/2017	22/03/2017	22/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	18	15	24	15
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	1.6	2.0

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	7.7	9.7	7.7	9.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	530	220	710	160	960
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.26	0.11	0.36	0.079	0.48

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	0.16	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	0.24	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	1.6	0.52	0.28	1.2	0.56
Anthracene	mg/kg	0.1	MCERTS	1.1	< 0.10	< 0.10	0.25	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	1.6	1.2	0.66	2.2	0.97
Pyrene	mg/kg	0.1	MCERTS	1.3	1.2	0.64	1.8	0.75
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.77	0.79	0.41	1.1	0.49
Chrysene	mg/kg	0.05	MCERTS	0.91	0.62	0.35	0.95	0.39
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.60	1.1	0.43	1.2	0.40
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.36	0.48	0.32	0.70	0.31
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.59	0.97	0.44	1.1	0.38
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.47	0.91	0.41	1.0	0.34
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	0.20	< 0.10	0.22	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.53	1.2	0.49	1.2	0.36

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	10.3	9.11	4.43	12.7	4.95
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.7	16	3.6	21	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.69	1.8	0.61	1.5	0.60
Boron (water soluble)	mg/kg	0.2	MCERTS	1.0	6.4	1.7	4.8	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2	0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	16	39	13	68	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	39	14	68	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	52	12	46	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	29	120	32	120	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	36	24	31	16
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	5.6	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	37	18	50	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	59	160	42	180	48



Analytical Report Number: 17-43760

Project / Site name: Green Park Village, Reading

Lab Sample Number				723860	723861	723862	723863	723864
Sample Reference				RWS610	RWS608	RWS609	RWS609	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.00	1.80	2.20	2.40
Date Sampled				21/03/2017	21/03/2017	22/03/2017	22/03/2017	22/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	37	25	19	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	12	41	31	27	< 10

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	0.004	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	0.004	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	0.004	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	0.003	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	0.004	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	0.003	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	< 0.001	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	0.021	-	-
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Pesticide and Herbicide Screen

Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	Absent	-	-	-
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Analytical Report Number: 17-43760

Project / Site name: Green Park Village, Reading

Lab Sample Number				723865	723884			
Sample Reference				RWS616	RWS613			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.20	0.20			
Date Sampled				21/03/2017	21/03/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	27	25			
Total mass of sample received	kg	0.001	NONE	2.0	2.0			

Asbestos in Soil	Type	N/A	ISO 17025	-	-			
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	7.7			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	170	290			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.085	0.15			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	0.25	< 0.10			
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluoranthene	mg/kg	0.1	MCERTS	0.39	< 0.10			
Pyrene	mg/kg	0.1	MCERTS	0.32	< 0.10			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.19	< 0.10			
Chrysene	mg/kg	0.05	MCERTS	0.16	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.17	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.15	< 0.10			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.19	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.18	< 0.05			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	2.00	< 1.60			
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.6	9.2			
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	1.5			
Boron (water soluble)	mg/kg	0.2	MCERTS	2.0	2.6			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	< 0.2			
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2			
Chromium (III)	mg/kg	1	NONE	43	42			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	44	42			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	19			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	28			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	28			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	61	56			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	85	59			



Analytical Report Number: 17-43760

Project / Site name: Green Park Village, Reading

Lab Sample Number				723865	723884			
Sample Reference				RWS616	RWS613			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.20	0.20			
Date Sampled				21/03/2017	21/03/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-			
PCB Congener 52	mg/kg	0.001	MCERTS	-	-			
PCB Congener 101	mg/kg	0.001	MCERTS	-	-			
PCB Congener 118	mg/kg	0.001	MCERTS	-	-			
PCB Congener 138	mg/kg	0.001	MCERTS	-	-			
PCB Congener 153	mg/kg	0.001	MCERTS	-	-			
PCB Congener 180	mg/kg	0.001	MCERTS	-	-			

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-			
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Pesticide and Herbicide Screen

Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-			
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Analytical Report Number: 17-43760

Project / Site name: Green Park Village, Reading

Lab Sample Number				723866				
Sample Reference				RWS609				
Sample Number				None Supplied				
Depth (m)				1.80				
Date Sampled				22/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	9.4				
Total Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO ₄	mg/l	0.1	ISO 17025	19				
Ammoniacal Nitrogen as N	µg/l	15	NONE	540				
Hardness - Total	mgCaCO ₃ /l	1	NONE	30.8				

Total Phenols

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01				
Acenaphthylene	µg/l	0.01	NONE	< 0.01				
Acenaphthene	µg/l	0.01	NONE	< 0.01				
Fluorene	µg/l	0.01	NONE	< 0.01				
Phenanthrene	µg/l	0.01	NONE	< 0.01				
Anthracene	µg/l	0.01	NONE	< 0.01				
Fluoranthene	µg/l	0.01	NONE	< 0.01				
Pyrene	µg/l	0.01	NONE	< 0.01				
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01				
Chrysene	µg/l	0.01	NONE	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01				
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	5.6				
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Boron (dissolved)	µg/l	10	ISO 17025	37				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Chromium (hexavalent)	µg/l	5	NONE	< 5.0				
Chromium (III)	µg/l	1	NONE	< 1.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.9				
Copper (dissolved)	µg/l	0.7	ISO 17025	9.7				
Lead (dissolved)	µg/l	1	ISO 17025	6.7				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.4				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Vanadium (dissolved)	µg/l	1.7	ISO 17025	79				
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.6				



Analytical Report Number: 17-43760

Project / Site name: Green Park Village, Reading

Lab Sample Number				723866				
Sample Reference				RWS609				
Sample Number				None Supplied				
Depth (m)				1.80				
Date Sampled				22/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

Calcium (dissolved)	mg/l	0.012	ISO 17025	12				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.24				

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				



Analytical Report Number : 17-43760

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
723860	RWS610	None Supplied	1.50	Light brown sandy clay with gravel.
723861	RWS608	None Supplied	2.00	Black clay and sand with gravel.
723862	RWS609	None Supplied	1.80	Light brown sandy clay with gravel.
723863	RWS609	None Supplied	2.20	Black clay and sand with gravel.
723864	RWS607	None Supplied	2.40	Brown clay and sand with gravel.
723865	RWS616	None Supplied	1.20	Brown clay and sand with gravel.
723884	RWS613	None Supplied	0.20	Brown clay and sand with gravel.



Analytical Report Number : 17-43760

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS

Iss No 17-43760-1 Green Park Village, Reading 1620000492

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The results included within the report are representative of the samples submitted for analysis.

Page 9 of 10

Analytical Report Number : 17-43760

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-44063

Replaces Analytical Report Number : 17-44063, issue no. 1

Project / Site name:	Green Park Village, Reading	Samples received on:	28/03/2017
Your job number:	1620000492	Samples instructed on:	28/03/2017
Your order number:		Analysis completed by:	06/04/2017
Report Issue Number:	2	Report issued on:	06/04/2017
Samples Analysed:	2 leachate samples - 8 soil samples		

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Lab Sample Number				725692	725693	725694	725695	725696
Sample Reference				RBH607	RWS605	RWS606	RWS603	RWS603
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.60-2.70	2.60-2.70	1.80-1.90	2.10-2.20	2.60-2.70
Date Sampled				22/03/2017	23/03/2017	23/03/2017	24/03/2017	24/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	24	12	19	15	7.1
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	1.5	2.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Not-detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.8	8.8	8.1	7.6	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1100	1000	170	220	80
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.55	0.51	0.083	0.11	0.040
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.013	0.016	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.30	< 0.05	0.41	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	0.21	< 0.10	0.28	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	0.83	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	0.80	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	0.76	4.5	0.78	0.52	< 0.10
Anthracene	mg/kg	0.1	MCERTS	0.20	1.7	0.17	0.19	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	1.3	12	2.2	1.3	< 0.10
Pyrene	mg/kg	0.1	MCERTS	1.1	10	1.9	1.4	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.89	5.8	1.1	1.2	< 0.10
Chrysene	mg/kg	0.05	MCERTS	0.67	4.2	1.1	0.88	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.79	6.8	1.4	1.8	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.77	2.5	0.76	1.2	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	0.88	5.4	1.2	1.8	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.59	3.0	0.77	1.4	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.15	0.60	0.19	0.28	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.65	3.4	0.89	1.7	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	8.74	62.6	12.5	14.4	< 1.60
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	9.5	19	89	4.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.98	0.47	1.3	9.5	0.12
Boron (water soluble)	mg/kg	0.2	MCERTS	2.0	1.4	2.1	6.5	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	0.3	1.5	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	25	19	52	37	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	19	52	37	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	12	48	7600	8.9
Lead (aqua regia extractable)	mg/kg	1	MCERTS	63	88	130	800	5.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	2.5	1.2	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	8.9	24	100	8.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	31	41	55	9.1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	700	72	190	1700	42



Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Lab Sample Number				725692	725693	725694	725695	725696
Sample Reference				RBH607	RWS605	RWS606	RWS603	RWS603
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.60-2.70	2.60-2.70	1.80-1.90	2.10-2.20	2.60-2.70
Date Sampled				22/03/2017	23/03/2017	23/03/2017	24/03/2017	24/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	2.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.5	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.3	< 2.0	< 2.0	2.8	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	8.5	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	24	29	15	88	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	33	35	15	100	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.5	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	3.3	16	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	68	12	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	43	170	44	44	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	57	260	58	49	< 10

Pesticide and Herbicide Screen

Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	-	-
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Organochlorine Pesticides (OCP)

DDT	mg/kg	0.01	NONE	-	-	-	-	-
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Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Lab Sample Number				725697	725698	725699		
Sample Reference				RWS601	RWS602	RWS611		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.60-0.70	4.20-4.30	2.10-2.20		
Date Sampled				24/03/2017	27/03/2017	27/03/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	12	20		
Total mass of sample received	kg	0.001	NONE	2.0	1.8	2.0		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-		
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.3	8.4	8.0		
Total Cyanide	mg/kg	1	MCERTS	2	< 1	< 1		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150	110	520		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.074	0.053	0.26		
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	-	-	-		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.17	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	0.55	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	1.2	< 0.10	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	0.35	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	4.6	< 0.10	0.51		
Pyrene	mg/kg	0.1	MCERTS	4.5	< 0.10	0.46		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	3.3	< 0.10	0.31		
Chrysene	mg/kg	0.05	MCERTS	3.0	< 0.05	0.23		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	5.4	< 0.10	0.29		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	1.9	< 0.10	0.25		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	4.1	< 0.10	0.35		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	2.7	< 0.10	0.22		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	0.61	< 0.10	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.2	< 0.05	0.26		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	35.5	< 1.60	2.88		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	68	5.3	27		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	5.5	2.3	1.6		
Boron (water soluble)	mg/kg	0.2	MCERTS	5.8	1.3	2.7		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2		
Chromium (III)	mg/kg	1	NONE	47	38	61		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	47	38	61		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	320	10	33		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	960	20	53		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	4.3	< 0.3	1.5		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	77	27	39		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	52	51	49		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	750	54	130		



Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Lab Sample Number				725697	725698	725699		
Sample Reference				RWS601	RWS602	RWS611		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.60-0.70	4.20-4.30	2.10-2.20		
Date Sampled				24/03/2017	27/03/2017	27/03/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.5		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	6.5		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	15		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	95		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	120		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.3	< 1.0	1.2		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	2.9	< 2.0	3.9		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	21	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	95	< 10	35		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	120	< 10	49		

Pesticide and Herbicide Screen

Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	Present	-	-		
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Organochlorine Pesticides (OCP)

DDT	mg/kg	0.01	NONE	0.08	-	-		
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Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
725693	RWS605	2.60-2.70	133	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Lab Sample Number				725700	725701			
Sample Reference				RWS603	RWS611			
Sample Number				None Supplied	None Supplied			
Depth (m)				2.10-2.20	2.10-2.20			
Date Sampled				24/03/2017	27/03/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.9	7.8			
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO ₄	mg/l	0.1	ISO 17025	11	22			
Ammoniacal Nitrogen as N	µg/l	15	NONE	65	450			
Hardness - Total	mgCaCO ₃ /l	1	NONE	83.7	47.9			

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10			
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	1.8	5.3			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	130	38			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	0.5			
Copper (dissolved)	µg/l	0.7	ISO 17025	15	18			
Lead (dissolved)	µg/l	1	ISO 17025	5.7	2.5			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.1	7.9			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.7	9.1			
Zinc (dissolved)	µg/l	0.4	ISO 17025	11	9.9			

Calcium (dissolved)	mg/l	0.012	ISO 17025	31	18			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	1.5	1.0			



Analytical Report Number: 17-44063

Project / Site name: Green Park Village, Reading

Lab Sample Number				725700	725701			
Sample Reference				RWS603	RWS611			
Sample Number				None Supplied	None Supplied			
Depth (m)				2.10-2.20	2.10-2.20			
Date Sampled				24/03/2017	27/03/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			



Analytical Report Number : 17-44063

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
725692	RBH607	None Supplied	2.60-2.70	Grey clay and sand with gravel.
725693	RWS605	None Supplied	2.60-2.70	Brown clay and loam with gravel and brick.
725694	RWS606	None Supplied	1.80-1.90	Brown clay and sand with gravel.
725695	RWS603	None Supplied	2.10-2.20	Brown gravelly clay.
725696	RWS603	None Supplied	2.60-2.70	Brown sandy gravel.**
725697	RWS601	None Supplied	0.60-0.70	Brown loam and clay with gravel.
725698	RWS602	None Supplied	4.20-4.30	Light brown clay and sand.
725699	RWS611	None Supplied	2.10-2.20	Brown clay and sand with gravel.

