Phase 2 Site Investigation

Plot 9B First Street, Manchester

for

Vita Meadow Limited



01/10/2024

CIVIL | STRUCTURAL | GEOTECHNICAL | GEO-ENVIRONMENTAL ENGINEERING SERVICES

COMPLEX CHALLENGES ...
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1.0 Introduction

1.1 Background

1.1.1 RoC Consulting has been appointed by Vita Meadow Limited to conduct a Phase 2 Site Investigation across Plot 9B First Street (the site), an existing site location plan (Tim Groom Architects drawing – VS9B-TGA-G100-PL-XX-95200), ground floor layout plan (Tim Groom Architects drawing – VS9B-TGA0G200-PL-00-03100) and landscape layout plan (TPM Landscape drawing – z19b-tpm-g710-pl-xx-4645-101) are provided in Appendix A. It is understood that the site is to be redeveloped with the erection of a purpose-built student accommodation (PBSA) building (Sui Generis), alongside ancillary amenity space, landscaping, secure cycle parking and other associated works; and use of Land east of River Street as a construction compound.

1.1.2 The Site comprises two areas; the Proposed Development will be located entirely on 'Plot 9B', bound to the west by Medlock Street; to the north by land at Plot 9A of the FSDF area (currently being redeveloped into an office block of up to 9 storeys (pursuant to Planning Permission 132600/FO/2021); to the east by land at Plot 10A (currently being redeveloped into an office block of up to 13 storeys (pursuant to Planning Permission 136043/FO/2023) and to the south east by Hulme Street, and land at Plot 11 of the FSDF area (currently being redeveloped to deliver three co-living buildings of up to 45 storeys (pursuant to Planning Permission 125573/FO/2019 (as amended).

1.1.3 The Site also includes an area bound by the River Medlock to the north; Cambridge Street to the east; Macintosh Mills to the south and River Street and Annie Hornian Street to the west that will be used as a site compound for the construction phase of works (the 'Construction Compound').

1.1.4 Note that for the purpose of this Phase 2 Site Investigation report, only the main site area encompassing Plot 9B will be discussed in detail in regard geoenvironmental and geotechnical risks. The 'Construction Compound' is acknowledged to already be in existence use with the nearby Plot 10B and is for a storage and compound area only to be used for a two-year period during the construction of Plot 9B. Given the predominantly hardstanding nature of this area and the proposed use the construction compound is deemed to be low risk.

1.1.5 The following assessment has been completed to support design and planning requirements for the site redevelopment and follows on from a number of previous site investigations relating to the development site, specifically:

1. Cundall Plots 6 & 7, First Street, Manchester - Preliminary Geotechnical and Geoenvironmental Assessment ref: 1011906.RPT.GL.003 Rev A (26/01/2016)

2. Geotechnical Plots 6,7 & 8 First Street, Manchester Factual Report on Ground Investigation ref: 31847 (12/07/2016)

3. Cundall Plots 6 & 7, First Street, Manchester – Geoenvironmental Assessment ref: 1011906.RPT.GL.005 Rev - (28/07/2016)

4. Cundall Plots 6 & 7 First Street, Manchester - Detailed Remediation and Verification Strategy ref: 1011906.RPT.GL.007 Rev A (09/08/2016)

5. Ramboll Ground Investigation Review Plot 6 / 7 First Street ref: 1620002943_CLDS_01 Rev 01 (24/02/2017)

6. Terra Consult, Plots 6 & 7 First Street ref: 3296R001-1 (February 2018)

7. Ramboll, Plot 9 First Street, Manchester Contaminated Land Desk Study ref: 1620002943-RAM-05-XX-RP-YE-00001 Rev I04

8. Terra Consult, Plots 9 & 10 First Street Ground Investigation Report ref: 4302R001-3 (15/01/2020)

9. Ramboll Plots 9 & 10 First Street Manchester Geotechnical and Contaminated Land Interpretative Report ref: 1620002943-GCLIR-03 Rev 03 (03.02.2020)

10. Ramboll Plot 9 First Street, Waste Classification Update (26.02.2020)

11. Ramboll, Plot 9 First Street, Manchester, Waste Assessment Update (31/03/2020)

12. Ramboll, Plot 9 First Street, Manchester, Ground Contamination Risk Assessment and Remedial Strategy ref: 1620002943-RS-01 Rev 1 (29/04/2020)

13. ROC Consulting, Plot 9B First Street, Manchester, Phase 1 Desktop Study. Report Ref Z19B-ROC-A180-RP-XX-P1101

1.1.3 It is recommended reference be made to the abovementioned report (s) when reviewing the current assessment.

1.1.4 The scope of the report and its assessment has been based around the site redevelopment proposals as outlined in the aforementioned architect's plans. It should be noted that any subsequent revision of the proposed redevelopment or site boundary away from the above-mentioned drawing may result in the full or partial re-interpretation of this report and assessment.

1.2 Terms of Reference

1.2.1 The Phase 2 Site Investigation was carried out following receipt of an instruction from Ralph Pedersen of Vita Meadow Limited.

1.3 Objectives

1.3.1 The scope of works has been tailored to meet both planning and design requirements to assist with the site's redevelopment. These considerations include:

1) Design a programme of site investigation works to establish ground conditions beneath the site and target known or suspected sources of contamination (as revealed by the Phase 1 desktop study).

2) Completion of site investigation field works including the formation of 1 x rotary cored borehole to establish the site superficial and bedrock geology and allow logging of rock core, as well as 5 window sample boreholes to establish superficial geology and obtain environmental and geotechnical samples.

3) Completion of geo-environmental and geotechnical laboratory analysis of soil / rock samples to determine physical and chemical characteristics.

4) Completion of a geotechnical assessment of site conditions to inform new building foundation and retaining wall design. The scope of this assessment will also include reference to the findings and results of previous site investigation works.

5) Completion of a geo-environmental assessment utilising information provided by both the current and previous phases of site investigation works sufficient in its scope to assist with the discharge of contaminated land related planning conditions / for submission to the relevant statutory authorities.

2.0 Limitations of Study Assessment

2.0.1 The report has been produced by RoC Consulting for the client solely for the purposes of a review of information for the above-mentioned site. It may not be used by any person for any other purpose other than that specified without the express written permission of RoC Consulting. Any liability arising out of its use by a third party for purposes not wholly connected with the above shall be the responsibility of that party who shall indemnify RoC Consulting against all claims, costs, damages and losses arising out of such use.

2.0.2 This report is written in the context of an agreed scope of work and should not be used in a different context. The report should be read in its entirety. Furthermore, new information, improved practices and changes in legislation may require re-interpretation of this report in whole or in part after its original issue. RoC Consulting reserve the right to alter their conclusions and recommendations in the light of further information that may become available.

2.0.3 Ground conditions can change rapidly, especially in areas of made ground, however, it is assumed that the ground conditions observed are typical and representative of the site as a whole. The ground conditions have been determined from a limited number of exploratory holes formed across the property, therefore, only a small percentage of the total area of the property has been investigated. Interpolation between exploratory holes has enabled a general picture of the subsurface conditions to be produced.

2.0.4 Conclusions drawn from the ground investigation should be read in this context. RoC Consulting cannot accept responsibility for any situations resulting from locally unforeseen ground conditions occurring between exploratory holes.

2.0.5 RoC Consulting has exercised all reasonable due skill, care and diligence when collating the design and subsequent execution of ground investigation works. It should be noted we cannot anticipate the requirements and actions of the regulatory authorities when designing and implementing ground investigation works and, whilst thorough consideration has been given to all geo-environmental and geotechnical concerns; further additional fieldworks or assessment may be required at their request.

2.0.6 RoC Consulting cannot confirm that all ground conditions which may be uncovered during the works have been identified, rather this report is intended as an informative for use by experienced professionals and contractors.

2.0.7 Whilst the investigation and report has been scoped in accordance with our understanding of typical regulatory authority requirements, we cannot confirm that on submission regulators may require additional in situ testing or investigation.

3.0 Background Information

3.0.1 The overview below outlines the most salient points / considerations, and it is recommended reference be made to the complete findings of previous site investigation reports for additional information / clarification.

3.1 Site Description

3.1.1 The site is located in Manchester City Centre and forms part of the larger First Street regeneration area. The site itself is an approximately rectangular plot of land occupying an area of circa 0.30ha immediately to the north of Hulme Street centred around grid reference 383730, 397229.

3.1.2 The site is currently utilised by construction contractors BAM as a construction compound associated with the construction of the adjacent Plot 9A office building. Site cabins occupy the southwestern portion of the site, a car parking area and small electrical substation occupy the southeastern area of the site and material storage, and access routes occupy the northern area of the site. Topographically speaking the site appears to be generally level with a slightly lower level in the north associated with access routes to the adjoining Plot 9A.

3.1.3 The site is surrounded by residential and commercial developments as well as a number of construction sites. Plot 9A (an office building) is currently under construction immediately adjacent to the northern boundary of the site, Plot 10B (PBSA) is currently under construction to the east of the site. Additional construction works are underway to the south of the site and immediately adjacent the west of the site is Medlock Street with demolition works beyond.

3.2 Geological Characteristics

3.2.1 Review of publicly available BGS geological map records indicate the site is underlain by the following:

Drift Geology: Glaciofluvial Sheet Deposits (Sand and Gravel)

Solid Geology: Chester Formation (Sandstone)

3.2.2 The site is not located in an area which may be affected by historic Coal Mining or Brine extraction and a Coal Authority report is not required.

3.3 Site History and Environmental Characteristics

3.3.1 The earliest available historic mapping records (dated 1848) indicates the site was occupied by terraced residential housing up until the 1920s when the site was cleared and became a scrap and material yard with associated wood burner. From the late 1940s to the early 1960s there is a period during which several non-descript buildings are present on site and the site use is not entirely known. From the early to late 1960s the site formed part of the wider rubber and waterproofing works extending to the east of the site. Mapping/insurance documents show the site comprised a coal yard with associated office building and garage.

Records dating from 1968 indicate the site was used as a car park up until becoming a storage compound in the late 2010s. The site underwent several years as vacant land from 2020 to 2023 before becoming the construction compound for the adjacent Plot 9A office development.

3.3.2 The site is located within an area of Manchester that has been subject to extensive industrial development. The most significant industrial land uses in close proximity to the site includes the Gaythorne gas works, and India rubber works located to the north and east of the site respectively. A number of smaller industrial land uses were also recorded in close proximity to the site including foundries, print works, coal yards, timber yards, tanks and engineering works.

3.3.3 The Envirocheck Groundwater Vulnerability Map indicates the drift geology (Glaciofluvial Sheet Deposits) are classified as a Secondary A Aquifer with the underlying Chester Formation bedrock classed as a Principal Aquifer. The site is located within an Environment Agency Source Protection Zone III (Total Catchment). The site is not located in close proximity to any sensitive groundwater abstraction points (e.g. for a potable water supply well). The nearest water abstraction point is indicated 424m to the east of the site relating to water abstracted for general use at Manchester Metropolitan University.

3.3.4 The nearest surface water feature is indicated 159m to the northeast of the site in the form of the River Medlock. Water quality of this receptor indicates a General Quality Assessment (GQA) Grade of “E” (poor) and a flow rate of less than 0.31 cumecs.

3.3.5 There are no active surface water abstraction points within 500m of the site, the nearest discharge consent is indicated 16m to the northeast held by United Utilities for the release of public sewage (storm overflow), the receiving water is not supplied but it is believed to be the River Medlock.

3.3.6 There are two Local Authority Pollution Prevention and Control entries noted within 250m of the site relating to Jessop & Baird Ltd for adhesive coating, the authorisation is listed as revoked and Dunlop Ltd Division for rubber processes the authorisation is listed as revoked.

3.3.7 There are no active BGS recorded landfill sites, local authority recorded landfill sites, registered or historic landfill sites within a 500m radius of the site. There are 10 instances of potentially infilled land associated within 500m of the site. The closest of these relates to an area of land 117m to the northwest of the site.

3.3.8 There are no waste treatment sites or registered waste transfer stations located at the site or within 500m of the site boundary. There are two licensed waste management facilities located within 500m of the site. The closest of these relates to Little Ireland Phase B, Great Marlborough Street and the site category is listed as mobile plant. The second entry relates to 100 Barbirolli Square Manchester and the site category is listed as mobile plant for reclamation, restoration.

3.3.9 The site is not said to be located in an area deemed to be at risk from flooding or extreme flooding events from either land or sea.

3.4 Historic Site Investigation Reports

3.4.1 A number of historic site investigations have been undertaken. Those made available to RoC Consulting at the time of writing are summarised below.

Cundall - Plots 6 & 7 First Street, Manchester - Preliminary Geotechnical and Geoenvironmental Assessment (26/01/2016)

3.4.2 Comprised an initial desk study across what is now Plots 9 and 10 for redevelopment as an area of public open space. The report refers to a number of historic site investigation reports in close proximity to and on the site, which were not available for review in this desk study but mainly completed in the area of the Gaythorne Gas works to the north of the site. These include Matthew and Mumby 1967/8, Georesearch 1985, Ove Arup 2006, Celtic Technologies Ltd 2008, Capita Symonds 2012 (First Street south and north).

3.4.3 The report identified that the historic Gaythorne gas works to the north of the site had been remediated to the satisfaction of Manchester City Council (for human health risks) and the Environment Agency (for controlled waters risks).

3.4.4 The report also identified the potential presence of historic river channels beneath the site associated with a historic tributary of the River Medlock.

3.4.5 The Ove Arup site investigation report referenced (2006) was conducted within the boundaries of Plots 9 and 10. Cundall noted that exploratory hole locations were generally well distributed across the site and comprised (10 dynamic sampling and cable percussion boreholes). Chemical testing results from the Ove Arup investigation were reviewed and this indicated locally elevated concentrations of lead were recorded within the made ground deposits and aside from slightly elevated lead concentrations, no significantly elevated concentrations of leachable heavy metals or hydrocarbons were recorded. A monitoring well installed by Ove Arup in the southwestern portion of the site indicated that elevated levels of CO_2 (7.2%) and methane (2.2%) were present and depleted levels of O_2 (1.4%).

3.4.6 Further investigation work was recommended on site to assess the quality of soils both from a geotechnical and environmental perspective as well as enable the installation of groundwater monitoring wells and were undertaken by Geotechnical (summarised below).

Geotechnical - Plots 6, 7 & 8 First Street, Manchester Factual Report on Ground Investigation (12/07/2016)

3.4.7 The report comprised a factual summary of investigation works designed by Cundall and completed across then numbered Plots 6, 7 and 8. A total of 4 dynamic sample and rotary boreholes, 5 dynamic sample boreholes, 3 CBR tests were completed on or in close proximity to the current Plot 9B. It should be noted that large areas of the site were inaccessible at the time of these investigation works due to the presence of site cabins and stockpiles associated with the construction of the former Plot 5 to the north of the site.

Cundall - Plots 6 & 7 First Street, Manchester – Geoenvironmental Assessment (28/07/2016)

3.4.8 The report was completed following the Geotechnical site investigation works on Former Plots 6 and 7 to assess the geoenvironmental and geotechnical findings in the context of the proposed development at the time of temporary public realm with soft landscaping works and hard landscaped footpaths.

3.4.9 Geotechnically, potential evidence of a former river channel was encountered across the centre of the wider site, potentially for this to extend into the northeastern portion of the current Plot 9B. The potential for buried obstructions and deep made ground was noted across the wider site. No geotechnical information on rock strength was obtained from Plot 9B during the investigation due to the proposals being for public realm infrastructure. Rock testing was however undertaken on the former Plot 8 to the south comprising a number of point load and UCS tests. Some soil testing including particle size distribution (PSD), Atterberg limits and dry density / moisture content relationship is available for Plot 9B.

3.4.10 From an environmental perspective, elevated levels of polycyclic aromatic hydrocarbons (PAH) were encountered at CP/RC112 located circa 45m to the northeast of Plot 9B. The presence of asbestos was recorded in site soils across the site (including on Plot 9B with one sample recorded as >0.001% by volume) therefore the employment of a remediation strategy was recommended. Monitoring wells were installed by Geotechnical Ltd to assess ground gas. Monitoring indicated elevated hazardous ground gas levels were not present, but oxygen levels were noted as being depleted. It should be noted that only three wells were installed and none of these were located within the area of Plot 9B or were installed within the peat / alluvium deposits which are a potential source of ground gas generation.

3.4.11 Two samples of made ground were analysed for Waste Acceptance Criteria (WAC). No waste assessment was undertaken on chemical data from site soils to determine waste classification of on-site material. Furthermore, no UK Water Industry Research (UKWIR) risk assessment was undertaken for buried water pipes.

3.4.12 Human health risks were identified from the potential presence of further elevated PAHs in unrecorded ashy made ground and the presence of asbestos. A Remediation strategy to address these risks was prepared and is summarised below.

Cundall - Plots 6 & 7 First Street, Manchester - Detailed Remediation and Verification Strategy (09/08/2016)

3.4.13 Cundall prepared this remediation strategy for the proposed temporary public realm. Recommendations were put forward for the management of human health risk posed to construction workers, the public and future site users including the employment of a clean cover system and environmental best practice during site works including separation of contaminated materials to prevent cross contamination. Chemical threshold criteria were also provided for the reuse and import of material.

Ramboll - Ground Investigation Review Plot 6 / 7 First Street (24/02/2017)

3.4.14 Ramboll were appointed to produce a review of the existing information available for the former Plots 6 & 7 in the context of a change to the proposed future use from public realm to 10-14 storey offices. This included some information relating to Plot 9B.

3.4.15 Ramboll determined based on existing data from Cundall and Geotechnical Ltd that foundations were likely to comprise rock socketed continuous flight auger (CFA) piles and additional data points would be useful to further inform pile design, furthermore Ramboll noted that plate load testing would be required by piling contractors for piling platform design. It was noted that it was unlikely significant quantities of site won fill would be reused on site in an engineering capacity with the dry density to moisture content relationship and CBR testing completed suitable for design from an earthworks and pavement design perspective.

3.4.16 Given previous experience on Plot 5 located to the north of the former Plots 6 and 7, Ramboll noted that due to encountering a sinuous trough running approximately southwest to northeast, piles had to be extended. The historic river channel appears to generally be in the same location as this feature according to historic mapping. During their assessment of the existing information on the potential river channels it was noted that material encountered in CPRC110 and CPRC113 is potentially representative of a channel of significant size, which could influence foundations for the proposed structure. Further investigation was recommended to mitigate the risk to foundation design by further delineating the extents of any on-site buried channels.

3.4.17 Further work was recommended and is detailed below:

- Updated preliminary risk assessment to reflect the change of use
- Additional ground gas monitoring wells within building footprints and to target alluvium and peat deposits
- Targeted ground investigation and chemical analysis of previously inaccessible areas
- Additional asbestos quantification analysis in previously inaccessible areas
- Waste classification of material to be taken off site and additional WAC analysis
- UKWIR risk assessment in the area of proposed water supply pipes
- Additional rotary percussive probing to validate bedrock across the site
- Plate load tests for piling platform design
- Archaeological considerations to be agreed with MCC
- Production of a detailed remediation and verification strategy

Terra Consult - Plots 6 & 7 First Street (February 2018)

3.4.18 Terra Consult were commissioned to complete the site investigation works scoped by Ramboll and this report provides a factual summary of the site investigation fieldworks and encountered geology.

3.4.19 Chemical testing was completed on samples obtained from site soils including metals, PAHs, Hydrocarbons and asbestos and was interpreted in the following Ramboll reports.

Ramboll - Plot 9 First Street, Manchester Contaminated Land Desk Study

3.4.20 Ramboll completed a contaminated land desk study for Plot 9 (comprising both Plots 9A and 9B) providing an update to previous desk studies completed across the formerly named Plots 6 & 7 and reflecting the updated red line boundary and site investigation works undertaken in the intervening period by TerraConsult. The report was completed for a 10-storey office development (currently under construction on Plot 9A).

3.4.21 The report provides a summary of investigations completed to date and includes the investigation works undertaken by TerraConsult in 2017 (Ramboll completed an interpretative report of the information provided by TerraConsult prior to this desk study but it was subsequently revised in 2018 so appears after this entry in the summary of reports undertaken across the site).

3.4.22 The report classified the risk posed to future site users as low to moderate regarding asbestos exposure with the risk of exposure to construction workers being high to very high due to the likelihood of encountering asbestos in site soils during excavation works.

3.4.23 It was noted that the presence of organic deposits in the underlying areas of alluvium and / or potential infilled channels presented a risk of ground gas generation ingress into the proposed commercial building (including basement), or confined spaces occupied by construction workers. A potential risk to future site users from volatile contaminants in site soils and the underlying aquifer from mobile contaminants was also identified.

3.4.24 Several recommendations were made including:

- Likely need for a piling risk assessment and EA were to be consulted in regard to their expectations for a piling risk assessment at the site
- Remedial strategy document for the proposed development required to address identified contamination issues
- Earthworks at the site to be undertaken in accordance with an appropriate Material Management Plan (MMP)

TerraConsult - Plots 9 & 10 First Street Ground Investigation Report (15/01/2020)

3.4.25 TerraConsult completed a supplementary ground investigation for the proposed residential, office and retail development across Plots 9 & 10 to a specification completed by Ramboll. The work comprised the formation of 2 rotary open hole boreholes, 1 dynamic sample boreholes and 2 rising head permeability tests on Plot 9B. 3 monitoring wells were installed on Plot 9B at BH02, BH03 and WS02.

3.4.26 The main purpose of the supplementary investigation was to gather additional data to inform basement design.

Ramboll - Plots 9 & 10 First Street Manchester Geotechnical and Contaminated Land Interpretative (03.02.2020)

3.4.27 The report was focused on the redevelopment of the site for use as a 10-storey commercial development with limited soft landscaping and a single storey basement (Plot 9A) with the future development of Plot 10 expected to be of a similar nature.

3.4.28 Ramboll initially completed the interpretative report, initially in 2018 with subsequent revisions made to reflect the change in plot naming from Plots 6 & 7 to plots 9 & 10, incorporation of additional ground investigation data to inform basement design and incorporation of additional waste classification works complete in the Ramboll letter Report 'Plot9 and Plot 10 First Street, Manchester, waste classification letter report'.

3.4.29 Rock and soil design parameters were provided in the report, but it is important to note that no actual rock testing was undertaken on Plot 9, and this information is based on UCS and point load testing completed on Plot 8 to the north.

3.4.30 A number of positive asbestos ID results were reported across the wider site including several on Plot 9B and it is likely asbestos is present within made ground across Plot 9B.

3.4.31 A number of elevated concentrations of PAHs, metals, arsenic and Total Petroleum Hydrocarbons (TPH) were reported in leachate samples taken from made ground deposits in exceedance of environmental quality standards (EQS) generic assessment criteria (GACs).

3.4.32 Exceedances of TPH were noted in groundwater samples indicating a minor impact to groundwater from TPH leaching through on site made ground deposits into the underlying groundwater.

3.4.33 Due to elevated levels of semi volatile organic compounds (SVOCs) and hydrocarbons in soils it was deemed likely a barrier pipe would be required for the proposed water supply pipe to the site, although no testing had been undertaken along the proposed alignment (as it had not yet been finalised at the time of the report being issued).

3.4.34 The site was classified as CS2 due to elevated CH_4 (1.5%) and CO_2 (9.3%) concentrations originating from RP20 located on Plot 9B.

3.4.35 Due to elevated sulphate levels a design sulphate class of DS-2 and aggressive chemical environment of concrete of AC-2 were suggested for the site.

3.4.36 Recommendations for further work were made including the implementation of a remediations strategy and material management plan.

Ramboll - Plot 9 First Street, Manchester, Waste Assessment Update (31/03/2020)

3.4.37 Ramboll attended site during the archaeological investigation completed on Plot 9 to obtain additional soil samples for waste classification and WAC testing.

3.4.38 The report broke down the principal soil types across the site as with made ground being classified as nonhazardous with the exception of asbestos impacted materials and cohesive made ground, glacial clays possibly reworked and glaciofluvial deposits where WAC data indicated exceedances of leachable antimony and fluoride, although it was noted these were marginal and landfill providers may be able to accept the material at an inert waste landfill site. Alluvium deposits were classified as non-hazardous but unlikely to pass inert WAC due to organic content. Sandstone was classed as non-hazardous.

3.4.39 One sample taken from made ground deposits (TT1) on Plot 9B encountered asbestos above the hazardous waste threshold of 0.1% w/w.

Ramboll - Plot 9 First Street, Manchester, Ground Contamination Risk Assessment and Remedial Strategy (29/04/2020)

3.4.40 This report was completed by Ramboll to provide an update to the ground contamination GQRA completed in the previous geotechnical and contaminated land interpretative report dated February 2020 to reflect data from Plot 9 only. An update to the remediation strategy and verification plan were also completed.

3.4.41 No significant changes were made to the GQRA with the main risks remaining, those posed by asbestos to human health, elevated hydrocarbons to water pipes, ground gas generation to construction workers and future site users and the minor groundwater impact from hydrocarbons to the below ground aquifer.

3.4.42 The remedial strategy for the site specifies a number of measures to be implemented for the redevelopment of the site including:

- Material management to be carried out under the CL:AIRE Waste Code of Practice (WCoP)
- Specific measures for dealing with contaminated / asbestos impacted soils are specified including the separation of stockpile of contaminated and clean material
- Implementation of an asbestos management plan
- Clean capping layer for areas of soft landscaping to break any potential pathways for exposure to asbestos
- Discovery strategy for encountering areas of unexpected contamination.
- Piling risk assessment
- Ground gas mitigation measures
- Barrier pipes

4.0 Site Investigation Design

General

4.0.1 The RoC intrusive investigation was designed and completed to further investigate geo-environmental issues identified during the Phase 1 Desktop Study and obtain geotechnical information on the characteristics of the underlying soil and rock to inform foundation design for the proposed structure.

4.0.2 Due to on-site constraints associated with the construction of the neighbouring Plot 9A building the site investigation works have been phased with the first phase of works completed in June 2024 and comprising the formation of 1 rotary cored borehole to 25m below ground level (mbgl) and 5 window samples boreholes to a maximum depth of 5mbgl.

4.0.3 The second phase of site investigation works comprising ROC RBH102 and ROC WS101 has not yet been completed at the time of writing, owing to the presence of site cabins at the proposed locations. Once the cabins have been removed from the site these boreholes will be completed, and this report will be updated with the findings of the second phase of investigation works.

4.0.4 Exploratory hole placement was dictated by the findings of the Phase 1 Desktop Study to zone in on areas where current / previous industrial activity may have impacted soil quality and gaps in data were present from previous phases of site investigation. In addition, boreholes were located within the footprint of the proposed new development to establish ground conditions and support foundation design.

4.0.5 Samples of soil collected during the investigation works are to be analysed for a variety of determinants associated with the pattern of current / historic industrial activity across the site as outlined within the preliminary conceptual site model.

4.0.6 Table 4.0 below provides location justification for each exploratory hole formed during the site investigation fieldworks. The purposes of this table are to illustrate the targeting of potential sources of contamination during the Phase 2 site investigation works.

Table 4.0: Borehole Locations & Justification

BH/WS ID.	Reason for selection
ROC RBH101	Provide geotechnical information on soils and rock in western area of building footprint and facilitate installation of groundwater monitoring well into underlying principal aquifer.
ROC RBH101A	Provide geotechnical information on soils and rock in western area of building footprint and replace rock core samples from RBH101.
ROC RBH102	Provide geotechnical information on soils and rock in western area of building footprint and facilitate installation of groundwater monitoring well into underlying principal aquifer. **Unable to be completed due to site constraints.**
ROC WS101	Obtain environmental and geotechnical samples from made ground and superficial deposits in the western area of the site. **Unable to be completed due to site constraints.**

BH/WS ID.	Reason for selection
ROC WS102	Obtain environmental and geotechnical samples from made ground and superficial deposits in the central area of the site.
ROC WS103	Obtain environmental and geotechnical samples from made ground and superficial deposits in the eastern area of the site.
ROC WS104	Obtain environmental and geotechnical samples from made ground and superficial deposits in the eastern area of the site.
ROC WS105	Obtain environmental and geotechnical samples from made ground and superficial deposits in the eastern area of the site.
ROC WS106	Obtain environmental and geotechnical samples from made ground and superficial deposits in the western area of the site.

4.0.7 Exploratory hole locations are shown on RoC Consulting drawing 4770-ROC-ZZ-XX-DR-ES-ES103 (Current Site) and 4770-ROC-ZZ-XX-DR-ES-ES104 (Prop Development) provided within Appendix A.

5.0 Site Investigation Fieldworks

5.0.1 Site investigation fieldworks were completed between the 24th and 28th of June 2024 and on the 28th to 29th of July by drilling contractors MT Geoservices. Window sample boreholes were formed with a Dando Terrier and rotary boreholes were formed with a Beretta T44.

5.0.2 Prior to excavation, our methodology for service avoidance, G5.15, was applied. This methodology includes:

- Consultation of existing statutory undertakers plans of services
- Consultation of service drawings provided to us by the client or site operator
- Completion of location specific GPR clearance where applicable
- Opening of nearby service covers
- CAT and Genny scanning
- Excavation of 1.20m deep hand dug service avoidance pit in advance of borehole drilling
- Recording of these checks through location specific Permits To Dig.

5.0.3 To ensure no new sources of contamination were introduced to underlying soils / bedrock during the formation of each borehole, we have adopted safe drilling techniques for ground investigation in all instances, to ensure no new sources of contamination were introduced or mobilised as a consequence of the works. These methods include but are not limited to:

- Use of steel casing and vegetable oil as a lubrication medium
- Formation of impermeable bentonite seals in borehole wells during drilling
- Formation of impermeable bentonite seals to the tops and bottoms of response zones in installed monitoring wells
- Reinstatement of boreholes without monitoring wells with bentonite
- Cleaning of sampling equipment to reduce cross contamination
- Dual pipe monitoring wells have not been installed.