**Non Mcerts matrix

Analytical Report Number : 17-44063

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

Iss No 17-44063-2 Green Park Village, Reading 1620000492

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-44063

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organochlorine pesticides in soil	Determination of organochlorine pesticides in soil by GC-MS	In-house method		W	NONE
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-44433

Replaces Analytical Report Number : 17-44433, issue no. 1

Project / Site name:	Green Park Village, Reading	Samples received on:	30/03/2017
Your job number:	1620000492	Samples instructed on:	30/03/2017
Your order number:		Analysis completed by:	12/04/2017
Report Issue Number:	2	Report issued on:	12/04/2017
Samples Analysed:	3 leachate samples - 10 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727635	727636	727637	727638	727639
Sample Reference				RWS615	RWS612	RWS614	RWS614	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.65	0.20	1.00	1.20
Date Sampled				29/03/2017	29/03/2017	29/03/2017	29/03/2017	29/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.2	20	15	11	15
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	2.0	1.4

Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	7.9	7.4	7.6	7.6
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	93	140	280	410	3900
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.047	0.072	0.14	0.21	1.9
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	-	-	0.016	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.4
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.45
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	2.9
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	2.6
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.4
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.4
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.5
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.1
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.6
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.89
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.20
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.0

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	< 1.60	< 1.60	16.4
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	19	12	6.4	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.22	2.2	0.75	0.54	0.64
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	1.8	1.5	1.2	3.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	1.1
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	14	29	27	19	23
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	29	27	19	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	10	28	18	38
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.2	12	61	29	91
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	18	17	16	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	83	24	17	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	13	23	85	48	170



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727635	727636	727637	727638	727639
Sample Reference				RWS615	RWS612	RWS614	RWS614	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.65	0.20	1.00	1.20
Date Sampled				29/03/2017	29/03/2017	29/03/2017	29/03/2017	29/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	63
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	72

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	20
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	130
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	150



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727635	727636	727637	727638	727639
Sample Reference				RWS615	RWS612	RWS614	RWS614	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	2.65	0.20	1.00	1.20
Date Sampled				29/03/2017	29/03/2017	29/03/2017	29/03/2017	29/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil				P/A	N/A	NONE	-	Present
Organochlorine Pesticides (OCP)								
DDT				mg/kg	0.01	NONE	-	0.07



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727640	727641	727642	727643	727644
Sample Reference				RBH605	RBH605	RWS629	RWS629	RWS630
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	1.40	0.20	3.50	0.30
Date Sampled				29/03/2017	29/03/2017	29/03/2017	29/03/2017	29/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	24	20	30	14
Total mass of sample received	kg	0.001	NONE	1.7	1.8	1.8	1.8	2.0

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	7.4	7.6	7.5	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1200	110	1500	540	380
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.62	0.055	0.75	0.27	0.19
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.012	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.48	< 0.10	0.76
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.21
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.4	< 0.10	1.9
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.3	< 0.10	1.7
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.81	< 0.10	1.2
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.86	< 0.05	0.86
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.98	< 0.10	1.4
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.86	< 0.10	0.82
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.2	< 0.10	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.74	< 0.10	0.75
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.17
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.74	< 0.05	0.99

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	9.34	< 1.60	12.1
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	32	32	13	11	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.8	0.61	0.62	0.58
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	2.3	3.2	3.2	1.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	37	30	18	14	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	30	18	14	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	38	33	21	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	22	87	19	38
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	25	17	20	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	53	27	21	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	82	46	140	47	72



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727640	727641	727642	727643	727644
Sample Reference				RBH605	RBH605	RWS629	RWS629	RWS630
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	1.40	0.20	3.50	0.30
Date Sampled				29/03/2017	29/03/2017	29/03/2017	29/03/2017	29/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.1	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	27	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	30	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	7.6	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	25	15
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	12	< 10	66	69	43
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	15	< 10	77	100	58



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727640	727641	727642	727643	727644
Sample Reference				RBH605	RBH605	RWS629	RWS629	RWS630
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	1.40	0.20	3.50	0.30
Date Sampled				29/03/2017	29/03/2017	29/03/2017	29/03/2017	29/03/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil				P/A	N/A	NONE	-	-
Organochlorine Pesticides (OCP)								
DDT				mg/kg	0.01	NONE	-	-



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727645	727646	727647		
Sample Reference				RWS614	RBH605	RWS630		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.20	1.00	0.30		
Date Sampled				29/03/2017	29/03/2017	29/03/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.6	7.8	7.9		
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	mg/l	0.1	ISO 17025	30	33	17		
Ammoniacal Nitrogen as N	µg/l	15	NONE	< 15	910	67		
Hardness - Total	mgCaCO ₃ /l	1	NONE	36.7	71.9	68.7		

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10		
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	0.74		
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	0.61		
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	0.26		
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	0.23		
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	1.8		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	4.1	< 1.1	2.0		
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Boron (dissolved)	µg/l	10	ISO 17025	30	35	40		
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08		
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	2.0	1.0	1.0		
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.0	1.0	1.0		
Copper (dissolved)	µg/l	0.7	ISO 17025	11	14	6.5		
Lead (dissolved)	µg/l	1	ISO 17025	2.3	2.4	3.0		
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.5	2.8	0.9		
Selenium (dissolved)	µg/l	4	ISO 17025	4.1	< 4.0	< 4.0		
Vanadium (dissolved)	µg/l	1.7	ISO 17025	8.7	3.0	< 1.7		
Zinc (dissolved)	µg/l	0.4	ISO 17025	7.6	3.3	3.5		

Calcium (dissolved)	mg/l	0.012	ISO 17025	13	28	25		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.87	0.70	1.6		



Analytical Report Number: 17-44433

Project / Site name: Green Park Village, Reading

Lab Sample Number				727645	727646	727647		
Sample Reference				RWS614	RBH605	RWS630		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.20	1.00	0.30		
Date Sampled				29/03/2017	29/03/2017	29/03/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		



Analytical Report Number : 17-44433

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
727635	RWS615	None Supplied	1.50	Light grey sandy gravel.**
727636	RWS612	None Supplied	2.65	Grey clay with gravel.
727637	RWS614	None Supplied	0.20	Brown clay and sand with gravel.
727638	RWS614	None Supplied	1.00	Grey clay and sand with gravel.
727639	RBH608	None Supplied	1.20	Brown loam and clay with gravel.
727640	RBH605	None Supplied	1.00	Brown loam and clay with gravel.
727641	RBH605	None Supplied	1.40	Brown loam and clay with gravel.
727642	RWS629	None Supplied	0.20	Brown loam and clay with gravel.
727643	RWS629	None Supplied	3.50	Brown loam and clay with gravel.
727644	RWS630	None Supplied	0.30	Light brown clay and sand.

**Non Mcerts Matrix

Analytical Report Number : 17-44433

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-44433

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organochlorine pesticides in soil	Determination of organochlorine pesticides in soil by GC-MS	In-house method		W	NONE
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report



Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
RWS614		S	17-44433	727638	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
RWS614		S	17-44433	727638	b	TPHCWG (Soil)	L076-PL	b
RWS629		S	17-44433	727642	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
RWS629		S	17-44433	727642	b	TPHCWG (Soil)	L076-PL	b
RWS629		S	17-44433	727643	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
RWS629		S	17-44433	727643	b	TPHCWG (Soil)	L076-PL	b
RWS630		S	17-44433	727644	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
RWS630		S	17-44433	727644	b	TPHCWG (Soil)	L076-PL	b



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e: Jørn Pace

Analytical Report Number : 17-44531

Project / Site name:	Green Park Village	Samples received on:	30/03/2017
Your job number:		Samples instructed on:	03/04/2017
Your order number:		Analysis completed by:	07/04/2017
Report Issue Number:	1	Report issued on:	07/04/2017
Samples Analysed:	1 soil sample		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-44531
Project / Site name: Green Park Village

Lab Sample Number				728088				
Sample Reference				RBH609				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				29/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	15				
Total mass of sample received	kg	0.001	NONE	1.5				

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	3800				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.9				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Phenanthrene	mg/kg	0.1	MCERTS	0.96				
Anthracene	mg/kg	0.1	MCERTS	0.31				
Fluoranthene	mg/kg	0.1	MCERTS	1.9				
Pyrene	mg/kg	0.1	MCERTS	1.7				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.97				
Chrysene	mg/kg	0.05	MCERTS	0.92				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.91				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.88				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	1.0				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.53				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.64				

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	10.7				
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72				
Boron (water soluble)	mg/kg	0.2	MCERTS	3.4				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2				
Chromium (III)	mg/kg	1	NONE	30				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	52				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	66				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140				



Analytical Report Number: 17-44531

Project / Site name: Green Park Village

Lab Sample Number				728088				
Sample Reference				RBH609				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				29/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	ug/kg	1	MCERTS	< 1.0				
Ethylbenzene	ug/kg	1	MCERTS	< 1.0				
p & m-xylene	ug/kg	1	MCERTS	< 1.0				
o-xylene	ug/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	11				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	26				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	220				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	260				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.4				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	12				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	43				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	210				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	260				



Analytical Report Number: 17-44531
Project / Site name: Green Park Village

Lab Sample Number				728088				
Sample Reference				RBH609				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				29/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0				
Chloroethane	µg/kg	1	NONE	< 1.0				
Bromomethane	µg/kg	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/kg	1	NONE	< 1.0				
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0				
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0				
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0				
Trichloromethane	µg/kg	1	MCERTS	< 1.0				
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0				
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0				
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0				
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0				
Benzene	µg/kg	1	MCERTS	< 1.0				
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0				
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0				
Trichloroethene	µg/kg	1	MCERTS	< 1.0				
Dibromomethane	µg/kg	1	MCERTS	< 1.0				
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0				
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0				
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/kg	1	NONE	< 1.0				
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0				
Chlorobenzene	µg/kg	1	MCERTS	< 1.0				
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-Xylene	µg/kg	1	MCERTS	< 1.0				
Styrene	µg/kg	1	MCERTS	< 1.0				
Tribromomethane	µg/kg	1	NONE	< 1.0				
o-Xylene	µg/kg	1	MCERTS	< 1.0				
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0				
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0				
Bromobenzene	µg/kg	1	MCERTS	< 1.0				
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0				
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0				
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0				
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0				
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0				
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0				
Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0				
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0				



Analytical Report Number: 17-44531
Project / Site name: Green Park Village

Lab Sample Number				728088				
Sample Reference				RBH609				
Sample Number				None Supplied				
Depth (m)				1.50				
Date Sampled				29/03/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1				
Phenol	mg/kg	0.2	ISO 17025	< 0.2				
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1				
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2				
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2				
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1				
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2				
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1				
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3				
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05				
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3				
4-Methylphenol	mg/kg	0.2	NONE	< 0.2				
Isophorone	mg/kg	0.2	MCERTS	< 0.2				
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3				
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3				
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3				
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3				
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1				
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1				
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1				
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1				
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2				
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1				
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1				
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1				
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1				
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10				
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10				
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2				
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2				
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3				
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2				
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2				
Fluorene	mg/kg	0.1	MCERTS	< 0.10				
Azobenzene	mg/kg	0.3	MCERTS	< 0.3				
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2				
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3				
Phenanthrene	mg/kg	0.1	MCERTS	0.96				
Anthracene	mg/kg	0.1	MCERTS	0.31				
Carbazole	mg/kg	0.3	MCERTS	< 0.3				
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2				
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3				
Fluoranthene	mg/kg	0.1	MCERTS	1.9				
Pyrene	mg/kg	0.1	MCERTS	1.7				
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3				
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.97				
Chrysene	mg/kg	0.05	MCERTS	0.92				
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	0.91				
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	0.88				
Benzo(a)pyrene	mg/kg	0.1	MCERTS	1.0				
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	0.53				
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.64				



Analytical Report Number : 17-44531

Project / Site name: Green Park Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
728088	RBH609	None Supplied	1.50	Brown loam and clay with gravel.

Analytical Report Number : 17-44531

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Iss No 17-44531-1 Green Park Village

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The results included within the report are representative of the samples submitted for analysis.

Page 7 of 8



Analytical Report Number : 17-44531

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Jørn Pace
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e: Jørn Pace

Analytical Report Number : 17-44842

Project / Site name:	Green Park Village, Reading	Samples received on:	04/04/2017
Your job number:	1620000492	Samples instructed on:	04/04/2017
Your order number:		Analysis completed by:	11/04/2017
Report Issue Number:	1	Report issued on:	11/04/2017
Samples Analysed:	2 leachate samples - 8 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-44842

Project / Site name: Green Park Village, Reading

Lab Sample Number				730118	730119	730120	730121	730122
Sample Reference				RWS632	RWS633	RWS634	RBH606	RWS637
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.20	3.85	0.60	0.20
Date Sampled				30/03/2017	31/03/2017	31/03/2017	31/03/2017	03/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	21	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	8.8	8.2	11	11	12
Total mass of sample received	kg	0.001	NONE	1.9	2.0	2.0	2.0	1.9

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile	Chrysotile & Amosite
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	0.002	0.003
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	0.002	0.003

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	7.9	8.7	9.5	9.6
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	970	29	82	650	3300
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.48	0.014	0.041	0.33	1.7
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	-	0.0061	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.65	1.2
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.40
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	1.0	2.9
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.90	2.5
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.63	1.8
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.53	1.5
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.68	2.3
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.43	1.5
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.60	2.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.36	1.4
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.37
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.50	1.6

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	< 1.60	6.31	19.5
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	7.7	< 1.0	13	6.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.86	0.53	0.56	0.49	0.97
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	1.0	0.5	2.1	1.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.6	0.5
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	17	20	9.2	25	26
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	20	9.2	25	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	17	14	59	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	22	98	53	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.4	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	17	20	15	39
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	20	7.4	26	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	30	45	26	130	330



Analytical Report Number: 17-44842

Project / Site name: Green Park Village, Reading

Lab Sample Number				730118	730119	730120	730121	730122
Sample Reference				RWS632	RWS633	RWS634	RBH606	RWS637
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00	0.20	3.85	0.60	0.20
Date Sampled				30/03/2017	31/03/2017	31/03/2017	31/03/2017	03/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.2
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	2.8	5.4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	12	13
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	130	97
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	150	120

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.2	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	2.7
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	14	22
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	190	170
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	210	200

Analytical Report Number: 17-44842

Project / Site name: Green Park Village, Reading

Lab Sample Number				730123	730124	730125		
Sample Reference				RWS637	RWS637	RWS635		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.60	4.50	0.70		
Date Sampled				03/04/2017	03/04/2017	31/03/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	18	7.2	13		
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-		
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	8.4	7.9		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	340	92	3300		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.17	0.046	1.7		
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.013	-	-		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.33		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	0.24	0.27	1.9		
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.71		
Fluoranthene	mg/kg	0.1	MCERTS	0.58	0.67	5.3		
Pyrene	mg/kg	0.1	MCERTS	0.51	0.61	4.8		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	0.25	0.29	2.8		
Chrysene	mg/kg	0.05	MCERTS	0.22	0.22	2.4		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	0.30	3.1		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	0.24	2.1		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	0.26	2.8		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	1.6		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	0.43		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.9		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	1.80	2.86	30.1		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.3	11	8.6		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.84	0.14	0.57		
Boron (water soluble)	mg/kg	0.2	MCERTS	2.2	0.4	2.4		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2		
Chromium (III)	mg/kg	1	NONE	42	6.9	20		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	7.0	20		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28	10	27		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	40	6.9	80		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.0	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	11	15		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	7.3	30		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	87	17	110		

Analytical Report Number: 17-44842

Project / Site name: Green Park Village, Reading

Lab Sample Number				730123	730124	730125		
Sample Reference				RWS637	RWS637	RWS635		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.60	4.50	0.70		
Date Sampled				03/04/2017	03/04/2017	31/03/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Monoaromatics								
Benzene				ug/kg	1	MCERTS	< 1.0	< 1.0
Toluene				ug/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene				ug/kg	1	MCERTS	< 1.0	< 1.0
p & m-xylene				ug/kg	1	MCERTS	< 1.0	< 1.0
o-xylene				ug/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)				ug/kg	1	MCERTS	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	13	56		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	15	61		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	2.1		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	5.8		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	28		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	13	< 10	93		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	17	< 10	130		



Analytical Report Number: 17-44842
Project / Site name: Green Park Village, Reading
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
730121	RBH606	0.60	131	Loose Fibrous Debris	Chrysotile	0.002	0.002
730122	RWS637	0.20	132	Loose Fibres & Sheeting/ Board Debris	Chrysotile & Amosite	0.003	0.003

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number: 17-44842

Project / Site name: Green Park Village, Reading

Lab Sample Number				730126	730127			
Sample Reference				RWS633	RWS637			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20	0.20			
Date Sampled				31/03/2017	03/04/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.2			
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO ₄	mg/l	0.1	ISO 17025	1.2	450			
Ammoniacal Nitrogen as N	µg/l	15	NONE	< 15	87			
Hardness - Total	mgCaCO ₃ /l	1	NONE	23.9	381			

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10			
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2			
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	11	2.5			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	< 10	48			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	0.09	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	1.6	< 1.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.6	0.7			
Copper (dissolved)	µg/l	0.7	ISO 17025	5.4	13			
Lead (dissolved)	µg/l	1	ISO 17025	2.7	< 1.0			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.4	1.3			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	4.3	1.9			
Zinc (dissolved)	µg/l	0.4	ISO 17025	5.3	11			

Calcium (dissolved)	mg/l	0.012	ISO 17025	8.8	150			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.49	3.9			



Analytical Report Number: 17-44842

Project / Site name: Green Park Village, Reading

Lab Sample Number				730126	730127			
Sample Reference				RWS633	RWS637			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.20	0.20			
Date Sampled				31/03/2017	03/04/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			



Analytical Report Number : 17-44842

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
730118	RWS632	None Supplied	1.00	Light brown clay and sand with gravel and stones.
730119	RWS633	None Supplied	0.20	Brown clay and loam with gravel and vegetation.
730120	RWS634	None Supplied	3.85	Grey sandy clay.
730121	RBH606	None Supplied	0.60	Brown loam and clay with gravel and plastic.
730122	RWS637	None Supplied	0.20	Brown loam and clay with gravel and plastic.
730123	RWS637	None Supplied	2.60	Brown clay and loam with gravel.
730124	RWS637	None Supplied	4.50	Light brown sand with gravel.
730125	RWS635	None Supplied	0.70	Brown loam and clay with gravel and brick.