5.0.4 We consider that the employment of these above methods keeps the likelihood of contamination disturbance as low as reasonably practicable, although it is not possible to wholly remove the possibility of such occurrences.

5.0.5 Soil and rock core samples were collected for subsequent chemical and geotechnical laboratory analysis. Soil samples used for geotechnical analysis were collected in 1kg plastic sample tubs, U100 wax sealed sample tubes and polythene “bulk” bags. Samples collected for chemical testing were collected in 300g glass jars, 30g glass vials and 1kg plastic sample tubs. Samples were obtained from both made ground and natural strata to assess the overall quality of underlying soils. In situ soil strength was investigated using Standard Penetration Tests (SPT) within superficial deposits as well as to confirm when rock head had been reached.

5.0.6 The shallow soils encountered during construction of the boreholes were described and logged by a suitably qualified engineer in accordance with BS 5930: Code of Practice for Site Investigations (the log sheets for which have been provided within Appendix B).

5.0.7 A total of 5 ground gas and ground water monitoring wells were installed within window sample and rotary boreholes. Installation details are provided within Table 5.0, copies of ground water and gas monitoring records are provided within Appendix E.

Table 5.0: Monitoring Well Installations

BH ID	Monitoring well depth (mbgl)	Response zone (mbgl)	Response zone strata
RBH101	15.00	9.00-15.00	Chester Formation
WS102	3.50	1.00-3.50	Glaciofluvial Deposits
WS104	2.50	0.50-2.50	Made Ground
WS105	4.00	1.00-4.00	Glaciofluvial Deposits
WS106	2.00	0.50-2.00	Made Ground

5.0.8 The site works have been undertaken with supervision from an Unexploded Ordnance specialist. No potential UXO was encountered during the works. UXO risks will also require management during the construction phase and specialist advice on this should be sought.

6.0 Encountered Ground Conditions

6.0.1 The following ground conditions are summarised from the exploratory holes formed during the RoC Consulting site investigation and previous site investigations completed by TerraConsult and Geotechnical. The following represents an overview of encountered ground conditions, and it is recommended reference be made to the borehole log sheets provided within Appendix B for a detailed strata description; all depths shown are given in metres below ground level (mbgl) unless otherwise stated.

6.1 Ground Conditions Overview

Made Ground

6.1.1 Made ground (MG) was reported at all exploratory hole locations the details of which is provided in table 6.1 below:

Table 6.1: Made Ground Strata Description

Strata description	A surfacing of asphalt exists in areas associated with the construction compound for Plot 9A. The rest of the site is surfaced by granular material laid down for construction works. The underlying made ground soils are noted to comprise a mixture of cohesive and granular soils with the granular soils typically overlying the cohesive. Anthropogenic inclusions comprising brick, ceramic, clinker, ash, concrete, glass and slate. Whole bricks were common and suggest made ground deposits on site to originate from historic demolition fill material. At ROC WS104 reworked organic clay was noted at 1.95 to 2.80mbgl. The density of MG deposits varied from very loose to medium dense as indicated by the range of SPT N value. However, it is likely that some of the higher values are associated with cobbles contained within the MG matrix. Two groundwater strikes were reported in MG deposits at TerraConsult boreholes WS105 and WS107 at 3.80 and 3.70mbgl respectively.		
Max Depth	5.25	**Min Depth**	1.10
Mean Depth	2.89	**SPTs**	N = 1 to 28

Glaciofluvial Deposits

6.1.2 Glaciofluvial Deposits were reported at the base of made ground deposits at 7 exploratory hole locations as described in Table 6.2.

Table 6.2 Glaciofluvial Deposits

Strata description	Glaciofluvial deposits (GFD) were predominantly encountered underlying made ground deposits and overlying Devensian Till deposits across the site. Occasionally GFD was found to be absent typically in areas of deeper MG such as at TerraConsult WS105, Geotechnical WS107A and RoC RBH101. GFD was generally described as a medium dense to dense gravelly sand, sand and gravel or sandy gravel. At WS103 at a depth of 2.80 to 3.20mbgl a band of organic clay was recorded within the GFD. The density of GFD varied between very loose to dense and deposits were generally reported as medium dense. At RoC WS103 very loose to loose deposits were reported. Groundwater strikes were reported between 3.30 and 4.00mbgl in the GFD.		
Max Depth	4.40	**Min Depth**	3.50
Mean Depth	3.83	**SPTs**	N = 1 to 35

Devensian Till Deposits

6.1.3 Devensian Till deposits were reported at the base of made ground deposits at 7 exploratory hole locations as described in Table 6.3.

Table 6.3 Devensian Till Deposits

Strata description	Devensian Till (DT) were largely reported underlying GFD however on occasion were noted directly underlying MG (at TerraConsult WS105 and BH02 and Geotechnical WS107A). DT was generally described as a firm to stiff slightly gravelly CLAY. No groundwater strikes were reported within the DT Deposits which appears to form a barrier between perched water in the MG / GFD and underlying Chester Formation.		
Max Depth	10.00	**Min Depth**	8.00
Mean Depth	8.93	**SPTs**	N = 9 to 50

Chester Formation

6.1.4 Bedrock of the Chester Formation (CF) was encountered at RBH101, RBH101A, BH02, BH03 and CP/RC109 between 8.00 and 10.00mbgl respectively (23.27 and 25.40mAOD). It is noted that the RP series boreholes (RP20, RP21, RP22) completed by Terraconsult which encountered bedrock were completed using rotary open hole techniques and therefore the accuracy of the boundaries between different strata will be limited, as a result depths from the RP series boreholes have been discounted from the ground model.

6.1.5 The upper horizons of the CF were weathered to a gravelly sand at CP/RC109 and RBH101. Generally, bedrock was described as very weak to weak reddish-brown sandstone with close to medium fracture spacing. Localised areas of non-intact and extremely weak rock were reported particularly at shallower depths (<12mbgl); however, bedrock generally became more competent with depth with associated increases in RQD and UCS values. The bedrock appears to dip to the south / west, this is supported by the BGS 1:50,000 mapping for the area which reports a dip of 8 degrees to the southwest in this area of Manchester.

6.1.6 A programme of geotechnical testing was completed on rock samples obtained from site investigation works including point load (PL) and Uniaxial Compressive Strength testing (UCS) as detailed in sections 7.0 and 11.0.

6.2 Contamination Observations

6.2.1 Visual and olfactory evidence of soil contamination encountered during historic site investigations and the current site investigation is described in Table 6.4 below

Table 6.4 Contamination Observations

BH ID	Depth (m) & Strata	Comments
ROC WS102	3.00-3.50mbgl (GFD)	Black staining no odour recorded

6.3 Groundwater Observations

6.3.1 Groundwater strikes from historic site investigations and the current site investigation are described in Table 6.5 below.

Table 6.5 Groundwater Strike and Resting Water Level Information

BH ID	Water Strike Depth	Resting Water Level	
		mbgl	mAOD
Terraconsult WS105	3.80mbgl (MG)	-	-
Terraconsult WS107	3.70mbgl (MG)	-	-
ROC RBH101	None recorded	7.93-8.27	25.37–25.03
ROC RBH101A	3.00mbgl (GFD)	-	-
ROC WS102	3.50mbgl (GFD)	Dry	Dry
ROC WS104	4.00mbgl (GFD)	Dry	Dry
ROC WS105	3.30mbgl (GFD)	3.67-3.90	29.83-29.60
ROC WS106	3.80mbgl (GFD)	Dry	Dry

6.3.2 It should be noted that, due to the choice of drilling methods, it was not possible to accurately record the depth of groundwater strikes in rotary drilling locations. Assessment of deep groundwater levels is more accurately made based on the resting water levels recorded during monitoring.

6.3.3 Groundwater within the GFD and MG appears to be perched above the underlying low permeability clay of the DT deposits. Groundwater within the sandstone bedrock on site appears to be present at circa 25.37-25.03mAOD based on resting water level data obtained from ROC RBH101.

6.4 Below Ground Obstructions

6.4.1 Some minor below ground obstructions were encountered during site investigation works in the form of cobbles and whole brick. It is also noted that the site was historically occupied by residential housing and relic foundations / basements may still be present beneath the site.

7.0 Laboratory Testing

7.0.1 To establish the physical and chemical properties of underlying soils, a programme of laboratory analysis was completed utilising samples obtained during site investigation works. This analysis comprised the testing of soil samples to assist with the estimation of risks posed by contaminated land related concerns.

Chemical Testing

7.0.2 RoC Consulting submitted a total of 13 soil and 1 water samples to a UKAS accredited testing facility for analysis against a range of determinands synonymous with the site's former industrial activity.

Determinands	No. of Tests
Soil Suites	
Toxic and phytotoxic metals and metalloids	13
Total & Speciated PAH,	13
Other inorganic substances (e.g. Sulphate, Cyanide etc)	13
Asbestos ID	7
Leachate Analysis	1
Water Soluble Sulfate & pH	13
BRE SD1 Sulphate Suite	7
TPH	7
SVOC / VOCs	5
WAC	2
UU Pipework Risk Assessment (UKWIR)	2
Water Suites	
Toxic and phytotoxic metals and metalloids	1
Total & Speciated PAH	1
Other inorganic substances (e.g. Sulphate, Cyanide etc)	1
Water Soluble Sulfate & pH	1
TPH - water	1
SVOC / VOCs	1

7.0.3 Copies of chemical testing results have been provided within Appendix C.

Geotechnical Testing

7.0.4 A programme of geotechnical laboratory analysis was also completed on tub and undisturbed soil samples obtained during site investigation works.

Plasticity Index

7.0.5 A total of 2 soil samples were tested for the determination of the MG plasticity index. The plasticity index of samples ranged from 13 to 19% with a mean value of 16%. These results indicate cohesive MG to be of a low to intermediate plastic nature. The results have been corrected for the % of soils passing the .425mm sieve in the sample. The modified plasticity index range varies between 8 and 17% with a mean value of 13%. These results indicate clays to have a generally low volume change potential.

7.0.6 A total of 6 soil samples were tested for the determination of the DT's plasticity index. The Plasticity Index of samples ranged from 14 to 19% with a mean value of 16.4%. These results indicate the DT deposits to be of a low to intermediate plastic nature. The results have been corrected for the % of soils passing the .425mm sieve in the sample. The modified plasticity index range varies between 10 and 18% with a mean value of 14. These results indicate clays to have a generally low volume change potential.

Particle Size Distribution

7.0.7 A total of 1 bulk samples of made ground were subject to particle size distribution testing to confirm their principal constituent parts. Results from these tests support the descriptions made of granular made ground material.

7.0.8 A total of 2 bulk samples of GFD were subject to particle size distribution testing to confirm their principal constituent parts. Results from these tests support the descriptions made of granular made ground material.

Undrained Unconfined (UU) Triaxial Testing

7.0.9 A total of 1 undisturbed samples of DT was subject to UU testing to establish the shear strength of the clay soils. The results of this testing indicated that the sample of clay taking from RBH101 at 4.00m had a shear strength (Cu) of 94Kpa.

7.0.10 A total of 8 hand shear vane tests were undertaken on cohesive deposits. 5 tests were undertaken on DT deposits at depths ranging from 3.80-4.70mbgl, Cu values ranged from 22-120KPa. A further 3 tests were completed within MG at depths ranging from 1.50 to 2.20mbgl, Cu values ranged from 16-42KPa.

Oedometer Testing

7.0.11 A total of 1 undisturbed sample of DT was subject to oedometer testing to establish the Mv value of the clay soils. These have established M_V values using a range of applied pressures (0 to 800kPa).

Point Load Testing

7.0.12 A total of 12 rock samples underwent point load testing from depths ranging between 8.60 and 25.50mbgl. Point load testing reported Is(50) values ranging from 0.03 to 0.70Mpa. Using a conversion factor of 21 based on ASTM D 5731-05 to convert the point load tests to a uniaxial strength indicates the UCS of the tested rock samples to range from 0.63 to 14.7Mpa.

Unconfined Compressive Strength

7.0.13 A total of 4 rock samples were tested for the determination of Unconfined Compressive Strength. Tests were completed on rock cores obtained from rotary boreholes at depths ranging between 12.66 to 21.69mbgl. UCS results were reported to range from 6.2 to 14MPa.

7.0.14 Results from geotechnical laboratory testing have been provided within Appendix D.

8.0 Geo-Environmental Assessment

8.0.1 The results from the intrusive Phase 2 ground investigation have been used to complete a refined assessment of risks posed by ground contamination and ground stability issues beneath the site, building on the model and assessment outlined in the Phase 1 Desktop Study. The assessment considers these risks both in terms of the site's current arrangement and usage, as well as any potential future development (and associated construction process).

8.0.2 The assessment has been collated with reference to various statutory and non-statutory guidance documents relating to land contamination and ground stability. Specifically, the assessment has been conducted in accordance with the Environment Agency Land Contamination Risk Management (LCRM) guidance relating to the "Tier 2 Generic Quantitative Risk assessment" process (revised April 2021).

8.0.3 In accordance with this method, a Refined Conceptual Model has been collated for the site based on the results of the desktop review. This model is based around the Source / Pathway / Receptor methodology as outlined in Fig 8.0.



Figure 8.0 Source Pathway Receptor Diagram

8.0.4 Risk assessment is the process of collating known information on a hazard or set hazards in order to establish actual or potential risks to receptors. The receptor may be human health, controlled waters, a sensitive local ecosystem or even construction materials. Receptors can be connected with the hazard under consideration via one or several exposure pathways (e.g., the pathway of direct skin contact and oral exposure).

8.0.5 Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there is deemed to be no risk. In other words, the mere presence of a hazard at a site does not mean that there will necessarily be risks.

8.0.6 Potential sources of contamination have been identified across the site, where applicable, based on observations and information obtained during the desktop review. These sources are defined based on the results from site investigation fieldworks and subsequent laboratory analysis of samples / monitoring works. As previously discussed, the design of these investigations included judgemental elements of targeting known or suspected sources of contamination, based on the results of the Tier 1 Preliminary desktop assessment; as well as obtain site wide information on soil, groundwater and ground gas quality.

8.0.7 The risk assessment has been completed with reference to the guidance outlined within CIRIA 552 "Contaminated land risk assessment. A good practice guide". This risk assessment methodology considers the potential consequence and severity of risks that may be present within soils, and then compares these with the likelihood of occurrence and exposure of said risk. A range of risk classifications are provided within CIRIA 552 further details of which are provided in Table 8.0 below.