Analytical Report Number : 17-44842

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

Iss No 17-44842-1 Green Park Village, Reading 1620000492

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The results included within the report are representative of the samples submitted for analysis.

Page 10 of 11

Analytical Report Number : 17-44842

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-44971

Replaces Analytical Report Number : 17-44971, issue no. 1

Project / Site name:	Green Park Village	Samples received on:	05/04/2017
Your job number:		Samples instructed on:	06/04/2017
Your order number:		Analysis completed by:	13/04/2017
Report Issue Number:	2	Report issued on:	13/04/2017
Samples Analysed:	3 soil samples		

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-44971
Project / Site name: Green Park Village

Lab Sample Number				730838	730839	730840		
Sample Reference				RBH601	RBH603	RBH603		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				4.50	0.60	4.00		
Date Sampled				05/04/2017	05/04/2017	05/04/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	19	11	6.8		
Total mass of sample received	kg	0.001	NONE	2.0	1.8	2.0		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-	Amosite		
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected	Detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-	< 0.001		
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-	< 0.001		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	7.9	8.0		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1100	440	77		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.57	0.22	0.038		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.87	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	0.43	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	2.4	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	3.0	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	14	0.85	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	3.5	0.21	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	20	2.2	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	16	1.8	< 0.10		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	8.4	0.92	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	6.4	0.88	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	8.3	1.2	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	4.7	0.61	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	8.0	1.1	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	4.2	0.79	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	1.1	< 0.10	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.1	0.83	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	106	11.4	< 1.60		
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	21	6.9		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.60	0.64	0.25		
Boron (water soluble)	mg/kg	0.2	MCERTS	5.5	1.6	0.5		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.2	< 0.2		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2		
Chromium (III)	mg/kg	1	NONE	32	24	16		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	25	16		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	56	26	8.6		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	47	5.3		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	17	18		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	25	12		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	520	99	14		

Analytical Report Number: 17-44971

Project / Site name: Green Park Village

Lab Sample Number				730838	730839	730840		
Sample Reference				RBH601	RBH603	RBH603		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				4.50	0.60	4.00		
Date Sampled				05/04/2017	05/04/2017	05/04/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	23	3.5	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	66	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	390	63	< 8.0		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	470	75	< 10		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.4	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	32	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	140	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	650	50	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	820	59	< 10		



Analytical Report Number: 17-44971
Project / Site name: Green Park Village

Lab Sample Number				730838	730839	730840		
Sample Reference				RBH601	RBH603	RBH603		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				4.50	0.60	4.00		
Date Sampled				05/04/2017	05/04/2017	05/04/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-		
Chloroethane	µg/kg	1	NONE	< 1.0	-	-		
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-		
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-		
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-		
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-		
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-		
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-		
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-		
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-		
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-		
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-		
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-		
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-		
Benzene	µg/kg	1	MCERTS	< 1.0	-	-		
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-		
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-		
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-		
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-		
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-		
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-		
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-		
Toluene	µg/kg	1	MCERTS	< 1.0	-	-		
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-		
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-		
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-		
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-		
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-		
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-		
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-		
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-		
Styrene	µg/kg	1	MCERTS	< 1.0	-	-		
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-		
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-		
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-		
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-		
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-		
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-		
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-		
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-		
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-		
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-		
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-		
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-		
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-		
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-		
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-		
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-		
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-		
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-		
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-		
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-		



Analytical Report Number: 17-44971
Project / Site name: Green Park Village

Lab Sample Number				730838	730839	730840		
Sample Reference				RBH601	RBH603	RBH603		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				4.50	0.60	4.00		
Date Sampled				05/04/2017	05/04/2017	05/04/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-		
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-		
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-		
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-		
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-		
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-		
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-		
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-		
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-		
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-		
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-		
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-		
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-		
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-		
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-		
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-		
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-		
Naphthalene	mg/kg	0.05	MCERTS	0.87	-	-		
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-		
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-		
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-		
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-		
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-		
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-		
2-Methylnaphthalene	mg/kg	0.1	NONE	0.9	-	-		
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-		
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-		
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-		
Acenaphthylene	mg/kg	0.1	MCERTS	0.43	-	-		
Acenaphthene	mg/kg	0.1	MCERTS	2.4	-	-		
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-		
Dibenzofuran	mg/kg	0.2	MCERTS	1.6	-	-		
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-		
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-		
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-		
Fluorene	mg/kg	0.1	MCERTS	3.0	-	-		
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-		
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-		
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-		
Phenanthrene	mg/kg	0.1	MCERTS	14	-	-		
Anthracene	mg/kg	0.1	MCERTS	3.5	-	-		
Carbazole	mg/kg	0.3	MCERTS	1.2	-	-		
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-		
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-		
Fluoranthene	mg/kg	0.1	MCERTS	20	-	-		
Pyrene	mg/kg	0.1	MCERTS	16	-	-		
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	8.4	-	-		
Chrysene	mg/kg	0.05	MCERTS	6.4	-	-		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	8.3	-	-		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	4.7	-	-		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	8.0	-	-		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	4.2	-	-		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	1.1	-	-		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.1	-	-		



Analytical Report Number: 17-44971
Project / Site name: Green Park Village
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
730838	RBH601	4.50	118	Loose Fibres	Chrysotile	< 0.001	< 0.001
730840	RBH603	4.00	133	Loose Fibres	Amosite	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number : 17-44971

Project / Site name: Green Park Village

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
730838	RBH601	None Supplied	4.50	Brown clay and loam with gravel.
730839	RBH603	None Supplied	0.60	Light brown clay and sand with gravel.
730840	RBH603	None Supplied	4.00	Light brown gravel.**

**Non MCerts matrix

Analytical Report Number : 17-44971

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

Iss No 17-44971-2 Green Park Village

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-44971

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



Jørn Pace
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e: Jørn Pace

Analytical Report Number : 17-45490

Project / Site name:	Green Park Village, Reading	Samples received on:	11/04/2017
Your job number:	1620000492	Samples instructed on:	12/04/2017
Your order number:	1620013202	Analysis completed by:	20/04/2017
Report Issue Number:	1	Report issued on:	20/04/2017
Samples Analysed:	3 leachate samples - 19 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733578	733579	733580	733581	733582
Sample Reference				RTP601	RTP602	RTP602	RTP603	RTP604
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.50	1.20	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	15	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	12	12	16	12
Total mass of sample received	kg	0.001	NONE	1.6	1.6	2.0	1.7	2.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile & Amosite
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	< 0.001

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.0	6.7	6.8	6.5	9.8
Total Cyanide	mg/kg	1	MCERTS	1	< 1	< 1	2	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	51	110	130	1100
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.053	0.025	0.057	0.065	0.55
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.051	-	0.012	0.046	0.015

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.63	< 0.05	< 0.05	0.56	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.15
Phenanthrene	mg/kg	0.05	MCERTS	0.91	< 0.05	< 0.05	0.72	1.4
Anthracene	mg/kg	0.05	MCERTS	0.39	< 0.05	< 0.05	0.41	0.41
Fluoranthene	mg/kg	0.05	MCERTS	3.7	< 0.05	0.29	3.2	3.7
Pyrene	mg/kg	0.05	MCERTS	3.5	< 0.05	0.28	3.5	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.4	< 0.05	0.12	2.4	2.0
Chrysene	mg/kg	0.05	MCERTS	2.0	< 0.05	0.12	1.7	1.5
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.5	< 0.05	0.19	3.5	2.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.7	< 0.05	0.09	1.5	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.0	< 0.05	0.14	3.0	2.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.4	< 0.05	< 0.05	2.3	1.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.54	< 0.05	< 0.05	0.50	0.40
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.8	< 0.05	< 0.05	2.8	2.0

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	27.4	< 0.80	1.23	25.9	22.5
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Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733578	733579	733580	733581	733582
Sample Reference				RTP601	RTP602	RTP602	RTP603	RTP604
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.50	1.20	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	45	9.9	18	41	16
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	5.6	0.60	0.87	6.0	0.81
Boron (water soluble)	mg/kg	0.2	MCERTS	3.7	1.5	1.4	3.7	1.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	< 0.2	< 0.2	1.0	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	50	18	25	71	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	51	18	25	70	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	330	20	30	380	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	900	45	65	800	100
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	3.6	0.9	1.9	2.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	67	16	21	67	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	20	25	59	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	690	64	95	590	110

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.1
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	5.4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	13
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	23	100
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10	23	120

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.2
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	3.8
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	17	< 10	< 10	14	32
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	110	< 10	< 10	82	270
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	130	< 10	< 10	96	310



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733578	733579	733580	733581	733582
Sample Reference				RTP601	RTP602	RTP602	RTP603	RTP604
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.50	1.20	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	-	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	-	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733578	733579	733580	733581	733582
Sample Reference				RTP601	RTP602	RTP602	RTP603	RTP604
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.50	1.20	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	0.56	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	0.72	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	0.41	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	3.2	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	3.5	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	2.4	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	1.7	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	3.5	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	1.5	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	3.0	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	2.3	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	0.50	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	2.8	-



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733578	733579	733580	733581	733582
Sample Reference				RTP601	RTP602	RTP602	RTP603	RTP604
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	0.30	0.50	1.20	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil				P/A	N/A	NONE	-	-
							-	-
							Absent	Absent

Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733583	733584	733585	733586	733587
Sample Reference				RTP604	RTP605	RTP606	RTP606	RTP608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.10	0.10	0.10	0.30	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	16	33	< 0.1	< 0.1	25
Moisture Content	%	N/A	NONE	15	8.3	12	21	11
Total mass of sample received	kg	0.001	NONE	2.0	2.0	1.5	1.4	2.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile & Amosite
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	0.293
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	0.293

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	10.9	7.8	6.6	9.9
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	2	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	250	1300	690	360	3200
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.13	0.65	0.35	0.18	1.6
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.0031	0.0072	0.017	0.029	0.0077

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.30
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.34
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.82	0.30	< 0.05	3.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.24	0.10	< 0.05	0.91
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.6	0.67	0.26	5.3
Pyrene	mg/kg	0.05	MCERTS	< 0.05	1.4	0.66	0.25	4.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.75	0.38	0.15	2.5
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.58	0.33	0.12	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.68	0.42	0.24	2.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.47	0.32	0.10	1.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.65	0.37	0.18	2.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.36	0.29	0.16	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.35
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.46	0.33	0.24	1.4

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	7.96	4.17	1.70	27.6
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Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733583	733584	733585	733586	733587
Sample Reference				RTP604	RTP605	RTP606	RTP606	RTP608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.10	0.10	0.10	0.30	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	18	12	21	14
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.37	0.61	1.1	1.4	0.72
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	2.7	2.1	3.6	2.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.4	0.4
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	15	23	41	120	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	23	41	120	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	60	38	62	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	110	76	170	71
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	2.4	2.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	15	19	28	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	3.1	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	28	42	51	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	27	98	130	260	100

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.1
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	5.4	< 2.0	< 2.0	2.4
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	12	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	78	32	25	42
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	96	34	26	53

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.6
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.6	< 2.0	< 2.0	3.6
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	14	< 10	< 10	21
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	12	79	47	13	57
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	15	96	54	16	83



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733583	733584	733585	733586	733587
Sample Reference				RTP604	RTP605	RTP606	RTP606	RTP608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.10	0.10	0.10	0.30	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	-	-	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	< 1.0



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733583	733584	733585	733586	733587
Sample Reference				RTP604	RTP605	RTP606	RTP606	RTP608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.10	0.10	0.10	0.30	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.30
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.34
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	3.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.91
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	5.3
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	4.6
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	-	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	2.5
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	2.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	1.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	2.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	0.35
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	1.4



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733583	733584	733585	733586	733587
Sample Reference				RTP604	RTP605	RTP606	RTP606	RTP608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.10	0.10	0.10	0.30	0.30
Date Sampled				06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil				P/A	N/A	NONE	-	-

Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733588	733589	733590	733591	733592
Sample Reference				RTP609	RTP610	RTP611	RTP613	RTP613
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.30	0.50	1.50	2.10
Date Sampled				10/04/2017	07/04/2017	07/04/2017	07/04/2017	07/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	65	32	< 0.1	58
Moisture Content	%	N/A	NONE	18	9.4	8.2	18	9.2
Total mass of sample received	kg	0.001	NONE	1.8	1.9	2.0	2.0	2.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	10.0	8.2	10.3	11.8
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	810	1300	750	650	160
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.40	0.67	0.38	0.32	0.081
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.022	-	0.0086	0.0067	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.45	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.23	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.48	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.62	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.0	0.63	0.60	1.8	0.72
Anthracene	mg/kg	0.05	MCERTS	0.30	0.17	0.24	0.32	0.12
Fluoranthene	mg/kg	0.05	MCERTS	2.5	1.3	2.4	1.3	0.64
Pyrene	mg/kg	0.05	MCERTS	2.3	1.2	2.2	1.1	0.49
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.6	0.64	1.5	0.51	0.22
Chrysene	mg/kg	0.05	MCERTS	1.1	0.53	1.2	0.40	0.21
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.0	0.65	2.2	0.49	0.26
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.96	0.44	1.1	0.21	0.15
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.7	0.60	1.7	0.41	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.3	0.40	1.4	0.22	0.17
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.33	0.10	0.38	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.6	0.50	1.6	0.28	0.21

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	16.9	7.11	16.4	8.66	3.41
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Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733588	733589	733590	733591	733592
Sample Reference				RTP609	RTP610	RTP611	RTP613	RTP613
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.30	0.50	1.50	2.10
Date Sampled				10/04/2017	07/04/2017	07/04/2017	07/04/2017	07/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	11	6.1	5.2	5.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.80	0.65	0.54	0.52	0.41
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1	3.5	1.9	1.4	2.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.6	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	29	25	20	22	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	25	20	22	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	52	26	32	20	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	66	95	34	28
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	14	14	6.1	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	30	27	32	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	210	100	98	39	96

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	1.1	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	3.3	2.4	5.1	2.8	7.3
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	14
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	78	28	32	22	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	88	34	44	27	25

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	1.3	1.1	1.8	2.7
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.9	3.8	6.3	14
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	18	< 10	21	< 10	28
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	140	48	120	23	50
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	160	61	140	41	94



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733588	733589	733590	733591	733592
Sample Reference				RTP609	RTP610	RTP611	RTP613	RTP613
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.30	0.50	1.50	2.10
Date Sampled				10/04/2017	07/04/2017	07/04/2017	07/04/2017	07/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Chloroethane	µg/kg	1	NONE	-	-	-	< 1.0	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	< 1.0	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	< 1.0	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	< 1.0	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Styrene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Tribromomethane	µg/kg	1	NONE	-	-	-	< 1.0	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	-	< 1.0	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	< 1.0	-



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733588	733589	733590	733591	733592
Sample Reference				RTP609	RTP610	RTP611	RTP613	RTP613
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.30	0.50	1.50	2.10
Date Sampled				10/04/2017	07/04/2017	07/04/2017	07/04/2017	07/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	-	-	-	0.45	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	0.3	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	0.48	-
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	0.6	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-	0.62	-
Azobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	1.8	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-	0.32	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	0.5	-
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	1.3	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-	1.1	-
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	-	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	0.51	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-	0.40	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.49	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	0.21	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.41	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	0.22	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	0.28	-



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733588	733589	733590	733591	733592
Sample Reference				RTP609	RTP610	RTP611	RTP613	RTP613
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.90	0.30	0.50	1.50	2.10
Date Sampled				10/04/2017	07/04/2017	07/04/2017	07/04/2017	07/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	-	-

Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733593	733594	733595	733596	
Sample Reference				RTP614	RTP615	RTP616	RTP616	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				1.30	2.70	0.40	1.20	
Date Sampled				07/04/2017	10/07/2017	10/04/2017	10/04/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	17	17	13	14	
Total mass of sample received	kg	0.001	NONE	2.0	2.0	1.9	2.0	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile	-	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	-	
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	-	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	7.6	8.6	7.4	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	800	520	1900	950	
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.40	0.26	0.96	0.48	
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	-	-	-	0.016	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Phenanthrene	mg/kg	0.05	MCERTS	0.25	< 0.05	0.83	0.19	
Anthracene	mg/kg	0.05	MCERTS	0.11	< 0.05	0.24	< 0.05	
Fluoranthene	mg/kg	0.05	MCERTS	1.0	< 0.05	1.7	0.53	
Pyrene	mg/kg	0.05	MCERTS	0.99	< 0.05	1.6	0.54	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.50	< 0.05	1.0	0.31	
Chrysene	mg/kg	0.05	MCERTS	0.36	< 0.05	0.71	0.23	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.83	< 0.05	1.3	0.39	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.48	< 0.05	0.70	0.28	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.83	< 0.05	1.2	0.38	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.61	< 0.05	0.91	0.32	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.15	< 0.05	0.25	< 0.05	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.83	< 0.05	1.2	0.43	

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	6.97	< 0.80	11.7	3.60	
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Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733593	733594	733595	733596	
Sample Reference				RTP614	RTP615	RTP616	RTP616	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				1.30	2.70	0.40	1.20	
Date Sampled				07/04/2017	10/07/2017	10/04/2017	10/04/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	16	15	15	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	0.93	0.76	0.82	
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	2.8	2.2	4.0	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.5	< 0.2	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	
Chromium (III)	mg/kg	1	NONE	50	47	27	39	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	50	47	27	39	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	35	32	39	30	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	55	52	75	57	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	2.2	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	17	17	18	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	3.9	< 1.0	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	40	32	42	35	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	110	190	110	

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	5.8	8.9	4.2	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	11	8.2	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	36	19	120	50	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	48	39	130	59	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.4	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	4.8	< 2.0	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	29	< 10	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	120	< 10	540	56	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	120	< 10	580	64	



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733593	733594	733595	733596
Sample Reference				RTP614	RTP615	RTP616	RTP616
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.30	2.70	0.40	1.20
Date Sampled				07/04/2017	10/07/2017	10/04/2017	10/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Chloroethane	µg/kg	1	NONE	-	< 1.0	-	-
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	-	-
Benzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	-	-
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	-	-
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	-	-
Toluene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
Styrene	µg/kg	1	MCERTS	-	< 1.0	-	-
Tribromomethane	µg/kg	1	NONE	-	< 1.0	-	-
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	-	-



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733593	733594	733595	733596	
Sample Reference				RTP614	RTP615	RTP616	RTP616	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				1.30	2.70	0.40	1.20	
Date Sampled				07/04/2017	10/07/2017	10/04/2017	10/04/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
SVOCs								
Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Hexachloroethane	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
2-Nitrophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
4-Nitroaniline	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Azobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	-	-	
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	-	-	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733593	733594	733595	733596	
Sample Reference				RTP614	RTP615	RTP616	RTP616	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				1.30	2.70	0.40	1.20	
Date Sampled				07/04/2017	10/07/2017	10/04/2017	10/04/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Pesticide and Herbicide Screen								
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	-	



Analytical Report Number: 17-45490
Project / Site name: Green Park Village, Reading
Your Order No: 1620013202

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
733582	RTP604	0.30	131	Loose Fibres	Chrysotile & Amosite	< 0.001	< 0.001
733587	RTP608	0.30	162	Hard/Cement Type Material & Loose Fibres	Chrysotile & Amosite	0.293	0.293
733595	RTP616	0.40	135	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733597	733598	733599		
Sample Reference				RTP601	RTP606	RTP614		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.60	0.10	1.30		
Date Sampled				06/04/2017	06/04/2017	07/04/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.2	7.6	7.9		
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	mg/l	0.1	ISO 17025	9.2	47	41		
Ammoniacal Nitrogen as N	µg/l	15	NONE	< 15	< 15	1700		
Hardness - Total	mgCaCO ₃ /l	1	NONE	28.1	80.0	62.2		

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10		
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	2.2	< 1.1		
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Boron (dissolved)	µg/l	10	ISO 17025	66	28	34		
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08		
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	1.1	1.0	< 1.0		
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.1	1.0	1.0		
Copper (dissolved)	µg/l	0.7	ISO 17025	19	24	15		
Lead (dissolved)	µg/l	1	ISO 17025	4.2	2.9	2.3		
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.4	2.9	2.2		
Selenium (dissolved)	µg/l	4	ISO 17025	4.3	< 4.0	< 4.0		
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	4.6	2.3		
Zinc (dissolved)	µg/l	0.4	ISO 17025	14	8.8	4.8		

Calcium (dissolved)	mg/l	0.012	ISO 17025	9.8	29	24		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.85	1.5	0.74		



Analytical Report Number: 17-45490

Project / Site name: Green Park Village, Reading

Your Order No: 1620013202

Lab Sample Number				733597	733598	733599		
Sample Reference				RTP601	RTP606	RTP614		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.60	0.10	1.30		
Date Sampled				06/04/2017	06/04/2017	07/04/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10	< 10		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		



Analytical Report Number : 17-45490

Project / Site name: Green Park Village, Reading

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
733578	RTP601	None Supplied	0.60	Black loam with gravel.
733579	RTP602	None Supplied	0.30	Brown sandy loam with stones and vegetation.
733580	RTP602	None Supplied	0.50	Brown clay and loam with gravel and vegetation.
733581	RTP603	None Supplied	1.20	Brown loam and clay with gravel and vegetation.
733582	RTP604	None Supplied	0.30	Brown clay and sand with rubble.
733583	RTP604	None Supplied	2.10	Brown sand with gravel and stones.
733584	RTP605	None Supplied	0.10	Brown loam and sand with rubble and stones.
733585	RTP606	None Supplied	0.10	Brown clay and loam with gravel.
733586	RTP606	None Supplied	0.30	Brown clay and loam with gravel.
733587	RTP608	None Supplied	0.30	Light brown sandy clay with brick and stones.
733588	RTP609	None Supplied	0.90	Brown loam and sand with gravel and vegetation.
733589	RTP610	None Supplied	0.30	Light brown clay and sand with stones.
733590	RTP611	None Supplied	0.50	Brown clay and sand with stones.
733591	RTP613	None Supplied	1.50	Brown clay.
733592	RTP613	None Supplied	2.10	Grey clay with stones.
733593	RTP614	None Supplied	1.30	Brown clay.
733594	RTP615	None Supplied	2.70	Brown clay.
733595	RTP616	None Supplied	0.40	Brown sand with gravel and brick.
733596	RTP616	None Supplied	1.20	Brown clay and sand with gravel.

Analytical Report Number : 17-45490

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-45490

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Pesticides and Herbicides in soil screening	In-house method	In-house method		W	NONE
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report



Sample ID	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
RWS604		S	17-45490	733577	c			



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e: Jørn Pace

Analytical Report Number : 17-45630

Project / Site name:	Green Park Village, Reading	Samples received on:	12/04/2017
Your job number:	1620000492	Samples instructed on:	12/04/2017
Your order number:		Analysis completed by:	18/04/2017
Report Issue Number:	1	Report issued on:	18/04/2017
Samples Analysed:	1 bulk sample		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-45630

Project / Site name: Green Park Village, Reading

Lab Sample Number				734305				
Sample Reference				RTP614				
Sample Number				None Supplied				
Depth (m)				0.50				
Date Sampled				07/04/2017				
Time Taken				None Supplied				
Analytical Parameter (Bulk Analysis)	Units	Limit of detection	Accreditation Status					
Asbestos Identification Name	Type	N/A	ISO 17025	No Asbestos Detected				



Analytical Report Number : 17-45630

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bults	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-46932

Project / Site name:	Green Park Village	Samples received on:	28/04/2017
Your job number:		Samples instructed on:	28/04/2017
Your order number:		Analysis completed by:	08/05/2017
Report Issue Number:	1	Report issued on:	08/05/2017
Samples Analysed:	6 water samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741354	741355	741356	741357	741358
Sample Reference				RWS601	RWS602	RWS603	RWS604	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/04/2017	27/04/2017	27/04/2017	27/04/2017	27/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	49000	39900	70500	65700	261000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	49	40	71	66	260
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	7.31	7.74	7.43	9.06	14.3
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	328	295	374	331	611

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	4.9	11	8.5	18	10
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	0.3	0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	130	89	110	92	160
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	110	140	120	230
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	4.2	1.5	1.0	0.8	2.8
Lead (dissolved)	µg/l	1	ISO 17025	1.4	2.0	3.0	1.9	2.1
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.7	7.4	8.5	7.3	11
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	20	19	6.3	7.2	32
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.8	9.6	2.0	< 1.7	2.2
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.8	4.9	26	5.2	8.7



Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741354	741355	741356	741357	741358
Sample Reference				RWS601	RWS602	RWS603	RWS604	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/04/2017	27/04/2017	27/04/2017	27/04/2017	27/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	23	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	190	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	140	< 10	85	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	18	< 10	35	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	370	< 10	120	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10



Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741354	741355	741356	741357	741358
Sample Reference				RWS601	RWS602	RWS603	RWS604	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/04/2017	27/04/2017	27/04/2017	27/04/2017	27/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741354	741355	741356	741357	741358
Sample Reference				RWS601	RWS602	RWS603	RWS604	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/04/2017	27/04/2017	27/04/2017	27/04/2017	27/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 17-46932-1 Green Park Village

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741359				
Sample Reference				RWS611				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				27/04/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

Total Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO ₄	µg/l	45	ISO 17025	86600				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	87				
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	8.00				
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	351				

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16				
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	26				
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2				
Boron (dissolved)	µg/l	10	ISO 17025	98				
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08				
Calcium (dissolved)	mg/l	0.012	ISO 17025	130				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (III)	µg/l	1	NONE	< 1.0				
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.4				
Copper (dissolved)	µg/l	0.7	ISO 17025	1.8				
Lead (dissolved)	µg/l	1	ISO 17025	1.7				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.7				
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5				
Nickel (dissolved)	µg/l	0.3	ISO 17025	18				
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0				
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.9				
Zinc (dissolved)	µg/l	0.4	ISO 17025	5.2				



Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741359				
Sample Reference				RWS611				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				27/04/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	120				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	94				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	210				

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				



Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741359				
Sample Reference				RWS611				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				27/04/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0				
Chloroethane	µg/l	1	ISO 17025	< 1.0				
Bromomethane	µg/l	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/l	1	NONE	< 1.0				
Trichlorofluoromethane	µg/l	1	NONE	< 1.0				
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloromethane	µg/l	1	ISO 17025	< 1.0				
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0				
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0				
Benzene	µg/l	1	ISO 17025	< 1.0				
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0				
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Trichloroethene	µg/l	1	ISO 17025	< 1.0				
Dibromomethane	µg/l	1	ISO 17025	< 1.0				
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0				
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0				
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0				
Chlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-Xylene	µg/l	1	ISO 17025	< 1.0				
Styrene	µg/l	1	ISO 17025	< 1.0				
Tribromomethane	µg/l	1	ISO 17025	< 1.0				
o-Xylene	µg/l	1	ISO 17025	< 1.0				
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0				
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0				
Bromobenzene	µg/l	1	ISO 17025	< 1.0				
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0				
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0				
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Butylbenzene	µg/l	1	ISO 17025	< 1.0				
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0				



Analytical Report Number: 17-46932

Project / Site name: Green Park Village

Lab Sample Number				741359				
Sample Reference				RWS611				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				27/04/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05				
Phenol	µg/l	0.05	NONE	< 0.05				
2-Chlorophenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05				
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05				
2-Methylphenol	µg/l	0.05	NONE	< 0.05				
Hexachloroethane	µg/l	0.05	NONE	< 0.05				
Nitrobenzene	µg/l	0.05	NONE	< 0.05				
4-Methylphenol	µg/l	0.05	NONE	< 0.05				
Isophorone	µg/l	0.05	NONE	< 0.05				
2-Nitrophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05				
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05				
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05				
Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05				
4-Chloroaniline	µg/l	0.05	NONE	< 0.05				
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05				
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05				
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05				
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05				
Dimethylphthalate	µg/l	0.05	NONE	< 0.05				
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05				
Dibenzofuran	µg/l	0.05	NONE	< 0.05				
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Diethyl phthalate	µg/l	0.05	NONE	< 0.05				
4-Nitroaniline	µg/l	0.05	NONE	< 0.05				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Azobenzene	µg/l	0.05	NONE	< 0.05				
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05				
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Carbazole	µg/l	0.05	NONE	< 0.05				
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05				
Anthraquinone	µg/l	0.05	NONE	< 0.05				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 17-46932

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Iss No 17-46932-1 Green Park Village

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The results included within the report are representative of the samples submitted for analysis.