Table 8.0: Definition of risk class and consequence

Risk Class	Definition	Example
Minor	Potential for harm, although not significant, which may result in financial loss to resolve. Ground conditions where the use of PPE would readily mitigate risks posed to human health.	Low level contamination hotspots within made ground / demolition fill materials. Stunted or impeded plant growth due to poor soil quality.
Mild	Pollution of non-sensitive water resources or damage to crops, plant growth, below ground utilities or structures.	Perched groundwater contamination overlying low permeability aquifer or aggressive sulphate concentrations in soils.
Medium	Sources of contamination identified on site have the potential to cause both long and short-term health effects on site residents / users. Alternatively (or in conjunction with) sources of contamination may have the potential to impact surface or groundwater quality or impede vegetation growth.	Elevated concentrations of hydrocarbon contamination reported within topsoil tested within residential gardens as a result of inadequate or incomplete previous remediation works. Movement of contaminated groundwater from leaking below ground storage tank into adjacent surface water course.
Severe	Sources of contamination pose a credible and acute risk to human health with potential for "Significant Harm" occurring as defined by the Part IIA of the Environmental Protection Act (1990). Alternatively (or in conjunction with risks posed to human health) sources of contamination may pose an immediate risk to controlled water resources or ecosystems.	Grossly contaminated soils are encountered or disturbed during excavation works, causing an immediate release of toxic soil vapour and leachate / contaminated groundwater flow across adjacent land.

8.0.8 As previously discussed the contaminated land risk assessment model evaluates the severity of risks that may be present within soils / groundwaters in the context of threats posed to identified receptors before deriving the actual risk rating based on the probability of occurrence. Table 8.1 outlines the range likelihood of risk.

Table 8.1: Probability Assessment

Classification	Definition
High likelihood	A credible pollutant linkage has been identified and it is very likely contaminants will impact identified receptors in both the short or long term (or is already actively doing so). The potential for harm to be caused is thus highly likely.
Likely	Pollutant linkages between the sources of contamination and identified receptors are present and it is considered likely they will become active given the right set of circumstances (e.g. contaminants currently buried below ground that are likely to be exposed or disturbed during construction / excavation works. The circumstances are such that an event is not inevitable, however it is possible in the short term and likely over the longer term.
Low likelihood	A theoretical pollutant linkage has been identified that has the potential to expose receptors to contaminants under the correct circumstances. However, the likelihood of such an event occurring is not a certainty, even in the long term
Unlikely	There is no / minimal likelihood a pollutant linkage would occur, even over the long term.

8.0.9 The risk assessment process is a combination of probability and consequence, recognising that it may be possible to have a significant source of contamination beneath a site (such as a large below ground chemical storage tank) that may only present a relatively moderate to low risk (owing to the fact it may be contained within a secure concrete bund). Table 8.2 indicates how the actual nature of risk is established with Table 8.3 illustrating how the risk is interpreted in the context of contaminated land risk assessment.

Table 8.2: Risk Definition

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	

Table 8.3: Description of risks posed

Risk Definition	Description
Very High	Active pollutant linkages between a significant source of contamination and identified receptors have been establish and there is a high likelihood of severe harm occurring to said receptors unless immediate investigation and remediation action is not taken.
High Risk	Harm is likely to arise to receptors from an identified hazard in the short and long term. Urgent investigation of the contaminant issue will be required, and remedial treatment is likely.
Moderate Risk	The possibility of harm has been identified toward receptors under the right circumstances, although the severity of harm would be relatively mild. Further investigation of identified issues would be prudent and possible need for remedial measures in the long term.
Low Risk	It is possible harm could arise to a designated receptor from identified hazard, but it is likely (if realised) any harm would be (at worst) mild.
Very Low Risk	No significant pollutant linkages have been identified and the possibly of harm occurring to receptors is low.

8.0.10 A Preliminary desk-based risk assessment has been completed for the site utilising the current and historical environmental information available (refer to RoC Consulting report ref: Z19B-ROC-A180-RP-XX-P1101). This report formed the basis from which the current programme of ground investigations was designed and undertaken.

8.0.11 The Tier 2 risk assessment process can be divided based on the receptor group in question between:

1) Risks posed to human health by soil contamination (both construction persons and future site users).

2) Risks posed to human health by hazardous ground gas ingress (both construction persons and future site users).

3) Risks posed to controlled waters by soil or groundwater contamination (both surface water features and bedrock aquifers).

4) Risks posed to new building construction by aggressive ground conditions (namely elevated sulphate concentrations).

8.0.12 It is noted that proposals for the site comprise redevelopment as a purpose-built student accommodation block with associated hard and soft landscaping.

8.0.13 Appropriate assessments have been completed for each of the above utilising the latest statutory and non-statutory guidance documents; for details of risks posed to human health refer to Section 8.1 (soils) and Section 8.2 (ground gas), for details of risks posed to controlled waters refer to Section 8.3 and risks posed to new structures refer to Section 8.4.

8.1 Assessment of Soil Contamination

8.1.1 In order to estimate the risks posed to human health from soil contamination, a quantitative risk assessment has been completed utilising the latest Environment Agency Contaminated land exposure assessment (CLEA) methodology. The assessment utilises the chemical testing results obtained during the site investigation fieldworks to characterise site conditions and facilitate the completion of the risk assessment process.

8.1.2 The assessment for this site is based on the comparison of soil chemical testing results with RSK (RoC Consulting forms part of the RSK group and utilises GACs derived by RSK Geosciences) derived GACs under the proposed end use scenario to determine the sites suitability for use as detailed in Appendix G.

8.1.3 Chemical testing results are compared against RSK derived GAC values for each determinant with any results reported in exceedance of screening criteria identified and their significance reviewed. Soil and groundwater screening results are presented in Appendices H and I respectively. When determining the significance of any exceedances within the dataset the magnitude and frequency of the exceedance needs to be taken into account, for example, a single exceedance of a screening value may be considered a localised hotspot whereas consistently elevated levels of a substance at multiple locations across the site may indicate a more prevalent contamination issue.

8.1.4 In addition to this assessment, an Asbestos Identification test (via the visual inspection method) has been completed on all samples of made ground obtained during the investigation to determine risks posed. Any positive occurrences of Asbestos will be subject to quantification analysis to further assess the extent and significance of risks posed.

8.1.5 As required, for each exceedance reference will be made to the Conceptual Site Model to establish the most likely source of contaminants and initial commentary given as to the likely scope of remedial measures. In addition, reference will also be made to the assumptions used to derive generic assessment criteria to determine their comparability with the proposed end use.

8.1.6 For the purposes of this assessment we have assumed a “Residential without homegrown produce” end use scenario when reviewing chemical testing data against RSK GAC values; a “worst case” Soil Organic Matter content value of 1% has been assumed for the initial assessment.

Summary and Assessment of Risks Posed by Soil Contamination

8.1.7 Results from chemical testing analysis indicate the following sources of contamination within site soils.

Table 8.4: Soil Chemical Testing Exceedances (Residential without home grown produce)

BH ID	Depth (m)	Location	Determinant/s Exceeded
RBH101	0.50	SE portion of site	Metals – Lead (412mg/kg) PAHs – Benzo(a)anthracene (20.1mg/kg), Benzo(a)pyrene (19mg/kg), Benzo(b)fluoranthene (22.5mg/kg) and Dibenzo(ah)anthracene (2.68mg/kg)
WS102	0.50	Central portion of site	Metals – Lead (35mg/kg) Asbestos – Amosite trace loose fibres (<0.001%) PAHs – Benzo(b)fluoranthene (4.53mg/kg) and Dibenzo(ah)anthracene (0.57mg/kg)
WS104	0.70	E portion of site	Metals – Lead (1990mg/kg)
	1.50		PAHs – Dibenzo(ah)anthracene (0.35mg/kg)
WS105	0.50	E Portion of site	Metals – Lead (559mg/kg) PAHs – Benzo(b)fluoranthene (4.36mg/kg) and Dibenzo(ah)anthracene (0.55mg/kg)
TP105	3.00	Central portion of site	Metals – Lead (340mg/kg) PAHs – Benzo(a)anthracene (19mg/kg), Benzo(a)pyrene (16mg/kg), Benzo(b)fluoranthene (14mg/kg) and Dibenzo(ah)anthracene (5mg/kg)
HDP117	0.60	W portion of site	PAHs - Benzo(b)fluoranthene (5.6mg/kg), Benzo(a)pyrene (6.9mg/kg) and Dibenzo(ah)anthracene (1.6mg/kg)
HDP121	0.50	W portion of site	PAHs – Benzo(b)fluoranthene (4mg/kg) and Dibenzo(ah)anthracene (1.2mg/kg)
TT1	0.00-0.20	SE portion of site	Metals – Beryllium (2mg/kg) PAHs – Benzo(b)fluoranthene (15mg/kg) and Dibenzo(ah)anthracene (2.6mg/kg)
	0.30-0.50		Metals – Lead (720mg/kg)
	0.50-1.00		Metals – Lead (600mg/kg)
TT2	0.00-0.30	SW portion of site	PAHs – Benzo(a)anthracene (13mg/kg), Benzo(b)fluoranthene (15mg/kg), Benzo(a)pyrene (13mg/kg) and Dibenzo(ah)anthracene (1.7mg/kg)

	0.20-0.40		PAHs - Benzo(b)fluoranthene (9.8mg.kg), Benzo(a)pyrene (10mg.kg) and Dibenzo(ah)anthracene (1.3mg.kg)
TT3	0.10-0.20	N portion of site	Metals - Beryllium (1.9mg/kg) PAHs – Benzo(a)anthracene (12mg/kg), Benzo(b)fluoranthene (14mg/kg), Benzo(a)pyrene (13mg/kg) and Dibenzo(ah)anthracene (2.2mg/kg)
	0.90 – 1.00		PAHs - Dibenzo(ah)anthracene (0.37mg/kg)
A0P6-7 (B9)	0.50	SW portion of site	Asbestos – Amosite loose fibres (<0.001%)
A0P6-7 (C9)	0.50	SW portion of site	Asbestos – Chrysotile loose fibres (<0.001%)
A0P6-7 (E6)	0.75	NE portion of site	Asbestos – Chrysotile insulation lagging (0.004%)
A0P6-7 (E8)	0.50	E portion of site	Asbestos – Chrysotile loose fibres (<0.001%)
A0P6-7 (F9)	0.50	SE portion of site	Asbestos – Amosite loose fibres (<0.001%)
A0P6-7 (G6)	1.00	NE portion of site	Asbestos – Amosite & Crocidolite loose fibres (<0.001%)

8.1.8 Chemical testing of site soils indicates there to be widespread exceedances of lead and PAH compounds when screened against the relevant GACs across the site within made ground soils, likely associated with ashy material contained within the made ground deposits. Asbestos was also reported in a number of locations spread across the site albeit at relatively low percentages. The presence of asbestos in site soils is likely associated with the historic demolition of buildings on site.

8.1.9 The findings of the above have been used to update the Refined Conceptual Site Model (provided within Section 9.0) as well as inform the scope of any further investigation or remedial works deemed necessary to support the sites development.

8.2 Ground Gas Risk Assessment

8.2.1 The Preliminary Conceptual Site model identified made ground as being a potential source of ground gas generation but also off-site sources such as the nearby historic gas works discussed in section 3.3. The site is not said to be located within in an area at risk from Radon gas ingress.

8.2.2 The Scope of Ground Gas monitoring was designed taking in to account the sites previous operations and the proposed site development and structure layout. The ground gas risk assessment has been undertaken in accordance with BS8485 and CIRIA C665. The risk assessment has been founded on the following Conceptual Exposure Model reviewed below in Table 8.5.

Table 8.5: Ground Gas Conceptual Model

Source	Pathway	Receptor
Site-wide made ground deposits from historic development. Potentially containing ground gasses (CH_4, CO_2, H_2S, CO) and reduced levels of O_2	Ground Gas migration and entry into buildings via structure defects or construction joints in floor slabs and/or service entry points, resulting in accumulation and explosion/ poisoning/ asphyxiation	Future site/construction workers; Future site employees/occupiers of future buildings

8.2.3 It is presumed there will be no considerable change to existing site Ground Gas levels because of the development, and that the proposed structures will undergo traditional construction including a ground bearing floor slab.

8.2.4 To estimate the risks posed by ground gas generation a total of 5 monitoring wells were installed. The purpose of these standpipes is to investigate ground gas generation potential of shallow and at depth soils and the associated implications this may have for new building design. Response zones and justifications for well design are provided in Table 5.0.

8.2.5 At the time of writing, six ground gas monitoring visits has been completed on site (refer to Appendix E for further information). Monitoring works were completed between the 9th July and 14th of August, results from these monitoring works revealed maximum Methane and Carbon Dioxide concentrations of 0.1% and 6.3% with gas flow rates ranging between 0 and 0.4l/hr (a value of 6.6l/hr was recorded in RBH101 however, this was sealed into the Chester Formation and is not deemed to be representative of the strata with elevated gas concentrations on site). Elevated Carbon Dioxide concentrations were encountered in WS102 and WS105 and were sealed into the GFD, which also recorded somewhat depleted oxygen concentrations. Full gas monitoring records are provided in Appendix E and gas monitoring calibration certificates are contained within Appendix F.

8.2.6 With reference to guidance provided in BS8485:2015+A1:2019 (BS8485) "*Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings*" and assuming the development comprises Building Type 2 the above-mentioned worst case gas levels and borehole flow rates equate to a Gas Screening Value (GSV) 0.0252l/hr which corresponds to a Characteristic Situation of CS-1. However, following the recommendation in Table 2 of BS8485 we would recommend CS-2 was adopted as maximum recorded Carbon Dioxide concentrations exceed the threshold of 5%. This would lead to a requirement for gas protection measures in accordance with BS8485.

8.3 Controlled Waters

8.3.1 It is understood the site is underlain by a Principal Aquifer in the Chester Formation, a Secondary A Aquifer in the Glaciofluvial Deposits and Secondary Undifferentiated in the Devensian Till deposits and is said to be located within an Environment Agency Zone Source Protection Zone III (Total Catchment. The nearest surface water feature is indicated 159m to the north of the site and is not considered to be at risk of contaminant migration from the study site.

8.3.2 There are two bodies of groundwater that have been recorded on site, the first and shallowest is a body of perched water contained within the GFD and MG deposits at a depth of 3.30 to 4.00mbgl. The second is groundwater contained within the Chester Formation sandstone bedrock. Located circa 8.00mbgl. The two water bodies are separated by a low permeability DT clay. There are too few data points to understand groundwater flow within these bodies. It is however proposed to complete an additional borehole in the northwestern portion of the site (RBH102) which will provide further information on groundwater flow and groundwater quality.

8.3.3 A groundwater sample was obtained from the Chester Formation at RBH101 (exceedances of sulphate were reported, however this is deemed to be naturally occurring and therefore not of concern), A single leachate test was also taken from WS105. Both samples have been screened against Drinking Water Standards (DWS) criteria and no exceedances have been reported.