Page 10 of 10



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e: Jørn Pace

Analytical Report Number : 17-47153

Project / Site name:	Green Park Village	Samples received on:	02/05/2017
Your job number:	1620000442	Samples instructed on:	02/05/2017
Your order number:		Analysis completed by:	09/05/2017
Report Issue Number:	1	Report issued on:	09/05/2017
Samples Analysed:	8 water samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742423	742424	742425	742426	742427
Sample Reference				RBH605	RBH606	RBH601	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.0	7.7	7.0	6.9	7.0
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	163000	36800	474000	1110000	470000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	160	37	470	1100	470
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	1900	370	8500	5600	4000
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	69.0	24.2	190	168	111
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	587	206	1910	1740	1240

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.39	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.42	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.33	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.75	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.19	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.28	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.16	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	2.52	< 0.16	< 0.16
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	8.3	3.7	13	13	10
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	150	110	610	250	310
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Calcium (dissolved)	mg/l	0.012	ISO 17025	210	60	680	610	430
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	1.8	< 1.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.5	< 0.4	0.6	1.8	0.7
Copper (dissolved)	µg/l	0.7	ISO 17025	1.3	0.8	1.5	1.9	1.3
Lead (dissolved)	µg/l	1	ISO 17025	1.1	1.2	2.2	4.7	3.1
Magnesium (dissolved)	mg/l	0.005	ISO 17025	13	14	52	52	44
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	10	2.6	9.3	19	9.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	3.8	< 1.7	1.9
Zinc (dissolved)	µg/l	0.4	ISO 17025	13	12	11	9.0	6.3



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742423	742424	742425	742426	742427
Sample Reference				RBH605	RBH606	RBH601	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	700	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	700	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742423	742424	742425	742426	742427
Sample Reference				RBH605	RBH606	RBH601	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742423	742424	742425	742426	742427
Sample Reference				RBH605	RBH606	RBH601	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				02/05/2017	02/05/2017	02/05/2017	02/05/2017	02/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.39	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.42	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.33	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.75	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.19	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.28	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.16	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742428	742429	742430		
Sample Reference				RBH602S	RBH610D	RBH604D		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				02/05/2017	02/05/2017	02/05/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.1	7.4	7.5		
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	µg/l	45	ISO 17025	44400	22200	47700		
Sulphate as SO ₄	mg/l	0.045	ISO 17025	44	22	48		
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	880	580	370		
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	37.0	46.1	42.1		
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	241	320	253		

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	23	< 10		
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16		
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	4.5	4.7	4.3		
Beryllium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.4	0.3		
Boron (dissolved)	µg/l	10	ISO 17025	78	81	130		
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08		
Calcium (dissolved)	mg/l	0.012	ISO 17025	82	110	69		
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	< 0.4		
Copper (dissolved)	µg/l	0.7	ISO 17025	1.3	0.7	< 0.7		
Lead (dissolved)	µg/l	1	ISO 17025	2.0	1.4	1.4		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.8	13	20		
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.5	6.8	3.3		
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0		
Vanadium (dissolved)	µg/l	1.7	ISO 17025	3.5	< 1.7	< 1.7		
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.3	5.1	5.1		



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742428	742429	742430		
Sample Reference				RBH602S	RBH610D	RBH604D		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				02/05/2017	02/05/2017	02/05/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742428	742429	742430		
Sample Reference				RBH602S	RBH610D	RBH604D		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				02/05/2017	02/05/2017	02/05/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		



Analytical Report Number: 17-47153

Project / Site name: Green Park Village

Lab Sample Number				742428	742429	742430		
Sample Reference				RBH602S	RBH610D	RBH604D		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				02/05/2017	02/05/2017	02/05/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01		

U/S = Unsuitable Sample I/S = Insufficient Sample

Iss No 17-47153-1 Green Park Village 1620000442

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-47153

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-47153

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-47157

Project / Site name:	Green Park Village	Samples received on:	02/05/2017
Your job number:	1620000442	Samples instructed on:	02/05/2017
Your order number:		Analysis completed by:	09/05/2017
Report Issue Number:	1	Report issued on:	09/05/2017
Samples Analysed:	12 water samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742472	742473	742474	742475	742476
Sample Reference				RWS612	RWS614	RWS613	RWS615	RWS618
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	475000	419000	219000	289000	71200
Sulphate as SO ₄	mg/l	0.045	ISO 17025	480	420	220	290	71
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	47.7	57.5	72.9	44.4	90.7
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	733	651	633	552	573

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742472	742473	742474	742475	742476
Sample Reference				RWS612	RWS614	RWS613	RWS615	RWS618
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	11	7.2	16	5.9	15
Beryllium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.3	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	120	170	180	120	150
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Calcium (dissolved)	mg/l	0.012	ISO 17025	280	240	230	200	210
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.4	0.4	0.6	< 0.4	0.9
Copper (dissolved)	µg/l	0.7	ISO 17025	1.5	1.8	1.1	4.2	1.1
Lead (dissolved)	µg/l	1	ISO 17025	2.2	2.1	2.0	1.3	2.7
Magnesium (dissolved)	mg/l	0.005	ISO 17025	9.0	12	13	10	12
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	6.1	13	9.9	22	3.7
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.2	< 1.7	< 1.7	3.2	2.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	8.7	11	10	8.7	9.8

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	57	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	890	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	950	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742472	742473	742474	742475	742476
Sample Reference				RWS612	RWS614	RWS613	RWS615	RWS618
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742472	742473	742474	742475	742476
Sample Reference				RWS612	RWS614	RWS613	RWS615	RWS618
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

U/S = Unsuitable Sample I/S = Insufficient Sample

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742477	742478	742479	742480	742481
Sample Reference				RWS629	RWS633	RWS637	RWS608	RWS621
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	8210	79500	296000	260000	65700
Sulphate as SO ₄	mg/l	0.045	ISO 17025	8.2	79	300	260	66
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	1.49	50.8	118	83.4	11.9
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	1020	347	1000	707	250

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.37	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.43	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.51	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.37	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.09	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	2.77	< 0.16	< 0.16
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Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742477	742478	742479	742480	742481
Sample Reference				RWS629	RWS633	RWS637	RWS608	RWS621
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	18	8.7	11	90	18
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	0.3	< 0.2	0.3
Boron (dissolved)	µg/l	10	ISO 17025	160	160	210	180	110
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Calcium (dissolved)	mg/l	0.012	ISO 17025	380	120	370	260	88
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	1.3	< 1.0	1.2
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.5	< 0.4	1.3	0.7	1.2
Copper (dissolved)	µg/l	0.7	ISO 17025	0.9	0.9	7.9	1.0	< 0.7
Lead (dissolved)	µg/l	1	ISO 17025	3.1	1.4	< 1.0	3.0	2.2
Magnesium (dissolved)	mg/l	0.005	ISO 17025	20	11	20	12	7.6
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.8	2.1	8.1	11	3.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	3.8	< 1.7	5.1	< 1.7	5.4
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.0	9.4	11	5.4	6.4

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	51	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	370	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	420	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742477	742478	742479	742480	742481
Sample Reference				RWS629	RWS633	RWS637	RWS608	RWS621
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742477	742478	742479	742480	742481
Sample Reference				RWS629	RWS633	RWS637	RWS608	RWS621
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/04/2017	28/04/2017	28/04/2017	28/04/2017	28/04/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.37	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.4	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.51	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.37	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.09	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742482	742483			
Sample Reference				RWS617	RWS616			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				28/04/2017	28/04/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO ₄	µg/l	45	ISO 17025	110000	284000			
Sulphate as SO ₄	mg/l	0.045	ISO 17025	110	280			
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.66	14.0			
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	298	397			

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10			
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16			
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Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742482	742483			
Sample Reference				RWS617	RWS616			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				28/04/2017	28/04/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	6.5	11			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	0.3	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	130	130			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	130			
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	0.5			
Copper (dissolved)	µg/l	0.7	ISO 17025	1.5	1.6			
Lead (dissolved)	µg/l	1	ISO 17025	1.9	4.0			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	7.3	15			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	7.5	6.0			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7			
Zinc (dissolved)	µg/l	0.4	ISO 17025	9.6	6.7			

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	150			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	910			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	1100			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742482	742483			
Sample Reference				RWS617	RWS616			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				28/04/2017	28/04/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0			
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0			
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0			
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0			
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0			



Analytical Report Number: 17-47157

Project / Site name: Green Park Village

Lab Sample Number				742482	742483			
Sample Reference				RWS617	RWS616			
Sample Number				None Supplied	None Supplied			
Depth (m)				None Supplied	None Supplied			
Date Sampled				28/04/2017	28/04/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05			
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05			
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05			
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05			
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05			
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05			
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05			
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05			
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05			
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05			
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05			
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05			
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 17-47157

Project / Site name: Green Park Village

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Iss No 17-47157-1 Green Park Village 1620000442

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The results included within the report are representative of the samples submitted for analysis.

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BACTERIOLOGICAL TEST REPORT



NON LEGIONELLA SAMPLES
RECEIVED OUTSIDE OF 24 HOURS
THEREFORE RESULTS MAY BE INVALID

Client: i2 Analytical LTD
Address: 7 Woodshots Meadow
Croxley Green Business Park
Croxley Green
Hertfordshire
WD18 8YS
Site: 17-4776
FAO: Trevor Hill
Order No: 8867,1747776

Job Number: M/182/47390
Report No.: 49471.1
Date Taken: Tue, 9th May 2017 12:00
Date Rec'd: Thu, 11th May 2017



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Directors: B. Patel, K.Patel

Items Marked □ are not included in the UKAS Schedule

Sample ID	Description & Temperatures	Analysis	Result	Tested	Notes / Species
SL215222 <i>Water - Open</i>	745809 Init Temp □ Temp > 1 Min □ Temp > 2 Min □	TVC @ 37°C - 2 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		TVC @ 22°C - 3 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		Coliforms	1203 MPN/100ml	11/05/2017	
		E.Coli	0 MPN/100ml	11/05/2017	
		Faecal Coliforms □	649 MPN/100ml	11/05/2017	
SL215223 <i>Water - Open</i>	745810 Init Temp □ Temp > 1 Min □ Temp > 2 Min □	TVC @ 37°C - 2 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		TVC @ 22°C - 3 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		Coliforms	11 MPN/100ml	11/05/2017	
		E.Coli	0 MPN/100ml	11/05/2017	
		Faecal Coliforms □	161 MPN/100ml	11/05/2017	
SL215224 <i>Water - Open</i>	745814 Init Temp □ Temp > 1 Min □ Temp > 2 Min □	TVC @ 37°C - 2 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		TVC @ 22°C - 3 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		Coliforms	19 MPN/100ml	11/05/2017	
		E.Coli	0 MPN/100ml	11/05/2017	
		Faecal Coliforms □	125 MPN/100ml	11/05/2017	
SL215225 <i>Water - Open</i>	745818 Init Temp □ Temp > 1 Min □ Temp > 2 Min □	TVC @ 37°C - 2 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		TVC @ 22°C - 3 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		Coliforms	3 MPN/100ml	11/05/2017	
		E.Coli	0 MPN/100ml	11/05/2017	
		Faecal Coliforms □	579 MPN/100ml	11/05/2017	
SL215226 <i>Water - Open</i>	745819 Init Temp □ Temp > 1 Min □ Temp > 2 Min □	TVC @ 37°C - 2 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		TVC @ 22°C - 3 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
		Coliforms	980 MPN/100ml	11/05/2017	
		E.Coli	0 MPN/100ml	11/05/2017	
		Faecal Coliforms □	162 MPN/100ml	11/05/2017	

BACTERIOLOGICAL TEST REPORT



NON LEGIONELLA SAMPLES
RECEIVED OUTSIDE OF 24 HOURS
THEREFORE RESULTS MAY BE INVALID

Client: i2 Analytical LTD
Address: 7 Woodshots Meadow
Croxley Green Business Park
Croxley Green
Hertfordshire
WD18 8YS
Site: 17-4776
FAO: Trevor Hill
Order No: 8867,1747776

Job Number: M/182/47390
Report No.: 49471.1
Date Taken: Tue, 9th May 2017 12:00
Date Rec'd: Thu, 11th May 2017



2266

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Directors: B. Patel, K.Patel

SL215227 Water - Open	745822 Init Temp ▢	Temp > 1 Min ▢	Temp > 2 Min ▢	TVC @ 37°C - 2 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
				TVC @ 22°C - 3 Day	>300 cfu/ml	11/05/2017	Estimated Counts: >3000 cfu/ml
				Coliforms	188 MPN/100ml	11/05/2017	
				E.Coli	12 MPN/100ml	11/05/2017	
				Faecal Coliforms ▢	411 MPN/100ml	11/05/2017	

Method Codes
SLM/B312/M - Coliforms and Escherichia coli
SLM/B350/M - TVC - Colony count at 22°C and 37°C

Legend & Footnotes
cfu = Colony Forming Units
mpn = Most Probable Number
TNTC = Too Numerous to Count

Sampling is not included in our UKAS Schedule.
All Samples Analysed as received.

Disclaimer
Results relate to water samples tested and should not be reproduced except in full, without the written approval of the laboratory. Interpretations and opinions are not included in our UKAS schedule.

Test report authorised by :
B.Patel

Director
Date: 16/05/2017 11:39:21

Test Report checked by : Theepa Supikaran
16/05/2017 10:22:31

----- END OF REPORT -----



Jørn Pace
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e: Jørn Pace

Analytical Report Number : 17-47776

Project / Site name:	Green Park Village, Reading	Samples received on:	09/05/2017
Your job number:	1620000492	Samples instructed on:	09/05/2017
Your order number:		Analysis completed by:	16/05/2017
Report Issue Number:	1	Report issued on:	16/05/2017
Samples Analysed:	14 water samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.



Analytical Report Number: 17-47776

Project / Site name: Green Park Village, Reading

Lab Sample Number				745809	745810	745811	745812	745813
Sample Reference				RWS601	RWS602	RWS603	RWS604	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/05/2017	09/05/2017	09/05/2017	09/05/2017	09/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.3	7.2	7.1	7.1	6.7
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	32100	40600	76200	73100	253000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	32	41	76	73	250
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	52	270	420	240	1600
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	8.51	8.79	5.17	11.8	41.4
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	327	365	446	397	792

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 17-47776

Project / Site name: Green Park Village, Reading

Lab Sample Number				745809	745810	745811	745812	745813
Sample Reference				RWS601	RWS602	RWS603	RWS604	RWS607
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/05/2017	09/05/2017	09/05/2017	09/05/2017	09/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.41	9.94	6.81	11.9	21.4
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	120	110	160	100	170
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	< 0.02	< 0.02	0.13	0.03
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	130	160	150	300
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	2.1
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.7	0.5	1.0	2.1
Copper (dissolved)	µg/l	0.5	ISO 17025	4.5	1.4	3.2	2.7	1.9
Lead (dissolved)	µg/l	0.2	ISO 17025	0.5	0.6	0.4	1.1	0.6
Magnesium (dissolved)	mg/l	0.005	ISO 17025	9.1	8.2	10	8.3	12
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.08	0.14	< 0.05	0.20	0.11
Nickel (dissolved)	µg/l	0.5	ISO 17025	11	13	7.6	11	12
Selenium (dissolved)	µg/l	0.6	ISO 17025	3.5	1.3	1.4	2.6	1.9
Vanadium (dissolved)	µg/l	0.2	ISO 17025	2.4	5.1	2.0	4.6	0.7
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.5	3.5	38	4.6	6.8

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	92	27	< 10	42	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	790	240	< 10	390	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	890	270	< 10	430	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

Pesticides/Herbicides Screen in Water	P/A	N/A	NONE	Absent	-	-	-	-
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Microbiological (Subcontracted)

Total Coliforms	mpn/100ml	1	NONE	1200	11	-	-	-
Faecal Coliforms	mpn/100ml	N/A	NONE	649	161	-	-	-
E. Coli	mpn/100ml	1	NONE	< 1.0	< 1.0	-	-	-
TVC @ 22°C	cfu/ml	N/A	NONE	>300	>300	-	-	-
TVC @ 37°C	cfu/ml	N/A	NONE	>300	>300	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 17-47776

Project / Site name: Green Park Village, Reading

Lab Sample Number				745814	745815	745816	745817	745818
Sample Reference				RWS608	RWS611	RWS612	RWS613	RWS614
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/05/2017	09/05/2017	09/05/2017	09/05/2017	09/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.0	7.2	6.8	6.8	6.7
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	226000	83700	393000	259000	286000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	230	84	390	260	290
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	2400	390	1200	800	830
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	37.2	13.0	13.1	14.7	12.6
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	750	352	792	680	599

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 17-47776

Project / Site name: Green Park Village, Reading

Lab Sample Number				745814	745815	745816	745817	745818
Sample Reference				RWS608	RWS611	RWS612	RWS613	RWS614
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/05/2017	09/05/2017	09/05/2017	09/05/2017	09/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	60.4	19.5	11.6	10.3	2.92
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	190	110	150	200	160
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	0.02	< 0.02	0.03	0.05
Calcium (dissolved)	mg/l	0.012	ISO 17025	280	120	300	250	220
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	1.1	< 1.0	1.7	< 1.0	1.4
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.1	0.6	1.7	0.9	1.4
Copper (dissolved)	µg/l	0.5	ISO 17025	3.3	1.0	1.5	1.8	2.4
Lead (dissolved)	µg/l	0.2	ISO 17025	1.1	0.4	0.8	0.3	1.2
Magnesium (dissolved)	mg/l	0.005	ISO 17025	12	10	10	15	13
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.09	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	35	7.6	8.5	10	17
Selenium (dissolved)	µg/l	0.6	ISO 17025	5.1	1.8	1.2	1.1	1.1
Vanadium (dissolved)	µg/l	0.2	ISO 17025	4.5	2.3	2.2	0.5	2.0
Zinc (dissolved)	µg/l	0.5	ISO 17025	7.4	4.5	8.8	9.8	8.8

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	21
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	310
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	330

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

Pesticides/Herbicides Screen in Water	P/A	N/A	NONE	-	-	Absent	-	-
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Microbiological (Subcontracted)

Total Coliforms	mpn/100ml	1	NONE	19	-	-	-	3
Faecal Coliforms	mpn/100ml	N/A	NONE	125	-	-	-	579
E. Coli	mpn/100ml	1	NONE	< 1.0	-	-	-	< 1.0
TVC @ 22°C	cfu/ml	N/A	NONE	>300	-	-	-	>300
TVC @ 37°C	cfu/ml	N/A	NONE	>300	-	-	-	>300

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 17-47776

Project / Site name: Green Park Village, Reading

Lab Sample Number				745819	745820	745821	745822	
Sample Reference				RWS615	RWS616	RWS617	RWS618	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled				09/05/2017	09/05/2017	09/05/2017	09/05/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	6.8	6.7	6.9	7.0	
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	
Sulphate as SO ₄	µg/l	45	ISO 17025	292000	229000	122000	89600	
Sulphate as SO ₄	mg/l	0.045	ISO 17025	290	230	120	90	
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	44	960	880	3300	
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	10.1	13.1	9.92	53.7	
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	544	595	321	583	

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	
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Analytical Report Number: 17-47776

Project / Site name: Green Park Village, Reading

Lab Sample Number	745819	745820	745821	745822	
Sample Reference	RWS615	RWS616	RWS617	RWS618	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled	09/05/2017	09/05/2017	09/05/2017	09/05/2017	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.48	4.92	8.84	13.8	
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	
Boron (dissolved)	µg/l	10	ISO 17025	140	140	150	160	
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.11	< 0.02	< 0.02	< 0.02	
Calcium (dissolved)	mg/l	0.012	ISO 17025	200	210	120	210	
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	1.1	< 1.0	
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.0	0.5	1.1	0.9	
Copper (dissolved)	µg/l	0.5	ISO 17025	4.5	1.1	1.3	3.3	
Lead (dissolved)	µg/l	0.2	ISO 17025	0.5	< 0.2	0.3	1.9	
Magnesium (dissolved)	mg/l	0.005	ISO 17025	11	16	8.0	12	
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	0.05	
Nickel (dissolved)	µg/l	0.5	ISO 17025	20	16	7.2	6.1	
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.9	1.7	1.0	0.9	
Vanadium (dissolved)	µg/l	0.2	ISO 17025	2.0	0.2	4.2	3.8	
Zinc (dissolved)	µg/l	0.5	ISO 17025	7.0	3.8	5.0	2.5	

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	17	25	< 10	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	160	100	180	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	180	130	180	

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	

Pesticides/Herbicides Screen in Water	P/A	N/A	NONE	-	-	-	-	
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Microbiological (Subcontracted)

Total Coliforms	mpn/100ml	1	NONE	980	-	-	188	
Faecal Coliforms	mpn/100ml	N/A	NONE	162	-	-	411	
E. Coli	mpn/100ml	1	NONE	< 1.0	-	-	12.0	
TVC @ 22°C	cfu/ml	N/A	NONE	>300	-	-	>300	
TVC @ 37°C	cfu/ml	N/A	NONE	>300	-	-	>300	

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 17-47776

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
E.Coli in water Subcon Stansted Labs	E.Coli in Water - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Faecal Coliforms in water Subcon Stansted Labs	Faecal Coliforms in Water - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025



Analytical Report Number : 17-47776

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Pesticides and Herbicides in water screening	In-house method	In-house method		W	NONE
pH at 20oC in water (automated)	Determination of pH in water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Total Coliforms in water Subcon Stansted Labs	Total Coliforms in Water - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
TVC in water Subcon Stansted Labs	TVC in Wwater - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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e: Jørn Pace

Analytical Report Number : 17-47945

Project / Site name:	Green Park Village, Reading	Samples received on:	10/05/2017
Your job number:	1620000492	Samples instructed on:	10/05/2017
Your order number:		Analysis completed by:	17/05/2017
Report Issue Number:	1	Report issued on:	17/05/2017
Samples Analysed:	11 water samples		

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746807	746808	746809	746810	746811
Sample Reference				RWS621	RWS633	RWS637	RBH601	RBH602
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	6.7	7.1	7.0	7.1	7.2
Total Cyanide	µg/l	10	ISO 17025	-	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	74400	77800	213000	239000	51400
Sulphate as SO ₄	mg/l	0.045	ISO 17025	74	78	210	240	51
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	-	860	11000	4200	680
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	-	49.2	49.2	30.2	27.2
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	-	385	1730	1760	383

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	-	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	-	< 0.01	0.26	0.34	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	-	< 0.01	1.43	0.68	< 0.01
Fluorene	µg/l	0.01	ISO 17025	-	< 0.01	0.47	0.50	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	-	< 0.01	0.39	0.83	< 0.01
Anthracene	µg/l	0.01	ISO 17025	-	< 0.01	0.10	0.23	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	0.11	0.69	< 0.01
Pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	0.49	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	0.33	< 0.01
Chrysene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	0.36	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	0.43	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	0.16	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	< 0.01	< 0.01	0.24	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	-	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	-	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	-	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	-	< 0.16	2.76	5.28	< 0.16
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Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746807	746808	746809	746810	746811
Sample Reference				RWS621	RWS633	RWS637	RBH601	RBH602
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.87	4.63	5.14	3.35	1.04
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	120	150	210	360	77
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	0.02	< 0.02	< 0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	140	660	630	140
Chromium (hexavalent)	µg/l	5	ISO 17025	I/S	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	I/S	< 1.0	2.4	< 1.0	< 1.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.2	0.5	2.4	0.5	0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	< 0.5	2.1	2.7	0.8	1.4
Lead (dissolved)	µg/l	0.2	ISO 17025	1.3	1.7	3.8	2.1	< 0.2
Magnesium (dissolved)	mg/l	0.005	ISO 17025	-	11	22	48	10
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.13	< 0.05	0.06	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	0.6	4.0	8.1	8.5	1.3
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	3.0	1.7	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.3	2.7	3.7	2.1	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	0.6	7.5	11	5.9	3.4

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	-	< 10	120	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	-	< 10	120	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	-	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	-	< 10	< 10	< 10	< 10



Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746807	746808	746809	746810	746811
Sample Reference				RWS621	RWS633	RWS637	RBH601	RBH602
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Microbiological (Subcontracted)

Total Coliforms	mpn/100ml	1	NONE	-	> 2420	291	276	150
Faecal Coliforms	mpn/100ml	N/A	NONE	-	233	866	> 2420	361
E. Coli	mpn/100ml	1	NONE	-	< 1.0	< 1.0	2.0	< 1.0
TVC @ 22°C	cfu/ml	N/A	NONE	-	>300	>300	>300	>300
TVC @ 37°C	cfu/ml	N/A	NONE	-	>300	>300	>300	>300

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746812	746813	746814	746815	746816
Sample Reference				RBH604	RBH605	RBH606	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.5	7.0	7.5	6.9	7.1
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO ₄	µg/l	45	ISO 17025	37300	135000	30100	874000	465000
Sulphate as SO ₄	mg/l	0.045	ISO 17025	37	130	30	870	460
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	290	1700	350	5100	3500
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	38.8	14.3	25.7	34.8	21.8
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	282	599	282	1290	1540

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746812	746813	746814	746815	746816
Sample Reference				RBH604	RBH605	RBH606	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.76	2.36	0.50	4.17	4.02
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	150	130	92	220	300
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.03	< 0.02	< 0.02	< 0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	75	220	93	430	540
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	1.1	< 1.0	1.1	< 1.0
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	1.1	0.3	1.1	0.9
Copper (dissolved)	µg/l	0.5	ISO 17025	< 0.5	2.3	0.9	0.8	1.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.7	< 0.2	2.3	2.2
Magnesium (dissolved)	mg/l	0.005	ISO 17025	23	14	12	52	46
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	5.6	6.1	4.0	14	7.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.8	< 0.6	< 0.6	4.2	2.2
Vanadium (dissolved)	µg/l	0.2	ISO 17025	1.0	2.0	0.7	1.6	5.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.5	8.1	17	20	5.5

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	160	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	160	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10



Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746812	746813	746814	746815	746816
Sample Reference				RBH604	RBH605	RBH606	RBH607	RBH608
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Microbiological (Subcontracted)

Total Coliforms	mpn/100ml	1	NONE	45	> 2420	1120	-	-
Faecal Coliforms	mpn/100ml	N/A	NONE	218	1300	88	-	-
E. Coli	mpn/100ml	1	NONE	2.0	12.0	3.0	-	-
TVC @ 22°C	cfu/ml	N/A	NONE	>300	>300	>300	-	-
TVC @ 37°C	cfu/ml	N/A	NONE	>300	>300	>300	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746817				
Sample Reference				RBH610				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				10/05/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.1				
Total Cyanide	µg/l	10	ISO 17025	< 10				
Sulphate as SO ₄	µg/l	45	ISO 17025	72500				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	73				
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	1900				
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	83.1				
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	636				

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10				
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01				
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01				
Fluorene	µg/l	0.01	ISO 17025	< 0.01				
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01				
Anthracene	µg/l	0.01	ISO 17025	< 0.01				
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Pyrene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01				
Chrysene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01				
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01				
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01				
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01				
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01				

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16				
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Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746817				
Sample Reference				RBH610				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				10/05/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.17				
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1				
Boron (dissolved)	µg/l	10	ISO 17025	110				
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02				
Calcium (dissolved)	mg/l	0.012	ISO 17025	220				
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0				
Chromium (III)	µg/l	1	NONE	< 1.0				
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.7				
Copper (dissolved)	µg/l	0.5	ISO 17025	1.5				
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3				
Magnesium (dissolved)	mg/l	0.005	ISO 17025	18				
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05				
Nickel (dissolved)	µg/l	0.5	ISO 17025	17				
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.1				
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.8				
Zinc (dissolved)	µg/l	0.5	ISO 17025	14				

Monoaromatics

Benzene	µg/l	1	ISO 17025	< 1.0				
Toluene	µg/l	1	ISO 17025	< 1.0				
Ethylbenzene	µg/l	1	ISO 17025	< 1.0				
p & m-xylene	µg/l	1	ISO 17025	< 1.0				
o-xylene	µg/l	1	ISO 17025	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	NONE	< 1.0				
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10				

TPH-CWG - Aromatic >C5 - C7	µg/l	1	NONE	< 1.0				
TPH-CWG - Aromatic >C7 - C8	µg/l	1	NONE	< 1.0				
TPH-CWG - Aromatic >C8 - C10	µg/l	1	NONE	< 1.0				
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10				
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10				



Analytical Report Number: 17-47945

Project / Site name: Green Park Village, Reading

Lab Sample Number				746817				
Sample Reference				RBH610				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				10/05/2017				
Time Taken				None Supplied				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

Microbiological (Subcontracted)

Total Coliforms	mpn/100ml	1	NONE	187				
Faecal Coliforms	mpn/100ml	N/A	NONE	> 2420				
E. Coli	mpn/100ml	1	NONE	2.0				
TVC @ 22°C	cfu/ml	N/A	NONE	>300				
TVC @ 37°C	cfu/ml	N/A	NONE	>300				

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 17-47945

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
E.Coli in water Subcon Stansted Labs	E.Coli in Water - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Faecal Coliforms in water Subcon Stansted Labs	Faecal Coliforms in Water - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025



Analytical Report Number : 17-47945

Project / Site name: Green Park Village, Reading

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L0102B-PL	W	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total Coliforms in water Subcon Stansted Labs	Total Coliforms in Water - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
TVC in water Subcon Stansted Labs	TVC in Wwater - Subcontracted Analysis	Subcontracted Analysis - See Attached Subcon Report.		W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX 4