8.4 Below Ground Utilities and Service Runs

8.4.1 United Utilities pipework risk assessment testing was undertaken on two samples taken from MG on site. The results of the testing indicate that it is likely that barrier pipes will be required for the proposed water supply pipes due to elevated levels of total SVOCs. It should be noted that at the time of the investigation works the routing of the proposed water supply was not understood. However, the testing completed is expected to be representative of soils at likely water supply pipe depths across the site.

9.0 Refined Conceptual Site Model

9.0.1 The Environmental Protection Act Part IIA: 1990, defines contamination as land containing levels of contamination which form a risk to human health, controlled waters or other ecosystems. Therefore, contamination in exceedance of the relevant screening values is considered a source. Table 9.0 assesses and summarises the sources, pathways and receptors that may exist at the site.

Table 9.0: Refined Conceptual Site Model

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
On Site	Current Ground Conditions, including Made Ground and contaminants exceedances (PAHs, metals and asbestos)	Dermal contact and / or ingestion; inhalation of vapours / dusts	Current Site Users	Medium	Low Likelihood	Moderate to Low	Metal and PAH contaminants have been identified as being spread throughout made ground. Given the site is currently largely hardstanding and occupied by welfare cabins for the construction of the adjacent Plot 9A there is deemed to be limited potential receptors.
			Construction workers	Medium	Likely	Moderate	Sources of contamination have been identified within site soils and construction workers will likely be at the greatest risk of exposure of all identified receptors from soil contamination particularly during any excavation works. However, it is considered the risks posed to construction personnel, be sources of contamination, can be adequately mitigated against via the use of full PPE and the adoption of good hygiene and site practices.
			Future Site Users	Medium	Unlikely	Low	The site is to be developed to comprise a block of student apartments with limited areas of soft landscaping with the building itself comprising the majority of the site footprint and surroundings being largely hardstanding and it is considered future site users at low risk of exposure to sources of contamination as outlined above due to the

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
							limited potential exposure pathways to site soils. However, as some areas of soft landscaping are proposed in the east and south of the site it is recommended that soil capping layers are employed in these areas.
			Ecological	Mild	Likely	Moderate to Low	Phytotoxic contaminants have been identified on site including lead. Remediation measures are proposed for areas of soft landscaping which are considered to mitigate this risk.
	Current Ground Conditions	Leaching of contaminated soil & impact beneath site	Controlled Waters: Aquifer	Medium	Low likelihood	Moderate to Low	The site is underlain by a Principal Aquifer and is located in a Source Protection Zone 3. Soil above the aquifer is largely low permeability clays. Contaminants have been identified within site soils however no exceedances of drinking water standards criteria were reported in leachate testing of samples taken from made ground deposits at one location on site. A single groundwater sample was taken from the Principal Aquifer RBH101 which also indicated no exceedances of DWS criteria. It is noted that the covering of the site with buildings and hardstanding will reduce the potential for leaching with respect to the current land use and the underlying clays will serve to further limit the potential for the leaching and vertical migration of contaminants into the underlying Principal Aquifer. However, it should be noted that foundations for the proposed building are likely to be CFA piles socketed into the underlying sandstone bedrock with the potential for pathways for shallow contaminants to enter the underlying aquifer.

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
							A piling risk assessment should be undertaken to further assess this risk.
			Controlled Waters: River Medlock	Medium	Unlikely	Low	The River Medlock is located in a culvert 159m north of site. The distance to the receptor and the construction of the culvert will limit the feasibility of contaminants leaching and migrating to the river and considering the extensive development of other sites surrounding the river, the impact of this site on the River Medlock is anticipated to be low.
	Ground Gas Generation	Migration / Accumulation	Current Site Users	Severe	Unlikely	Moderate to Low	Owing to the current site use being largely open air there are limited potential pathways to human health receptors for ground gas. Ground gas monitoring has revealed a CS2 scenario for the site owing to CO_2 levels recorded as being in excess of 5% at two monitoring well installations. Subsequently ground gas protection measures will be required for the future development and ground gas risks should be taken into consideration by contractors during the construction phase. It is considered the risks posed to construction personnel, be it sources of contamination, can be adequately mitigated against via the use of full PPE and the adoption of good hygiene and site practises. Appropriate personal ground gas detection equipment should be deployed by all site operatives when working in below ground or confined spaces.
			Construction workers	Severe	Likely	High	
			Future Site Users	Severe	Likely	High	

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
Off site	Potentially Contaminative Sources; Controlled waters and ground gas generation [adjacent landfills, peat bogs etc]	Ground gas Migration / Accumulation	Current Site Users	Severe	Unlikely	Low - Moderate	It is unlikely further significant sources of ground gas exist off site with the potential to impact the current site. However, appropriate personal ground gas detection equipment should be deployed by all site operatives when working in below ground or confined spaces.
			Construction workers	Severe	Unlikely	Low - Moderate	
			Future Site Users	Severe	Unlikely	Low - Moderate	

*Any sources of contamination uncovered during site development works should be brought to the immediate attention of RoC Consulting for consideration and comment.

Soil Contamination Remedial Requirements

9.0.2 Re-appraisal and reassessment of the conceptual site model (following completion of investigation works) has identified the following sources of contamination:

- PAHs, lead and asbestos in made ground soils.

9.0.3 Soil capping layers are recommended within proposed areas of soft landscaping in the east and south of the site.

9.0.4 It is recommended all construction contractors take reasonable precautions to control environmental impacts that may occur as a result of redevelopment works with respect of soil and groundwater quality. These measures should include (and not be limited to):

1) Any sources of contamination uncovered during site development works should be brought to the immediate attention of RoC Consulting for consideration and comment. As required, the findings and recommendations of the current assessment may require amendment to reflect changes in site condition.

2) The operation of plant, refuelling facilities and general basement excavation works should include appropriate provision to reduce the risk of leakage / spillage, particularly into the site groundwater table or exposed natural soils.

3) Appropriate dust mitigation measures should be deployed during basement excavation works, particularly when handling and excavating made ground deposits.

4) All excavated materials stockpiled should be periodically dampened down to control dust release. Similarly, the disposal of any material from site should be completed using covered wagons.

9.0.5 A piling risk assessment in accordance with EA guidance should be undertaken in order to establish the risk posed by piled foundation solutions to the underlying Principal Aquifer and provide recommendations for piling methods/controls to minimise impact to sensitive aquifers.

Ground Water Remedial Requirements

9.0.6 Sources of soil contamination have been reported in made ground soils on site. However, given the underlying low permeability clay deposits and predominantly hardstanding nature of the site in both its current and proposed future use, there is deemed to be limited feasibility for the leaching of any contaminants into underlying groundwater. The risks posed by a piled foundation solution to controlled waters should be assessed as noted above.

Ground Gas Protection Measures

9.0.7 Ground gas protection measures have been identified as a requirement in new buildings in accordance with a BS8485:2015 CS2 scenario due to the presence of CO_2 concentration above 5%. The installation of these gas protection measures should be completed by suitably qualified specialist contractors in accordance with the specifications and expectations outlined in BS 8485:2015.

9.0.8 The local planning authority will require evidence of the installation of these protective measures as part of the discharge of any pre-occupation planning conditions relating to ground quality that may be imposed on the development.

9.0.9 This validation should include photographical records during the installation of all gas membranes (including evidence of adequate jointing / service penetration sealing) within all new structures at all 4 sites. Specifications for materials used and evidence of competent contractors being appointed to complete the installation should also be provided as part of the validation report to the local planning authority.

10.0 Preliminary Waste Assessment

10.0.1 Site soils may be considered to comprise waste depending on the circumstances. The Waste Framework Directive (WFD) defines materials as waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Naturally occurring soils are not typically considered waste if reused on the site of origin for the purposes of development. Excavation arisings from the development may therefore be classified as waste if surplus to requirements or unsuitable for reuse. A large volume of laws, permitting and regulations govern the management of waste on construction sites, including Environmental Permits, Materials Management Plans and Construction Environmental Management Plans. The below assessment only provides some useful information which may inform future planning.

10.1 Hazardous Waste Assessment

Chemical Assessment

10.1.1 A methodology for the classification of waste, and requirement for sampling, is specified in Technical Guidance WM3 (EA, 2021). The level of sampling should be proportionate to the volume of waste and its heterogeneity. The preliminary assessment provided below is indicative based only upon the available sample results and may not be sufficient to adequately classify the waste.

10.1.2 Envirolab, an RSK company, has developed a waste soils characterisation assessment tool (HASWASTE), which follows the guidance within Technical Guidance WM3. The analytical results have been assessed using this tool to assess the hazardous properties to support potential off-site disposal of materials in the future. Note that it is ultimately for landfills to confirm what wastes they are able to accept within the constraints of their permit.

10.1.3 Three sample obtained from the made ground deposits on site was found to have hazardous properties based on this assessment. This suggests that most excavated made ground would require disposal at a suitably permitted inert or non-hazardous waste landfill. The results are summarised in Table 10.0 below and presented in full in Appendix J.

Table 10.0 Summary of Hazardous Properties

Sample	Strata	Hazardous properties (if present)
ROC WS104 @ 0.7m	Made Ground	HP7 Carcinogenic
Ramboll TT1 0-0.20m	Made Ground	HP7 Carcinogenic Unknown TPH with ID, HP11 Mutagenic Unknown TPH with ID

Asbestos Assessment

10.1.4 The Environment Agency publication '*Guidance on the classification and assessment of waste – WM3 (2018)*', requires that within a mixed waste the separately identifiable wastes be assessed separately. For instance, where waste soil contains identifiable pieces of asbestos (visible to the naked eye) the asbestos should, where feasible, be separated from the soil and classified separately. This should be disposed of within a hazardous, stable non-reactive hazardous waste landfill or a special cell in a non-hazardous waste landfill.

10.1.5 With reference to WM3 (2018), wastes containing greater than 0.1% free and dispersed asbestos fibres are classified as **hazardous waste** with the code 17 05 03* (soils and stones containing hazardous substances). Where a waste contains identifiable pieces of ACM, then these pieces must be assessed separately.

10.1.6 While visible pieces of asbestos have not been identified during the site investigations, this does not comprise a specialist assessment and only a small portion of the site soils have been observed. The feasibility of removing visible pieces of ACM (and thus managing the hazardous potential of the soils) should be assessed by a contractor. It may be possible, through additional sampling and analysis, to zone areas of asbestos containing soils, although, due to the density of sampling points required to provide confidence in this approach, this is likely to be a costly exercise with no guaranteed benefit.

10.1.7 Laboratory testing (including historic investigations) has encountered 9 positive identifications of asbestos fibres within soils. Furthermore, these have undergone quantification assessment with the majority of samples reporting the %asbestos composition of the soil as less than 0.001%. In one of these, at TT1 a trial trench referenced in the Ramboll waste letter report at a depth of 0-0.2m, quantification testing indicates asbestos comprises 0.07% of the sample by weight and a second sample obtained by Geotechnical from AOP6/7 E6 reported 0.04% of the sample by weight and was described as asbestos lagging. Consequently, it is feasible that localised pockets of Made Ground soils at the site will contain asbestos above the threshold of 0.1% and consequently may comprise Hazardous Waste.

10.2 WAC Assessment

10.2.1 Additionally, a testing regime has been established in '*Waste Sampling and Testing for Disposal to Landfill'* (2013) to determine the suitability of soils for disposal. This regime does not supersede the hazardous properties assessment presented above.

10.2.2 We have scheduled testing of two samples on this basis, the results of which are presented in Appendix C. Reference has also been made to historic WAC samples from the previous site investigations completed on site.

10.2.3 Comparison of test data with landfill waste acceptance criteria indicates that Made Ground soils are not suitable for disposal within an inert waste landfill but should be disposed of at a landfill or treatment facility which is permitted to take non-hazardous waste owing to elevated total organic carbons, PAHs and antimony.

10.3 Conclusions

10.3.1 A single sample obtained from made ground deposits at RoC WS104 reported hazardous properties suggesting the majority of made ground deposits on site will be suitable for disposal at an inert or non-hazardous waste landfill. WAC testing indicated that due to elevated PAHs, total organic carbon and some metals soils are likely to exceed the criteria for disposal at an inert waste landfill and will most likely be suitable for disposal as stable non-reactive hazardous waste at a non-hazardous landfill.

10.3.2 With reference to the Environment Agency's *publications Waste Sampling and Testing for Disposal to Landfill (2013)* and *Waste acceptance at landfills (2010)*, naturally occurring soils are not likely to be affected by contamination can be classified as inert waste, with a EWC code of 17 05 04. Should any of the naturally deposited soils be suspected to contain contamination (by virtue of visual of olfactory evidence) upon excavation, then such soils should be stockpiled appropriately and additional testing carried out as considered necessary. Based on evidence obtained during our investigations, we are of the opinion that the soils of the Devensian Till Formation and Glaciofluvial Deposits at the site are not likely to be affected by chemical contamination and thus can be classified as inert waste. 10.3.3

10.3.3 The assessment of this report in regard to waste are indicative only and provide useful information to support future management of waste of site, which should be comprehensive and address all other legal and regulatory requirements. Earthworks are anticipated at the site that will require Environmental Permits and Materials Management Plans. Further environmental testing of soils and subsequent treatment and processing may also be required. It may be necessary to consult with the Environment Agency before works commence to verify the proposed works and establish that material can be declassified as waste and re used on site in accordance with the most current guidance and Article 6(1) of the Waste Directive. These applications are the responsibility of the contractor. We can consult on these matters on request.

10.3.4 We recommend this report is provided to the selected contractors and landfill facilities to confirm (or otherwise) that waste can be managed and disposed of as above. Please be aware that landfill sites are obligated to undertake in house quality assurance tests and thus may require further WAC testing for any soils encountered as part of this investigation. There is no obligation on any landfill operator to accept waste if they choose not to and waste operators may require additional testing of untested waste soils prior to acceptance at landfill in accordance with the landfill regulations.

11.0 Geotechnical & Foundation Design Assessment

Background Information

11.0.1 The site is to be redeveloped to comprise a 32 storey PBSA tower with attached 12 storey shoulder blocks. At the time of writing maximum building loadings for the new structure are understood to be in the order of 250kN/m^2. It is also understood the new building will be constructed at or around existing ground level with no basement or subfloor structure proposed. A copy of the proposed development layout (drawing ref:VS9B-TGA-G200-PL-00-03100) is provided within Appendix A.

11.0.2 Site investigations have indicated that made ground is present across the site predominantly comprising a surfacing of asphalt / concrete underlain by a mixture of cohesive and granular soils with the granular soils typically overlying the cohesive. Both types of made ground appear to comprise materials representative of demolition fill material including brick, slate, concrete and glass. GFD were encountered underlying the made ground deposits and were generally described as medium dense to dense gravelly sand or sandy gravel, it is noted that a band of organic clay was recorded at WS103 at a depth of 2.80 to 3.20mbgl. DT deposits were reported underlying the GFD deposits comprising a generally firm to stiff slightly sandy slightly gravelly clay. The CF sandstone was encountered underlying DT deposits, the upper horizons generally comprised reddish brown gravelly sand (containing sandstone lithorelicts) and extremely weak sandstone.

11.0.3 A summary of ground conditions, rock depth and quality across the site is presented in Tables 11.0 and 11.1 overleaf. Rock testing data is only available from 1 borehole on site (RBH101A) but rock core information is available from two additional boreholes (RBH101) formed as part of the current investigation; as well as the 2016 Geotechnical Engineering Limited investigation (borehole ref: CP/RC109). Rock core drilling and subsequent geotechnical laboratory testing are to be undertaken at an additional location (RBH102), although due to on-site constraints at the time of writing (Nov 2024) this borehole is yet to be competed. Once RBH102 has been completed and associated geotechnical testing data received, the current section of this report will be updated to reflect new findings. As such the below information should be considered preliminary pending removal of access limitations and completion of RBH102.

11.0.4 The shallow CF bedrock shows signs of weathering and is generally extremely weak to very weak in strength based on point load and UCS testing. From review of testing data and borehole logs it is evident that there is a marked change in the UCS of sampled rock and RQD values at circa 15.00mbgl (See figure 11.0 below) with bedrock generally becoming less weathered and stronger in depth with associated increases in RQD values and UCS.

Table 11.0: Summary of Strata

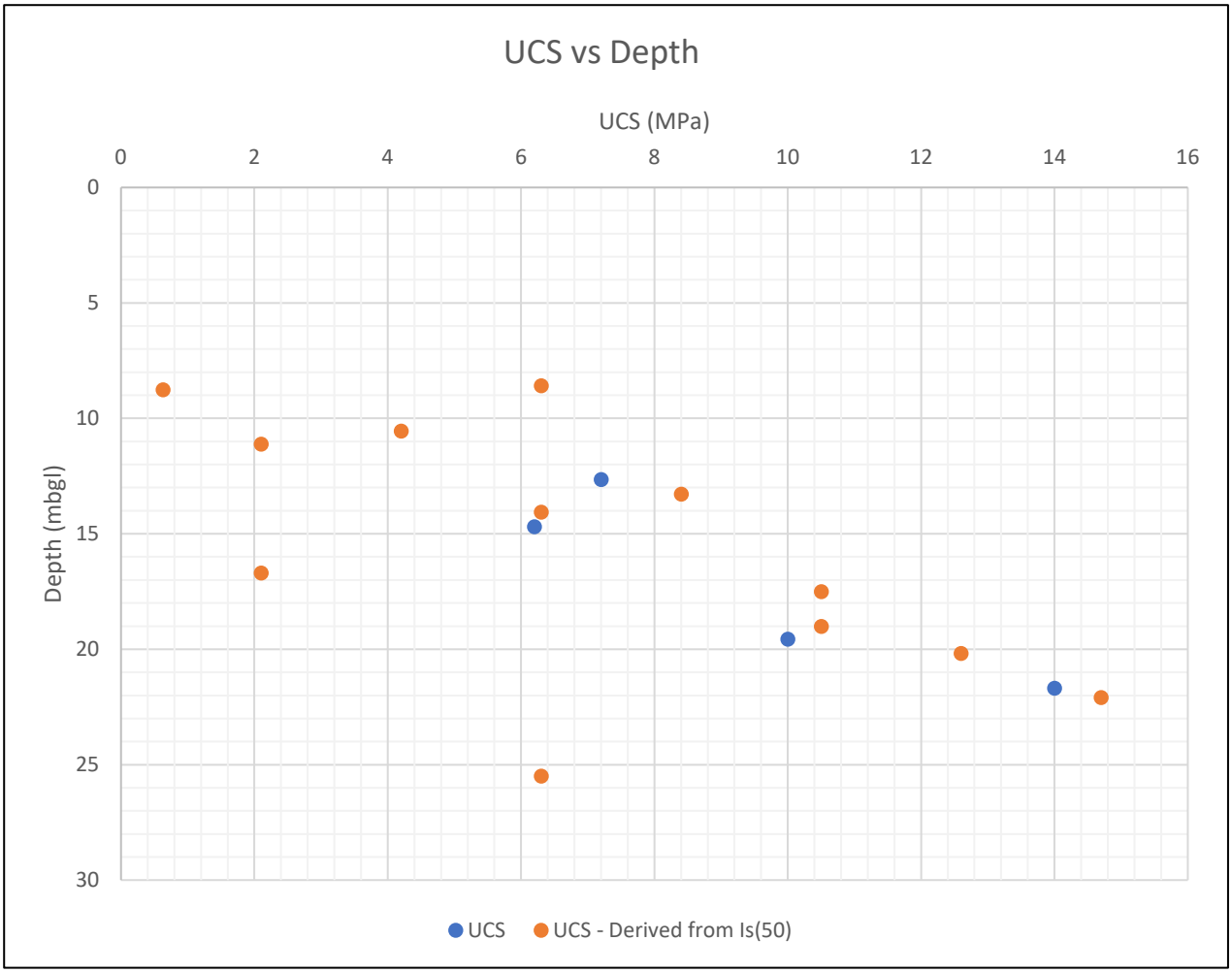
Strata	Depth from (mAOD)	Depth to (mAOD)	Thickness (m)	General Description
Made Ground	GL	32.34-26.95	1.10->5.45	Generally surfacing of asphalt underlain by granular made ground deposits with anthropogenic inclusions including brick, slate, clinker, ash, concrete. Cohesive made ground deposits were encountered underlying the granular deposits comprising slightly sandy gravelly clay with brick, concrete and coal as well as sandstone and quartzite.
Glaciofluvial Deposits	32.34-30.27	29.94-27.70	0.75-2.70	Loose to very dense gravelly sand and sandy gravel. Gravel comprised of sandstone, quartzite and granite.
Devensian Till	31.73-26.95	26.54-23.27	4.20-7.70	Firm to stiff slightly sandy slightly gravelly clay.
Upper Chester Formation	25.70-23.27	18.40-18.30	5.50-6.80	Extremely weak to weak reddish brown fine to medium grained sandstone, joint spacing is generally very close to close / reddish brown fine to medium gravelly sand (occasionally slightly clayey).
Lower Chester Formation	18.40-18.30	7.80-7.40	Base not proven	Weak to moderately weak reddish brown fine to medium grained sandstone. Localised areas of very weak sandstone, fracture spacing is generally close to medium.

Table 11.1: Summary of UCS Values and RQD

Geological Unit	UCS Tests (MPa)	Point Load Tests (Is50) (MPa)	Conversion Factor for Is50*	Equivalent UCS Values (Mpa)	Mean UCS (MPa)	Median UCS (Mpa)	Representative UCS of sampled material (MPa)**	RQD**
Upper Chester Formation	7.2	0.3	21	6.3	5.17	6.25	5.17	47
	6.2	0.03	21	0.63				
	-	0.2	21	4.2				
	-	0.1	21	2.1				
	-	0.4	21	8.4				
	-	0.3	21	6.3				
Lower Chester Formation	10	0.1	21	2.1	10.09	10.5	10.09	74
	14	0.5	21	10.5				
	-	0.5	21	10.5				
	-	0.6	21	12.6				
	-	0.7	21	14.7				
	-	0.3	21	6.3				

*Conversion factors as per ASTM D 5731-05 “Standard Test Method for Determination of the Point Load Strength Index of Rock”. ** Lowest of mean and median, these values refer to tested material only and do not reflect weaker material that could not be recovered.

Figure 11.0: UCS vs Depth



11.1 New Building Foundation Design

11.1.1 Site investigations have identified a variable thickness of made ground deposits beneath the site, extending to depths up to >5.45m. These are in turn underlain by granular glacial deposits with the weathered fraction of the Sandstone bedrock noted at depths 8.00 and 10.00mbgl respectively (23.27 and 25.40mAOD).

11.1.2 Given the size of proposed building, and their associated loading, it is not recommended new foundations are constructed on top of made ground or glacial deposits. These soils are of a variable consistency and strength, and it is highly likely unacceptable level of total and differential settlement may occur. The weathered fraction of bedrock occurs at depths between 8.00 and 10.00m below the site and should be considered the founding stratum for new structures.

11.1.3 Given the above it is recommended the use of a piled foundation solution is adopted for the new buildings proposed on site. A CFA type pile is likely to provide the most appropriate method given the scale and loadings of the development, the diameter of which and termination length should be confirmed by suitably qualified piling contractors.

11.1.4 From experience locally on similar sites 750mm diameter piles have been proposed beneath the tower and 450mm diameter piles beneath the shoulder blocks. Initial discussions with a piling contractor indicate axial load capacities assuming a rough 70% dead load and 30% live load split for a 450mm diameter CFA pile should provide 1450kN SLS and a 750mm diameter pile should provide a 4000kN SLS at 20m length.

11.1.5 Given the presence of contamination within site soils the consideration will need to be given to choosing a method that limits the potential for contaminant pathways to be created though site soils and into the underlying aquifer. It is also likely that a comprehensive enabling works package to break out and remove the existing below ground structures. A piling risk assessment will be required (regardless of the chosen method).

11.1.6 In addition, the presence of relic foundations, structures or other below ground obstructions cannot be precluded during the piling process. As such it would be prudent to either pre-probe piling locations prior to completion of piling works; or have provision for the attendance of a excavator and breaker on hand to locally remove any obstructions that may be encountered.

11.2 Ground Floor Construction

11.2.1 The site is underlain by a significant depth of Made Ground. Made Ground soils are not typically suitable to support ground bearing floor slabs due to variable density and the potential for differential settlement.

11.2.2 Consequently, the use of ground bearing slab would require ground improvement prior to construction, with confirmatory plate bearing tests completed to confirm adequate stiffness has been achieved. Therefore, and taking into account the additional requirement for ground gas protection measures, it is recommended a suspended floor slab should be adopted.

11.3 Below Ground Drainage

11.3.1 Buried services constructed in unimproved made ground may be subject to settlement and this should be considered during design. In particular storm water and sewage pipes should not utilise shallow gradients that render them vulnerable to settlement.

11.4 General Comments

11.4.1 No entry should be permitted into excavations exceeding 1.2m depth without appropriate risk assessments, shoring and support. Whilst groundwater was not encountered in significant volumes during site investigation works the presence of a perched water table cannot be precluded. Appropriate provisions should be made to dewater excavations as and when required.

11.4.2 The geotechnical assessment has been collated based on the proposed development type, layout and likely loadings at the time of report publication. It should be noted that future alterations to these proposals or loadings (including alterations in the site layout or new building scale) will require the re-interpretation of the current assessment. In such an instance updated design information should be provided to RoC Consulting and the current assessment updated accordingly.

12.0 Aggressive Ground Conditions

12.0.1 The hazard of sulphide attack is addressed by reference to procedures described in Building Research Establishment (BRE) Special Digest 1: 2005 *'Concrete in Aggressive Ground'* to establish a design sulphate class (DS) and the *'aggressive Chemical Environment for Concrete'* (ACEC).

12.0.2 By the definitions provided the site is considered to comprise a brownfield site and the groundwater mobility is considered to be mobile.

12.0.3 The site is not considered to be in an area of elevated sulphate and sulphide bearing strata.

12.0.4 Peak potential sulphate concentrations range between 12 and 307 with soil pH values ranging between 7.3 and 8.5. Based on the site scenario and laboratory testing the Characteristic pH and Characteristic Sulphate levels have been calculated to determine the DS Class and ACEC Class as presented in Table 12.0 below.

Table 12.0 Aggressive Ground Condition Assessment

Geological Unit	Characteristic pH	Characteristic Sulphate (mg/l)	DS Class	ACEC Class
Made Ground	7.8	307	DS-1	AC-1
Glaciofluvial Deposits	7.3	93	DS-1	AC-1
Devensian Till	8.1	130	DS-1	AC-1
Chester Formation*	6.8	321	DS-1	AC-1
*Results based on 1 groundwater samples additional samples to be obtained during the formation of RBH102. Upon receipt of testing results this table will be updated.				

13.0 Conclusions & Recommendations

13.1 General

13.1.1 It is understood the development will comprise the erection of a 32-storey purpose-built student accommodation (PBSA) building (Sui Generis), alongside ancillary amenity space, landscaping, secure cycle parking and other associated works; and use of Land east of River Street as a construction compound. construction of a purpose-built student accommodation block (PBSA) as indicated on Tim Groom Architects drawing VS9B-TGA-G200-PL-00-03100, with associated areas of external hard and soft landscaping (as indicated on TPM Landscape drawing Z19B-TPM-G710-PL-XX-4645-101).

13.2 Geotechnical

13.2.1 Site investigations have revealed variable but significant depths of made ground deposits across the site. Made Ground is believed to generally be associated with historic demolition fill material from the terraced housing that was present on site from the mid-19th to early 20th century. Underlying the made ground deposits are sands and gravels of Glacifluvial origin and Devensian Till in the form of a predominantly slightly sandy slightly gravelly clay. The Chester Formation sandstone was encountered underlying drift deposits at a depth of 8.20 to 10.00mbgl (mAOD) initially weathered to an extremely weak to very weak reddish-brown sandstone / reddish brown sand and becoming weak to moderately weak reddish-brown sandstone with depth.

13.2.2 Groundwater monitoring identified a groundwater body to be present within the Chester Formation (a Principal Aquifer) at circa 7.93-8.27mbgl. A perched groundwater body was encountered within the GFD at circa 3.00-4.00mbgl across the site, this groundwater body appears to be hydraulically separated from the underlying CF by the predominantly low permeability DT. Insufficient data is available on site to ascertain the direction of groundwater flow within the CF.

13.2.3 Given the anticipated building loadings and the presence of contamination beneath the site the adoption of a piled foundation solution is recommended for the development with CFA piles recommended as the most suitable piling method. Piles should be founded in the competent rock of the Chester Formation, initial discussions with a piling contractor indicate axial load capacities assuming a rough 70% dead load and 30% live load split for a 450mm diameter CFA pile should provide 1,450kN SLS and a 750mm diameter pile should provide a 4,000kN SLS. A piling risk assessment in accordance with published Environment Agency Guidance “Piling into Contaminated Sites” will be required prior to development. A number of buried obstructions were encountered on site and removal will be required prior to construction.

13.2.4 Due to the significant depth of MG and requirements for ground gas protection measures on site it is recommended that a suspended floor slab is adopted.

13.2.5 Laboratory testing for aggressive ground conditions indicates that a DS class DS-1 and ACEC Class of AC-1 should be adopted for the site.

13.3 Environmental

13.3.1 Chemical assessment of site soils has revealed widespread low-level PAH and lead contamination of made ground soils with asbestos also present within the made ground. It is recommended that soil cover systems are employed in areas of soft landscaping to be protective of human health. Due care and attention should be taken at all times when excavating site soils and any suspected sources of contamination identified brought to the immediate attention of RoC Consulting.

13.3.2 It is likely that a piled foundation solution will be employed for the future development. Given the above sources of contamination, a piling risk assessment in accordance with published Environment Agency Guidance “Piling into Contaminated Sites” will be required prior to development. Outside of the likely proposed piled foundation solution there is not deemed to be any risk to controlled waters for the site.