SOIL AND GROUNDWATER DATA ASESSEMENTS

Lab Certificate			Residential with sewerage pilot - Tier 2 screening Value															
Lab Sample Number	Reference	Depth [m]	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	06/04/2017	
Units	Limit of Detection	Accreditation Status	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Asbestos																		
Asbestos Screen	Type	N/A	ND01 PL	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	
Asbestos in Soil Screen / Identification Name	Type	N/A	ND01 PL	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	
Asbestos Quantification	%	0.001	ND01 PL	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	
Asbestos Quantification (Stage 2)	%	0.001	ND01 PL	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	Not detected	
BTEX, MTBE																		
Benzene (TPH Aromatic C5-7)	mg/kg	1	10718 PL	110	11	11	11	11	11	11	11	11	11	11	11	11	11	
Ethylbenzene	mg/kg	1	10718 PL	26,000	21	21	21	21	21	21	21	21	21	21	21	21	21	
m & p-Xylene	mg/kg	1	10718 PL	26,000	21	21	21	21	21	21	21	21	21	21	21	21	21	
Methyl tert-butyl ether	mg/kg	1	10718 PL	31,000	21	21	21	21	21	21	21	21	21	21	21	21	21	
Toluene (TPH Aromatic C7-8)	mg/kg	1	10718 PL	26,000	21	21	21	21	21	21	21	21	21	21	21	21	21	
Xylene	mg/kg	1	10718 PL	31,000	21	21	21	21	21	21	21	21	21	21	21	21	21	
Inorganics																		
Acidic Organic Carbon	N/A	0.001	1023 PL	0.001	0.012	0.006												
Moisture Content	%	N/A	1019-10PL	50	12	12	12	12	12	12	12	12	12	12	12	12	12	
pH	pH (unit)	N/A	1019 PL	7	6.7	6.8	6.5	7.3	8.4	7.6	8.3	8.8	8.5	9.2	7.7	8.2	8.2	
Sulphate (SO4)	mg/kg	2.5	1018 PL	110	51	110	110	110	110	220	80	1,000	170	960	220	160	160	
Metals																		
Antimony	mg/kg	1	1018 PL	37	15	0.9	18	41	68	5.3	49	4.1	9.5	19	11	16	15	
Barium	mg/kg	0.10	1018 PL	1.7	1.1	0.6	0.87	1.1	0.5	1.3	0.6	0.12	0.47	1.3	0.6	1.8	0.8	
Boron	mg/kg	0.2	1018 PL	200	1.7	1.5	1.4	1.7	1.8	1.3	6.5	0.6	1.4	2.1	1.2	0.4	1.1	
Cadmium	mg/kg	0.2	1018 PL	22	1.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Chromium (III)	mg/kg	1	1018 PL	110	51	18	25	71	47	38	37	17	39	52	25	39	46	
Chromium (Total)	mg/kg	1	1018 PL	110	51	18	25	70	47	38	37	18	39	52	25	39	48	
Chromium VI	mg/kg	1.2	1018 PL	21	10.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Copper	mg/kg	1	1018 PL	2,400	130	20	30	880	300	10	7,000	8.9	12	46	12	66	17	
Capable	mg/kg	1	1018 PL	20	1													
Cobalt	mg/kg	1	1018 PL	300	100	45	65	2	30	20	800	5.7	88	130	29	120	29	
Mercury	mg/kg	0.3	1018 PL	40	2.6	0.9	1.9	2.7	4.3	0.7	1.2	0.7	2.6	0.7	0.7	0.7	0.7	
Nickel	mg/kg	1	1018 PL	100	57	16	21	67	77	27	100	8.7	8.9	24	16	24	31	
Vanadium	mg/kg	1	1018 PL	410	49	20	25	59	52	51	95	9.1	11	43	37	38	50	
Zinc	mg/kg	1	1018 PL	1,300	600	14	95	100	700	14	1,700	42	72	100	48	100	59	
PAHs																		
Acenaphthene, 9,10-	mg/kg	0.3	1064 PL	ND														
Polychlorinated Biphenyls (PCB)	mg/kg	0.007	1027 PL															
Fluorene, 2,3, & Anthracene, 1,2,3	mg/kg	1	10718 PL															
Others																		
Active	mg/kg	0.1	1064 PL	ND														
Slime Content	%	0.1	1019-10PL	ND	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Total mass of sample received	kg	0.001	1019-10PL	1.6	1.6	2	1.7	2	1.8	1.5	2	2	2	2	2	2	2	
Total Phosphorus (Total P)	mg/kg	2,300	1064 PL	ND														
TPH CWS - Aliphatic (EPA - ECOS)	mg/kg	30	1076 PL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
TPH CWS - Aromatic (EPA - ECOS)	mg/kg	30	1076 PL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Water Soluble Sulphate (2.1 Leachate Equivalent)	kg	0.00225	1018 PL	130	101	101	96	120	110	40	300	50	101	40	31	27	12	
Polycyclic Aromatic Hydrocarbons (PAHs)																		
Acenaphthene	mg/kg	0.05	1064 PL	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Acenaphthylene	mg/kg	0.05	1064 PL	200	0.63	ND	ND	0.59	0.56	0.55	ND	0.28	0.11	0.21	ND	0.13	0.11	
Anthracene	mg/kg	0.05	1064 PL	2,100	0.09	ND	ND	0.14	0.19	0.14	0.19	0.17	0.17	0.17	0.17	0.17	0.17	
Benzo[a]anthracene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[a]pyrene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[b]fluoranthene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[k]fluoranthene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[e]pyrene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[g]herylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[h]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[i]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[j]fluoranthene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[k]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[l]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[m]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[n]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[o]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[p]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[q]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[r]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[s]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[t]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[u]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[v]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[w]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[x]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[y]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[z]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[aa]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[ab]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[ac]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[ad]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[ae]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38	0.97	0.97	
Benzo[af]perylene	mg/kg	0.05	1064 PL	1	1	ND	ND	0.14	1.2	ND	ND	ND	1.4	1.2	0.38			

Test Results

Arsenic F/T:11/11

Client/client ref: St Edward Home Site ref: Green Park Village Phase 3

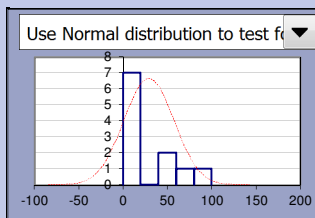
Project ref: 1620000492

Data description:

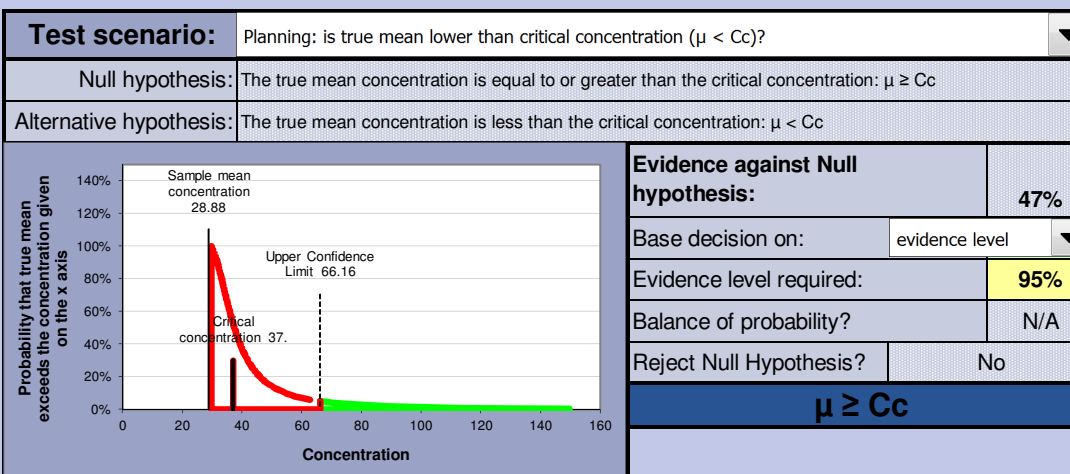
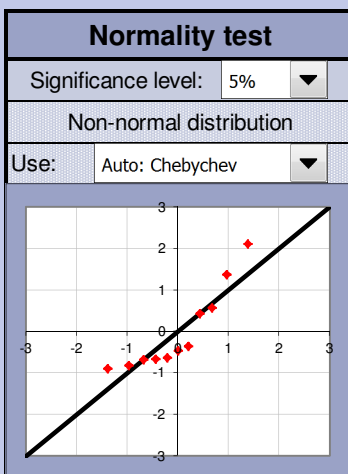
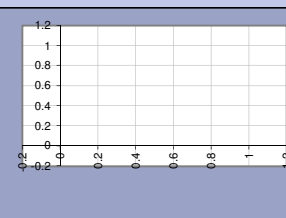
Date: 26-May-2017

User details: TS

Dataset:	Arsenic F/T:11/11	▼
Sample mean	$\bar{x}$	28.882
Sample standard deviation, s		28.367
Sample size, n		11
Critical concentration, Cc		37



Outliers & non-detects	
Outliers present?	No
Significance level	5% ▼
Outliers excluded	0
Non-detects	0



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Test Results

Lead F/T:11/11

Client/client ref: St Edward Home Site ref: Green Park Village Phase 3

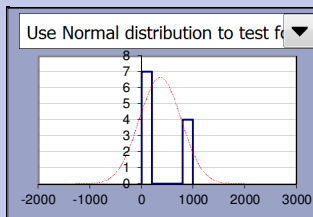
Date: 26-May-2017

Project ref: 1620000492

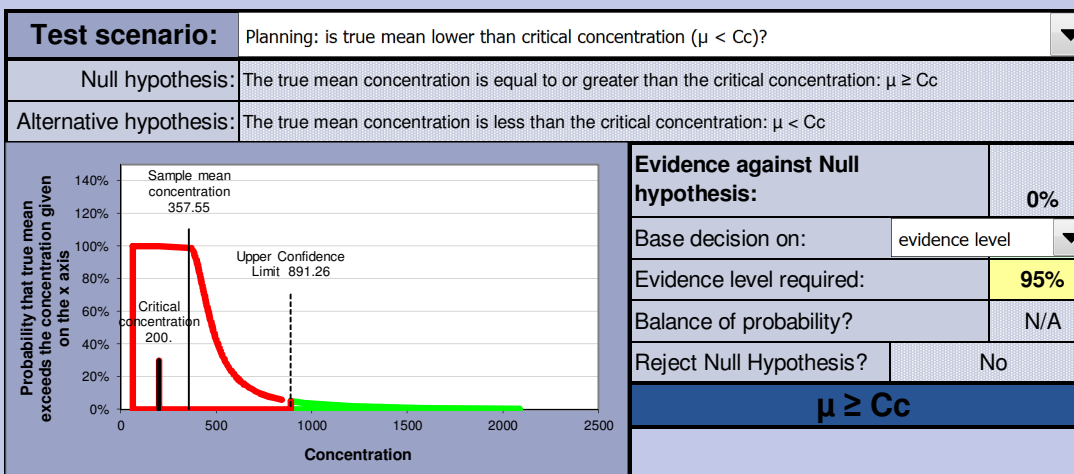
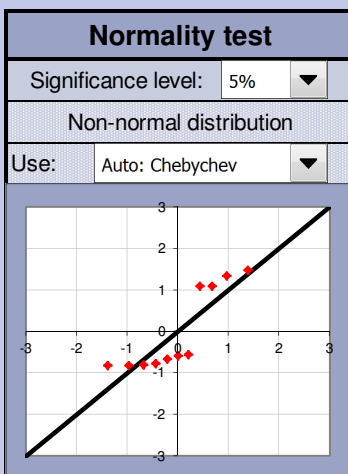
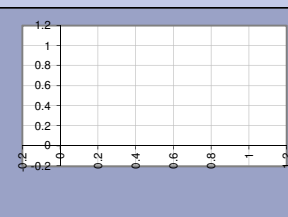
Data description:

User details: TS

Dataset:	Lead F/T:11/11	▼
Sample mean	$\bar{x}$	357.55
Sample standard deviation, s		406.1
Sample size, n		11
Critical concentration, Cc		200



Outliers & non-detects	
Outliers present?	No
Significance level	5% ▼
Outliers excluded	0
Non-detects	0



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Test Results

Copper F/T:11/11

Client/client ref: St Edward Home Site ref: Green Park Village Phase 3

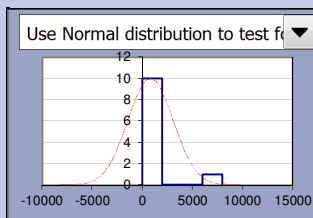
Date: 26-May-2017

Project ref: 1620000492

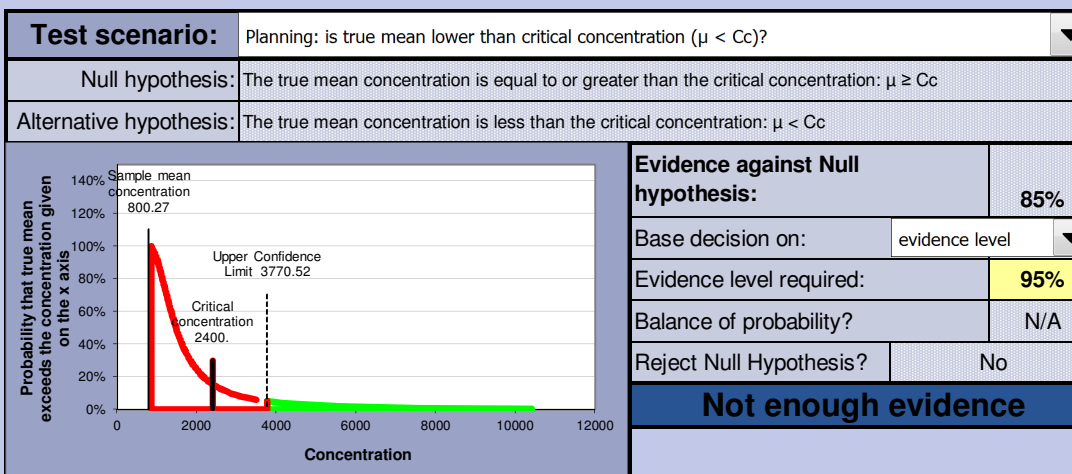
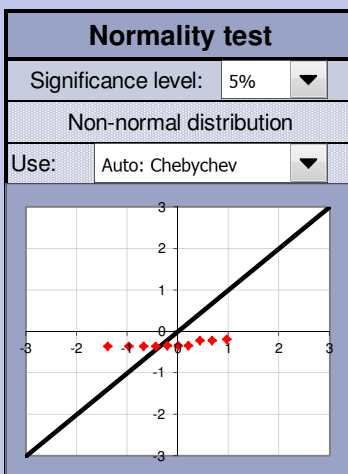
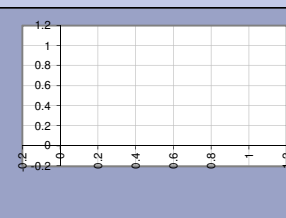
Data description:

User details: TS

Dataset:	Copper F/T:11/11	▼
Sample mean	$\bar{x}$	800.27
Sample standard deviation, s		2260
Sample size, n		11
Critical concentration, Cc		2400



Outliers & non-detects	
Outliers present?	Yes
Significance level	5% ▼
Outliers excluded	0
Non-detects	0



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Test Results

BaP F/T:11/11

Client/client ref: St Edward Home Site ref: Green Park Village Phase 3

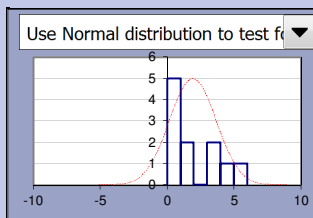
Project ref: 1620000492

Data description:

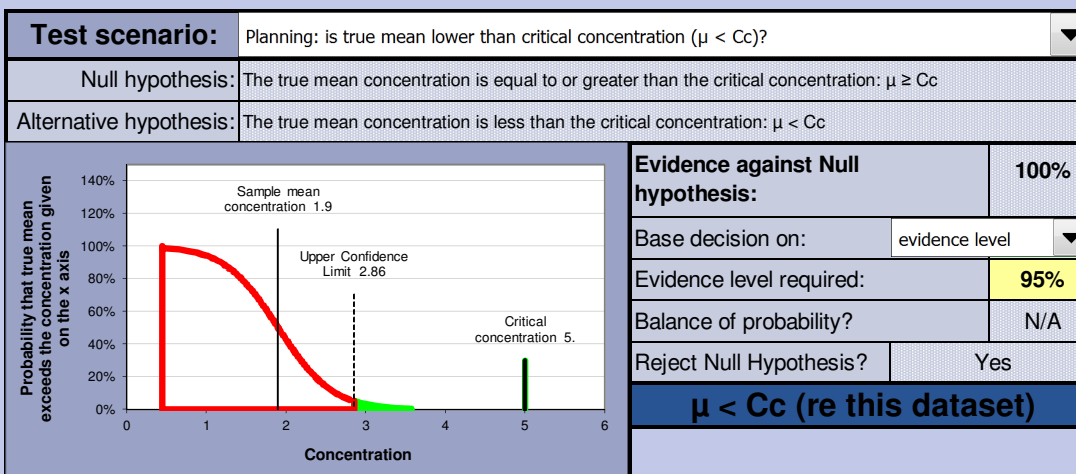
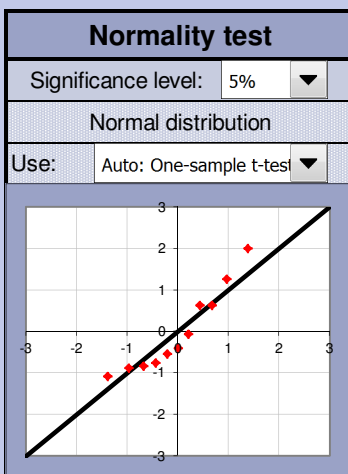
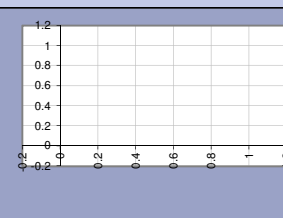
Date: 26-May-2017