13.3.3 Laboratory testing indicates Made Ground soils at the site are most likely suitable for disposal as stable non-reactive hazardous waste at a non-hazardous landfill. Natural soils should be suitable for disposal at an inert waste landfill.

13.3.4 Ground gas monitoring completed on site has revealed CO_2 levels in excess of 5.0%. As a result, the site has been classified as CS2 in accordance with BS8485 and ground gas protection measures will be required.

13.3.5 Laboratory testing for aggressive ground conditions indicates that a DS class DS-1 and ACEC Class of AC-1 should be adopted for the Made Ground, Devensian Till and Glaciofluvial soils. Testing results were still outstanding at the time of writing for samples obtained from the Chester Formation.

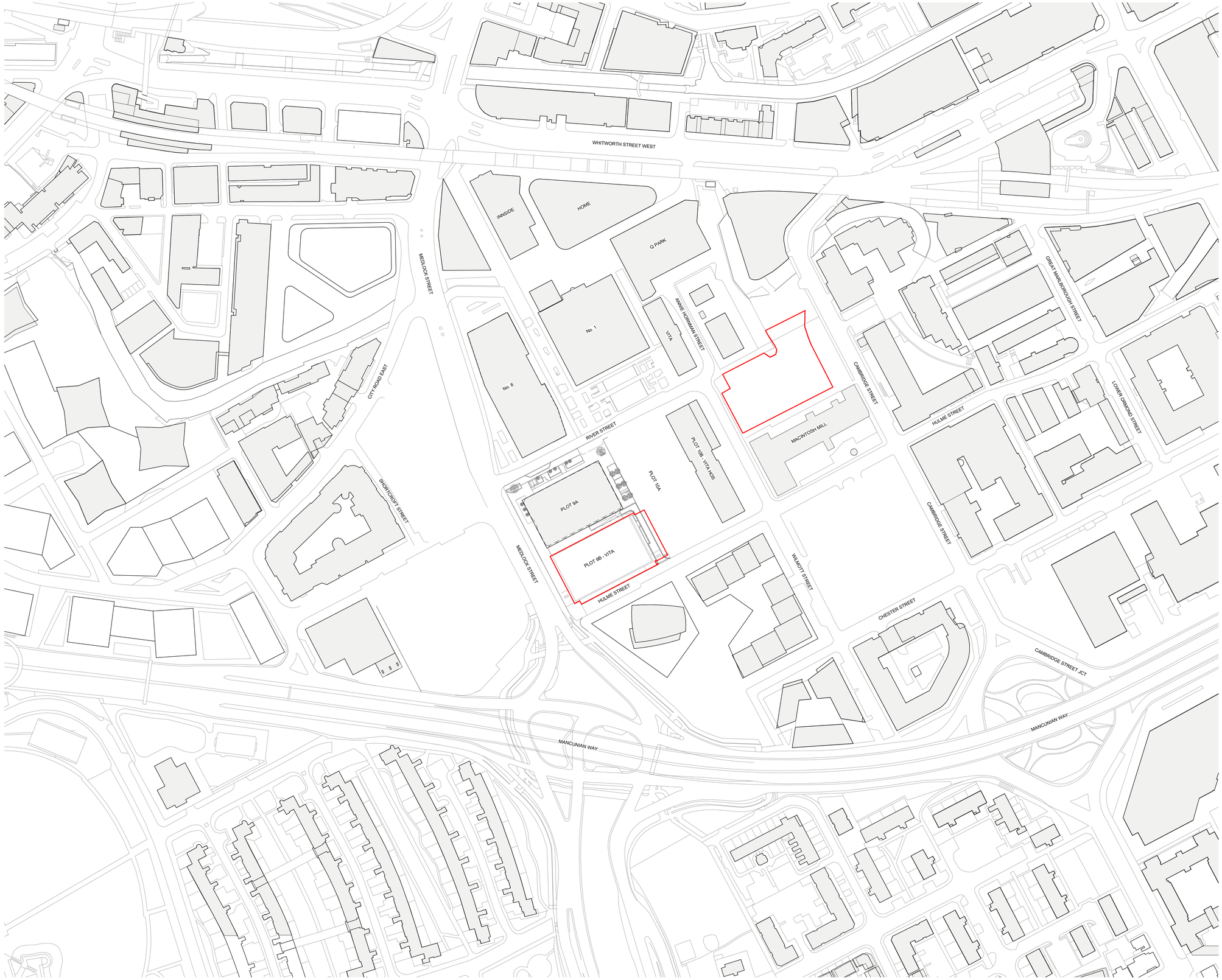
13.3.6 Earthworks at the site may require Environmental Permits and Materials Management Plans. Environmental testing of soils and subsequent treatment and processing may also be required. It may be necessary to consult with the Environment Agency before works commence to verify the proposed works and establish that the material can be declassified as waste and re used on site in accordance with the most current guidance and Article 6(1) of the Waste Directive. These applications are the responsibility of the contractor. We can consult on these matters on request.

13.3.7 As required, any suspected sources of contamination discovered during the site development (outside those discussed in this report) should be brought to the attention of RoC Consulting and their implications assessed. Depending on the extent and severity, the findings and assessment of the current study may require re-interpretation, and a remediation strategy proposed to support the sites development.

13.4 Additional

13.4.1 Copies of the current report, along with the Phase 1 Desktop Study, should be submitted to the local planning authority for consideration and comment. As required, any feedback received from the local authority should be passed back to RoC Consulting for review.

APPENDIX A – SITE DRAWINGS



Existing Site Plan

1 : 1250

0m 25m 50m 125 m

N

General Notes

Use figured dimensions only. Do not scale off this drawing. All dimensions must be set out and checked by the contractor on site prior to commencement of construction. Any variations between drawings and site must be reported to TGA before work proceeds.

Drawings to be read in conjunction with Architectural Specification, Structural Engineer's Drawings and Specifications, Mechanical & Electrical Engineer's Drawings and Specifications, all Supplemental Information, including but not limited to; Detailed Fire Strategy, Acoustic Report, Thermal Report & Overheating Report.

No portion of the Works to commence without acceptance of the required submittals by the Employer.

Main Contractor to submit relevant documents to building regulation and legislation approval authorities as required to comply with the Specification.

Legend and Notes

Red Line Planning Boundary

Rev	Description	Date	By
P01	First Issue	18.10.24	LS

Title
Existing Site Location Plan

Drawing No.
VS9B-TGA-G100-PL-XX-95200

Revision
P01

Status

Scale
As indicated@A1

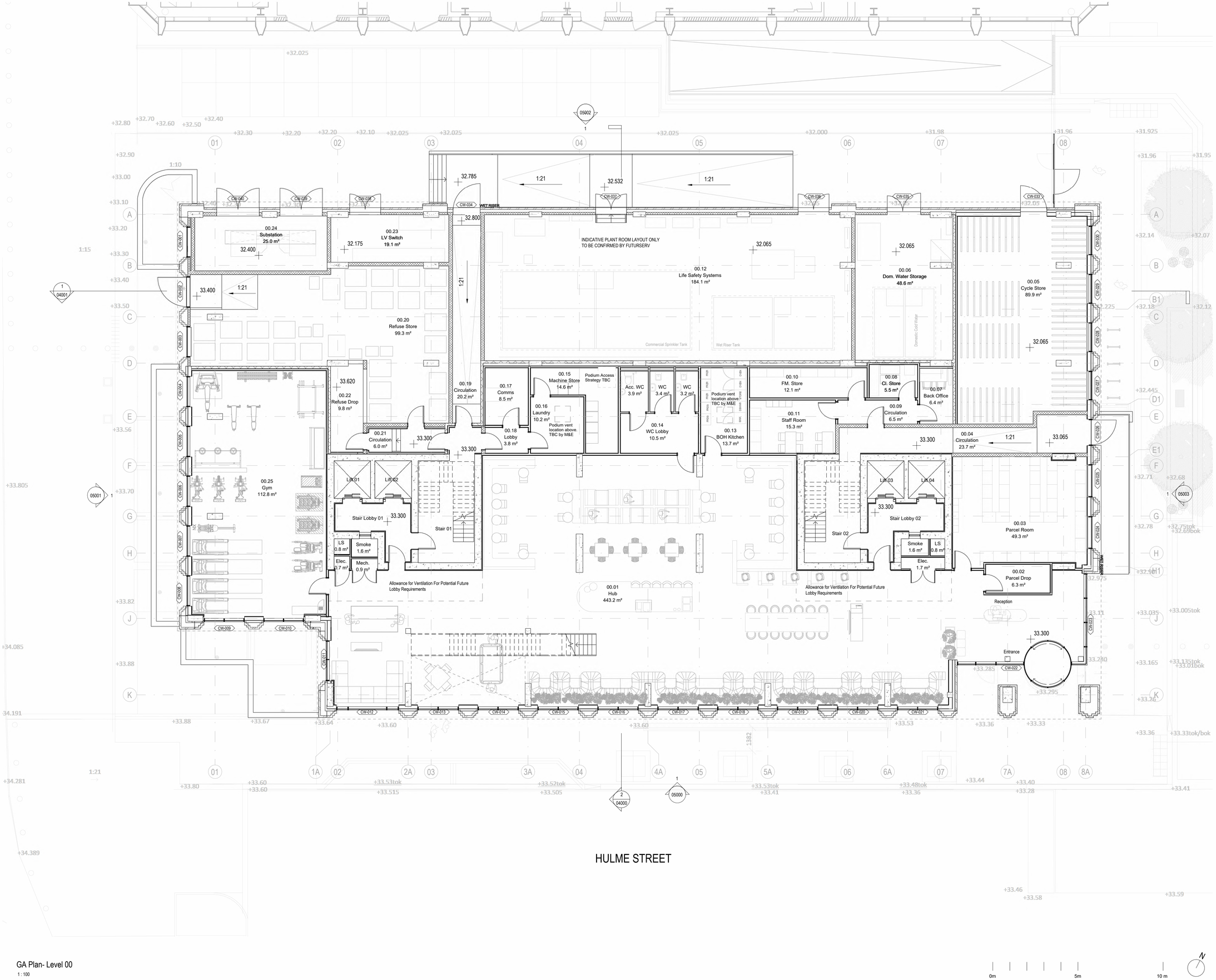
Project
Plot 9B_First Street

Client
VITA

TIM GROOM ARCHITECTS

Eastgate, 2 Castle Street, Manchester, M3 4LZ 0161 870 1152

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GA Plan- Level 00

1 : 100

0m 5m 10 m

General Notes

Use figured dimensions only. Do not scale off this drawing. All dimensions must be set out and checked by the contractor on site prior to commencement of construction. Any variations between drawings and site must be reported to TGA before work proceeds.

Drawings to be read in conjunction with Architectural Specification, Structural Engineer's Drawings and Specifications, Mechanical & Electrical Engineer's Drawings and Specifications, all Supplemental Information, including but not limited to; Detailed Fire Strategy, Acoustic Report, Thermal Report & Overheating Report.

No portion of the Works to commence without acceptance of the required submittals by the Employer.

Main Contractor to submit relevant documents to building regulation and legislation approval authorities as required to comply with the Specification.

Legend and Notes

To be read in conjunction with the following drawing series;

21 - External Walls
22 - Internal Walls
23 - Slab Setting Out
24 - Stairs
28 - Facade Setting Out
31 - Windows & Curtain Walling
32 - Doors
42 - Internal Finishes
68 - Fire Strategy Plans
70 - Apartment Types

1.01
Type A
40m²
Level . Room Number
Apartment Type (Refer to 70 Series for Types)
Area

00.03.3
DT-003
Door Number
Door Type

01.01
WT-01
Window Number
Window Type

CW-001
Curtain Wall Numbers

Concrete column
Refer to Structural Engineers drawings

Bike Store Schedule

Description	No. of Bike Racks	No. of Bike Spaces
Sheffield Bike Stand	5	10
	5	10
Double Stacked	68	136
	68	136
Grand Total	73	146

Rev	Description	Date	By
P01	Stage 03 Preliminary Issue	01.10.24	AV
P02	Stage 04 Preliminary Issue	08.11.24	AV

Title
Detailed Plan - Level 00

Drawing No.
VS9B-TGA-G200-PL-00-03100

Revision
P02

Status
Stage 04

Scale
1 : 100@A1

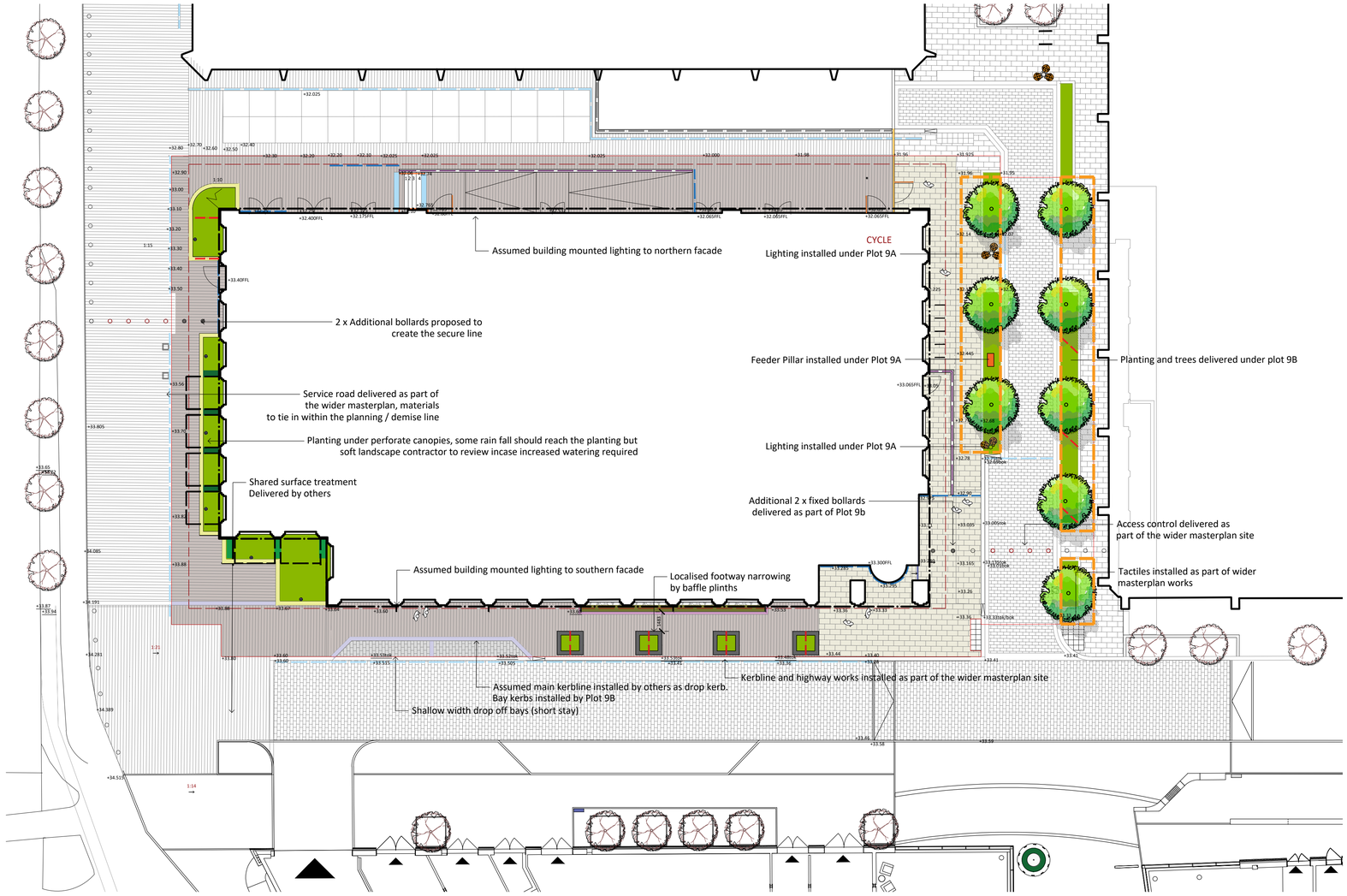
Project
Plot 9B_First Street

Client
VITA

TIM GROOM ARCHITECTS

Eastgate, 2 Castle Street, Manchester, M3 4LZ 0161 870 1152

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HARD LANDSCAPE

Established Masterplan Paving Installed Under Other Phases

Proposed Paving Type 1 - Concrete
Product: Hydro Lineo 40 by Hardscape (or similar approved)
Plan Size: 300 x 100 x 100
Colour: Standard Grey
Laying Bond: Stretcher Bond
Other: 5mm Butt jointed