User details: TS

Dataset:	BaP F/T:11/11	▼
Sample mean	$\bar{x}$	1.9005
Sample standard deviation, s		1.7478
Sample size, n		11
Critical concentration, Cc		5



Outliers & non-detects	
Outliers present?	No
Significance level	5% ▼
Outliers excluded	0
Non-detects	1



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Soil Leachate Results
Green Park Village

Lab Sample Number					725700	723866	733597
Sample Reference					RWS603	RWS609	RTP601
Sample Number					None Supplied	None Supplied	None Supplied
Depth (m)					2.10-2.20	1.80	0.60
Phase					3	3	3
Date Sampled					24/03/2017	22/03/2017	06/04/2017
Time Taken					None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)							
	Units	Limit of detection	Accreditation Status	WQS			

General Inorganics

pH	pH Units	N/A	ISO 17025		7.9	9.4	7.2
Total Cyanide	µg/l	10	ISO 17025		< 10	< 10	< 10
Sulphate as SO ₄	mg/l	0.1	ISO 17025	188	11	19	9.2
Ammoniacal Nitrogen as N	µg/l	15	NONE		65	540	< 15
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE				
Hardness - Total	mgCaCO ₃ /l	1	NONE		83.7	30.8	28.1

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	7.7	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	0.07	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	NONE	0.1	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	0.075	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	0.0075	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE		< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE		< 0.2	< 0.2	< 0.2
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Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	7.5	1.8	5.6	< 1.1
Beryllium (dissolved)	µg/l	0.2	ISO 17025		< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025		130	37	66
Cadmium (dissolved)	µg/l	0.08	ISO 17025	0.25	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	NONE	3.4	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	4.7	< 1.0	< 1.0	1.1
Chromium (dissolved)	µg/l	0.4	ISO 17025		< 0.4	0.9	1.1
Copper (dissolved)	µg/l	0.7	ISO 17025	1500	15	9.7	19
Lead (dissolved)	µg/l	1	ISO 17025	7.5	5.7	6.7	4.2
Mercury (dissolved)	µg/l	0.5	ISO 17025	0.07	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	15	2.1	1.4	1.4
Selenium (dissolved)	µg/l	4	ISO 17025		< 4.0	< 4.0	4.3
Vanadium (dissolved)	µg/l	1.7	ISO 17025		2.7	79	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025		11	6.6	14

Calcium (dissolved)	mg/l	0.012	ISO 17025		31	12	9.8
Magnesium (dissolved)	mg/l	0.005	ISO 17025		1.5	0.24	0.85

Monoaromatics

Benzene	µg/l	1	ISO 17025	0.75	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	74	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025		< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025		< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025		< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE		< 10	< 10	< 10

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	10	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10	< 10	< 10	< 10

TPH1 (C10 - C40)	µg/l	10	NONE	10			
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TPH2 (C6 - C10)	µg/l	10	NONE	10			
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TPH C6 - C40	µg/l	10	NONE	10			
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Groundwater Results

[illegible]

US = Unreliable Sample IS = Insufficient Sample

Pesticides/Herbicides Screen in Water	PA	PA	NCNE		Absent	-	-	-	-	-	-	-
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APPENDIX 5

GAS AND GROUNDWATER MONITORING DATA

Ground Gas Risk Assessment
1620000492 Green Park Village

Notes: Assessment based on Guidance published in CIRIA C665 "Assessing risks posed by hazardous ground gases to buildings"

Information from Table 8.5 of CIRIA C665

Characteristic Situation 1 Conditions

Gas Screening Value (CH4 or CO2) <0.7
Typically methane <1% by volume
Typically carbon dioxide <5% by volume

Characteristic Situation 2 Conditions

Gas screening values (CH4 or CO2) <0.7
Borehole air flow rate <70l/h

Characteristic Situation 3 Conditions

Gas screening values (CH4 or CO2) <3.5

Approach

Maximum concentrations and flow rates are used in the assessment below (minimum values for oxygen)

Where no detectable flow the instrument limit of detection is used (0.1/hr)

Where concentrations are recorded below LoD, the instrument LoD is used in the assessment (0.5%)

BH ID	Phase	Height m OD	Response Zone	Water Depth mbgl	Water Depth mAOD	Round	Date	Atmos. Pressure mB	Gas Flow l/h	SS CH4 %v/v	SS CO2 %v/v	SS O2 %v/v	SS CO ppm	SS H2S ppm	VOCs ppm	CH4 Peak %v/v	CO2 Peak %v/v	O2 Min %v/v	GSV CH4	GSV CO2	Characteristic Situation CH4	Characteristic Situation CO2
RWS601	3	38.972	0.5 to 3.0 MG and RTD	1.49	37.48	1	19.04.2017	1032	0.0	0.1	10.5	7.9	1	0	0.6	0.2	10.5	7.9	0.00	0.00	1	2
				1.49	37.48	2	25.04.2017	1010	0.0	0.1	10.9	8	2	0	0.7	0.2	10.9	8	0.00	0.00	1	2
				1.49	37.48	3	05.05.2017	1019	0.0	0.1	6.8	13.3	1	0	0.3	0.1	6.8	13.3	0.00	0.00	1	2
				1.55	37.42	4	15.05.2017	1019	0.0	0.1	7.5	12.2	2	0	1.1	0.1	7.5	12.2	0.00	0.00	1	2
				1.90	37.07	5	19.05.2017	1007	0.0	0.2	7.2	11	3	0	-	0.2	7.2	11	0.00	0.00	1	2
				1.87	37.10	6	24.05.2017	1022	0.0	0.1	8	11.2	3	0	0.9	0.1	8	15.6	0.00	0.00	1	2
RWS602	3	39.121	1.5 to 4.0 ALV and RTD	1.92	37.20	1	19.04.2017	1032	0.0	0.1	1	19.4	2	1	1.2	0.1	1	19.2	0.00	0.00	1	1
				1.90	37.22	2	25.04.2017	1010	0.0	0.1	1	19.8	1	0	1.1	0.1	1	19.8	0.00	0.00	1	1
				1.94	37.18	3	05.05.2017	1019	0.0	0.1	0.7	20	1	0	0.5	0.1	0.7	20	0.00	0.00	1	1
				1.95	37.17	4	15.05.2017	1019	0.0	0.1	1.7	19.5	1	0	0.7	0.1	1.7	17.3	0.00	0.00	1	1
				1.85	37.27	5	19.05.2017	1007	0.0	0.2	0.6	20.4	1	0	0.6	0.2	0.8	16.4	0.00	0.00	1	1
				1.90	37.22	6	24.05.2017	1022	0.0	0	0.4	19.6	3	1	0.5	0	0.7	19.3	0.00	0.00	1	1
RWS603	3	39.275	2.5 to 4.0 ALV and RTD	2.17	37.11	1	19.04.2017	1032	0.0	0.1	1.2	18.8	1	1	1.1	0.1	1.3	14.5	0.00	0.00	1	1
				2.18	37.10	2	25.04.2017	1010	0.0	0.1	0.9	19.6	1	0	0.7	0.1	0.9	18	0.00	0.00	1	1
				2.35	36.93	3	05.05.2017	1019	0.0	0.1	2.1	18.4	1	0	0.8	0.1	2.1	18.3	0.00	0.00	1	1
				2.26	37.02	4	15.05.2017	1019	0.0	0.1	1.7	19.9	1	0	-	0.1	1.7	18.9	0.00	0.00	1	1
				-	-	5	19.05.2017	Borehole area flooded - inaccessible											0.00	0.00	-	-
				2.58	36.70	6	24.05.2017	1022	0.0	0.1	0.7	18.4	2	0	-	0.1	0.9	16.4	0.00	0.00	1	1
RWS604	3	39.976	2.5 to 4.0 ALV and RTD	2.85	37.13	1	19.04.2017	1032	0.0	0.2	1.3	15	3	0	2.2	0.2	1.3	12.8	0.00	0.00	1	1
				2.86	37.12	2	25.04.2017	1010	0.0	0.2	1.5	15.1	2	0	1.8	0.2	1.6	14.5	0.00	0.00	1	1
				2.86	37.12	3	05.05.2017	1019	0.0	0.1	2.2	14.8	1	0	0.4	0.1	2.2	14.7	0.00	0.00	1	1
				2.85	37.13	4	15.05.2017	1019	0.0	0.3	4.6	9.4	2	0	1.3	0.3	4.6	9.4	0.00	0.00	1	1
				2.65	37.33	5	19.05.2017	1007	0.0	0.2	1.7	16.9	0	0	1	0.3	3.4	13.9	0.00	0.00	1	1
				2.75	37.23	6	24.05.2017	1022	0.0	0.2	0.9	16.5	2	1	0.7	0.2	1.4	14.3	0.00	0.00	1	1
RWS605	3	39.974	2.5 to 3.65 - MG, ALV and RTD	-	-	1	19.04.2017	Borehole Buried and Inaccessible											0.00	0.00	-	-
				-	-	2	25.04.2017												0.00	0.00	-	-
				-	-	3	05.05.2017												0.00	0.00	-	-
				-	-	4	15.05.2017												0.00	0.00	-	-
				-	-	5	19.05.2017												0.00	0.00	-	-
				-	-	6	24.05.2017												0.00	0.00	-	-
RWS606	3	40.037	1.7 to 3.0 - MG and RTD	2.79	37.25	1	19.04.2017	1032	0.0	0.3	1.1	19.1	2	0	1.3	0.3	1.2	17.7	0.00	0.00	1	1
				2.94	37.10	2	25.04.2017	1010	0.1	1.4	7.5	6.2	3	0	1.1	1.4	7.5	6.2	0.00	0.01	2	2
				2.92	37.12	3	05.05.2017	1019	0.0	0.5	2.5	15.7	1	0	0.5	0.5	2.5	15.7	0.00	0.00	1	1
				2.94	37.10	4	15.05.2017	1019	0.0	0.6	1.5	18.8	1	0	0.8	0.6	1.7	16.8	0.00	0.00	1	1
				2.80	37.24	5	19.05.2017	1007	0.0	11.2	10.3	0.2	3	0	0.1	11.2	10.3	0.2	0.00	0.00	2	2
				Dry	Dry	6	24.05.2017	1022	0.0	12.4	9.4	2.4	4	0	0.2	12.4	9.4	2.4	0.00	0.00	2	2
RWS607	3	40.353	1.5 to 4.1 - MG , ALV and RTD	3.02	37.33	1	19.04.2017	1032	0.0	2.3	3.9	15.3	3	0	0.9	2.5	3.9	15.3	0.00	0.00	2	1
				3.27	37.08	2	25.04.2017	1010	0.0	4.3	4.7	14	1	0	0.7	4.5	4.9	14	0.00	0.00	2	1
				2.31	38.04	3	05.05.2017	1019	0.0	3.3	4.9	14.3	2	0	0.8	3.3	4.9	14.3	0.00	0.00	2	1
				3.26	37.09	4	15.05.2017	1019	0.0	2.7	3.3	16.6	1	0	0.5	2.8	3.4	16.5	0.00	0.00	2	1
				3.10	37.25	5	19.05.2017	1007	1.4	8.2	3.6	9.7	1	0	0.3	8.2	3.6	9.7	0.11	0.05	2	1
				3.15	37.20	6	24.05.2017	1022	0.0	12.9	6.1	5.8	5	0	0.2	15.7	7.4	5.8	0.00	0.00	2	2
RWS608	3	39.901	1.5 to 4.0 - MG , ALV and RTD	3.00	36.90	1	19.04.2017	1032	0.0	0.1	9.7	5.8	2	0	2.1	0.2	13.1	5.8	0.00	0.00	1	2
				-	-	2	25.04.2017	Gas tap/bung removed											0.00	0.00	-	-
				3.01	36.89	3	05.05.2017												0.00	0.00	-	-
				2.98	36.92	4	15.05.2017												0.00	0.00	-	-
				2.85	37.05	5	19.05.2017	1007	0.0	0.1	10.9	6.3	0	0	0.2	0.1	12.5	7.9	0.00	0.00	1	2
				2.96	36.94	6	24.05.2017	1022	0.0	0.1	0.7	18.2	3	0	0.3	0.1	0.8	18.2	0.00	0.00	1	1
RWS609	3	40.218	1.0 to 2.0 - MG	3.04	37.18	1	19.04.2017	1032	0.0	2.1	2.4	11	2	0	1.1	2.4	2.5	11	0.00	0.00	2	1
				2.90	37.32	2	25.04.2017	1010	0.0	26.5	9.4	0.6	1	0	0	26.5	9.4	0.6	0.00	0.00	2	2
				Dry	Dry	3	05.05.2017	1019	0.0	19.1	8.7	1.1	3	0	0	19.2	8.7	1.1	0.00	0.00	2	2
				Dry	Dry	4	15.05.2017	1019	0.0	1.1	2.7	12.2	1	0	0.7	1.1	2.7	12.2	0.00	0.00	2	1
				Dry	Dry	5	19.05.2017	1007	0.0	4.8	2.6	14.6	0	0	0.2	5.7	2.6	14.6	0.00	0.00	2	1
				Dry	Dry	6	24.05.2017	1022	0.0	0.1	0.6	18	0	0	0.4	1	0.6	16.6	0.00	0.00	2	1
RWS610	3	40.364	1.5 to 4.0 - MG, ALV and RTD	1.65	38.71	1	19.04.2017	1032	5.0	0.2	1.6	19.3	5	0	2.9	0.2	1.6	17.1	0.01	0.08	1	2
				Dry	Dry	2	25.04.2017	1010	0.0	1.7	12.3	3.9	4	0	1.2	1.9	12.3	3.9	0.00	0.00	2	2
				Dry	Dry	3	05.05.2017	1019	0.0	0.1	6.3	17.2	0	0	0.9	0.2	6.4	16.9	0.00	0.00	1	2
				-	-	4	15.05.2017	Gas tap/bung removed											0.00	0.00	-	-
				-	-	5	19.05.2017	Borehole removed											0.00	0.00	-	-
				-	-	6	24.05.2017												0.00	0.00	-	-

APPENDIX 6

REPORT RELIANCE

Notwithstanding any other provisions of this report and in consideration of the sum of ten pounds (£10.00) paid by both St Edward Homes Limited, Berkeley Homes (Western) Limited and Berkeley Homes plc, we Ramboll UK Limited hereby acknowledge receipt of the aforementioned consideration and hereby irrevocably acknowledge and agree that St Edward Homes Limited, Berkeley Homes (Western) Limited and Berkeley Homes plc and any parties acquiring an interest in the works to be carried out at the site and/or the property/properties in respect of which this report has been carried out and/or the property and/or the land in respect of which this report has been carried out or any part or parts thereof (the Project) and/or any party providing finance and/or refinance in connection with the Project and any contractors involved in the development of the site/property to which this report relates and their assigns shall have relied and will continue to rely on the findings of this report and in so doing we acknowledge a duty of care to them provided that the duty of care shall be no greater in terms of obligation than that owed to the company/body who has commissioned the report from us as if the beneficiary had been named jointly with the company/body who have commissioned the report in such commission/appointment.