Proposed Paving Type 2 - Granite Mix Setts
Product: 30% Kobra & 70% Royal White Mix by Hardscape (or similar approved)
Plan Size: 100x 300 x 63mm (depth tbc)
Finish: Flamed
Laying Bond: Stretcher Bond

Proposed Paving Type 2 - Yorkstone Flags
Product: Scoutmoor Yorkstone Flags to match existing First Street Surfacing
Plan Size: 400-900 x 300 x 63mm (depth tbc)
Finish: Sawn
Laying Bond: Min 100mm overlap

Proposed Edge Type 1 - Flush Planting Bed Surround
Product: Royal White Granite by Hardscape (or similar approved)
Plan Size: 200x900x150 (depth tbc)
Finish: Flamed
Upstand: 0mm

Proposed Edge Type 2 - Raised Planting Bed Surround
Product: Royal White Granite by Hardscape (or similar approved)
Plan Size: 300x900x250 (depth tbc)
Finish: Flamed
Upstand: 125mm

Proposed Edge Type 3 - Flush Kerb
Product: Royal White Granite by Hardscape (or similar approved)
Plan Size: 300x900x200 (depth tbc)
Finish: Flamed
Upstand: 0mm

Proposed Edge Type 4 - Wall and Balustrade
Product: Brick clad wall to match the architecture
Laying Bond: Staggered bond
Other: Brick on Edge copings - special ends, Vertical flat bar railings (min 1.1m high)

Proposed Edge Type 5 - Steps
Product: Royal White Granite by Hardscape (or similar approved)
Plan Size: 1100x300x175mm
Finish: Flamed
Other: Contrast nosing
Other: Corduroy s/s strip tactile pavings

FURNITURE

Proposed Bollard to Match Masterplan Furniture
Product: K8 Shallow Depth Terra Neptune SIngle by Frontier Pitts LTD (or similar approved)
Class Code:V/7500/64/90:0.0
Foundation: Shallow Mount

Proposed Lighting to Match Masterplan Furniture
Product: 2/3 head Multi Woody by IGuzzini or similar approved
Height: 5m
Materials: S/S

Proposed Lighting Bollard to Match Masterplan Furniture
Product: Unknown - to match the wider masterplan palette
iWay bollard Super Comfort round 180degrees

Proposed Cycle Stands to Match Masterplan Furniture
Product: S/S or similar approved

NB Baffles: Patternation and colour tone to tie with the architectural narrative

Proposed Movable Plinth Planter with Baffle
Product: Bespoke weighted Plinth Planter with Baffle
Plinth Materials: Granite 1800w x1800l x500h
Baffle Dimension: 1800w x 2500h
Other: 50% Porosity - Perforate Pattern (tbc)

Proposed Baffle - Building Entrance
Product: Bespoke
Dimension: 1100w x 3000h
Other: 50% Porosity - Perforate Pattern (tbc)

Proposed Baffle - Located in Planting Beds
Product: Bespoke
Dimension: 1800w x 3000h
Other: 50% Porosity - Perforate Pattern (tbc)

Proposed Fin - Southern Building Facade
Product: Bespoke
Dimension: 500w x 1800h
Other: Perforate Pattern (tbc)

Proposed Railings and Gate
Product: To Match Wider masterplan proposals
Other: To be ascertained if part installed under Plot 9A

Indicative Drainage Channel

Drainage Channel Delivered by Others

Proposed Feeder Pillar Delivered by Another Phase

SOFT LANDSCAPE

Trees Proposed on Other Development Plots

Proposed Tree Planting
Typical Species: Tilia Cordata
Size: 25-30cm (to be viewed against Plot 9A trees)
Other: Clear Stem 2m

Proposed Ornamental Planting
5L Ornamental planting stock at 5 per m2
70mm Depth Melcourt Bark Nuggets or similar approved

Proposed Hedge Type 1
Type: Evergreen
Size: 1.2m long x 0.5m wide x 1.5m high

Proposed Hedge Type 2
Type: Evergreen
Size: 1.6m long x 0.5m wide x 1m high

Proposed Hedge Type 3
Type: Evergreen
Size: 7m long x 0.5m wide x 1m high

Proposed Below Ground Structural Tree Cells
Product: Rootspace by GreenBlue Urban or similar approved
Sizes: Modules of 0.5m x depth cells 1m

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3. This drawing is to be read in conjunction with all relevant Architects', Engineer's, Specialists, Bills of Quantities and Specifications.
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8. All Proprietary products are to be used strictly in accordance with the manufacturer's instructions and details.

REVISION NOTES

Rev	By	Description	Date
P2	KH	Coordinated Issue	xx/10/2024
P1	KH	First Issue	09/10/2024

Client
Vita Living

Project
First Street - Plot 9B

Description
Landscape Layout

Status
For Information

Scale @ A1	Drawn	Checked	Date
1:200	KH	KH	09.10.2024

Drawing number
Z19B-TPM-G710-PL-XX- 4645 101

Revision
P2

N

tpm landscape
chartered landscape architects
address: 4th Floor Studio 10 Little Lever St Manchester M1 1HR
tel: 0161 235 0600 fax 0601 email info@tpmlandscape.co.uk



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- TERRA CONSULT 2019 EXPLORATORY xxxx HOLE LOCATION
- APPROXIMATE SITE BOUNDARY

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PLOT 9B FIRST ST MANCHESTER

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PROJECT TITLE
PLOT 9B FIRST ST MANCHESTER

DRAWING TITLE
HISTORIC BOREHOLE LOCATION PLAN CURRENT SITE

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NOTES

ROC WS10X — ROC WINDOW SAMPLE BOREHOLE LOCATION

ROC WS10X — ROC WINDOW SAMPLE BOREHOLE LOCATION WITH INSTALL

ROC BH10X — ROC ROTARY BOREHOLE LOCATION WITH INSTALL

APPROXIMATE SITE BOUNDARY

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01	11.09.24	FIRST ISSUE	RM	JS

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PROJECT TITLE: PLOT 9B FIRST ST MANCHESTER

DRAWING TITLE: PROPOSED BOREHOLE LOCATION PLAN EXISTING SITE

DRAWING No.	REV.
4770-ROC-ZZ-XX-DR-ES-ES104	01

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ROC WS103
ROC WS104
ROC RBH101
ROC WS102
ROC WS101
ROC RBH102
ROC WS105
ROC WS106

NOTES

ROC WS10X — ROC WINDOW SAMPLE BOREHOLE LOCATION

ROC WS10X — ROC WINDOW SAMPLE BOREHOLE LOCATION WITH INSTALL

ROC BH10X — ROC ROTARY BOREHOLE LOCATION WITH INSTALL

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APPRVD. JS	DATE SEP 24	EMAIL FOR DRAWINGS info@rocconsulting.com

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VITA MEADOW LTD

PROJECT TITLE
PLOT 9B FIRST ST MANCHESTER

DRAWING TITLE
PROPOSED BOREHOLE LOCATION PLAN PROPOSED SITE

DRAWING No.	REV.
4770-ROC-ZZ-XX-DR-ES-ES104	01

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APPENDIX B – EXPLORATORY HOLE LOGSHEETS

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101: 1.2 – 4m



RBH101: 4 – 7m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101: 8 – 10.5m



RBH101: 10.5 – 13.5m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101: 13.5 – 16.5m



RBH101: 16.5 – 19.5m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101: 19.5 – 22.5m



RBH101: 22.5 – 25.5m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101A: GL – 3.00m



RBH101A: 3 – 8m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101A: 8 - 11m



RBH101A: 11 – 14m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101A: 14 - 17m



RBH101A: 17 – 20m

COMPLEX CHALLENGES...
MADE SIMPLE



RBH101A: 20 - 23m



RBH101A: 23 – 25m

Rotary Core Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 25/06/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383748.69 N397231.40
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Beretta T44

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
RBH101	RC	33.30m AoD	RM	1:50	Sheet 1 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
								0.08	33.22		Asphalt (MADE GROUND)
		0.50	ES								Dark brown very gravelly medium to coarse SAND. Gravel is fine to coarse sub angular to angular of brick, sandstone and clinker. High brick cobble content (MADE GROUND)
		1.20	D				(27)	1.20	32.10		*...at 0.80 to 1.20mbgl becoming gravelly*
								1.80	31.50		Medium dense dark brown very clayey gravelly SAND. Gravel is fine to coarse rounded to subangular of brick, quartzite and sandstone (MADE GROUND)
		2.00	D				(8)				*...at 1.60 to 1.80mbgl light reddish brown sand pocket*
								2.40	30.90		Loose brown clayey gravelly SAND. Gravel is fine to coarse rounded to subangular of brick, quartzite and sandstone (MADE GROUND)
								2.60	30.70		
		3.00	D				(12)				Soft brown sandy gravelly CLAY. Gravel is fine to coarse rounded of sandstone and quartzite (MADE GROUND)
		3.00	ES					3.20	30.10		
								3.40	29.90		Brown and grey gravelly medium to coarse SAND. Gravel is fine to coarse of sandstone, quartzite and rare brick. Low sandstone cobble content (MADE GROUND)
		4.00	D				(20)				
		4.00-5.00	U								Firm brown slightly sandy gravelly CLAY. Gravel is fine to coarse subrounded to angular of brick, quartzite and sandstone (MADE GROUND)
		5.00	D				(19)				Stiff dark brown slightly gravelly CLAY. Gravel is fine to coarse subrounded to rounded of quartzite and sandstone (DEVENSIAN TILL)
		6.00	D								
							(50)				
		8.00 - 9.00		89	0	0		8.20	25.10		Extremely weak reddish brown medium to coarse grained SANDSTONE. Largely weathered to sand with corestones (CHESTER FORMATION)
		9.00 - 10.50	90 210 410	95	75	69		9.18	24.12		Very weak locally extremely weak reddish brown medium to coarse grained SANDSTONE. Joints are close to medium spaced dipping 0 to 10 degrees planar

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
								0.00	25.50	90							

Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.20m depth. 3. No groundwater encountered. 4. 50mm diameter gas/groundwater monitoring well complete with Flush protective cover installed to 15m depth on completion. Response zone 9m to 15m depth.

Rotary Core Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 25/06/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383748.69 N397231.40
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Beretta T44

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
RBH101	RC	33.30m AoD	RM	1:50	Sheet 2 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
								10.50	22.80		Very weak locally extremely weak reddish brown medium to coarse grained SANDSTONE. Joints are close to medium spaced dipping 0 to 10 degrees planar smooth occasionally undulating rough and rarely recovered as sandstone gravel (CHESTER FORMATION)
		10.50 - 12.00	40 90 160	56	27	14					Weak locally recovered as non intact gravel or sand reddish brown medium to coarse grained SANDSTONE. Joints very closely to closely spaced dipping 0 to 10 degrees planar smooth to rough (CHESTER FORMATION)
		12.00 - 13.50		100	92	81	(50)	12.10	21.20		Weak reddish brown medium to coarse grained SANDSTONE. Joints are closely to mediumly spaced dipping 0 to 20 degrees planar smooth to rough (CHESTER FORMATION)
		13.50 - 15.00	90 180 310	100	97	83					
		15.00 - 16.50		97	97	75					
			20					16.50	16.80		Very weak reddish brown medium to coarse grained SANDSTONE. Joints are very closely spaced horizontal planar smooth to rough (CHESTER FORMATION)
		16.50 - 18.00		97	97	69		16.70	16.60		Very weak reddish brown medium to coarse grained SANDSTONE. Joints are very closely to closely spaced horizontal to 10 degrees planar smooth to rough (CHESTER FORMATION)
		18.00 - 19.50	40 130 210	90	90	39					
								19.50	13.80		Very weak reddish brown medium to coarse grained SANDSTONE. Joints are

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
								0.00	25.50	90							

Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.20m depth. 3. No groundwater encountered. 4. 50mm diameter gas/groundwater monitoring well complete with Flush protective cover installed to 15m depth on completion. Response zone 9m to 15m depth.

Rotary Core Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 25/06/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383748.69 N397231.40
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Beretta T44

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
RBH101	RC	33.30m AoD	RM	1:50	Sheet 3 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		19.50 - 21.00	80 220 370	98	98	88		25.50	7.80		Very weak reddish brown medium to coarse grained SANDSTONE. Joints are very closely to closely spaced dipping horizontal to 30 degrees planar smooth to rough. Occasional mudstone infill and black staining on joints (CHESTER FORMATION)
		21.00 - 22.50		97	97	94					*...at 20.92 to 21.00mbgl mudstone band* *...at 21.85 to 21.89mbgl mudstone band*
		22.50 - 24.00		100	100	89					
		24.00 - 25.50		99	99	85					
											End of Borehole at 25.500m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
								0.00	25.50	90							

Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.20m depth. 3. No groundwater encountered. 4. 50mm diameter gas/groundwater monitoring well complete with Flush protective cover installed to 15m depth on completion. Response zone 9m to 15m depth.

Rotary Core Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 28/08/2024 - 29/08/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383750.01 N397232.12
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Beretta T41

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
RBH101A	RC	33.30m AoD	RM	1:50	Sheet 1 of 3

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
								0.13	33.17		Asphalt (MADE GROUND)
								0.50	32.80		Dark brown sandy fine to coarse sub-angular to angular GRAVEL of brick, sandstone, ceramic, and clinker (MADE GROUND)
								1.50	31.80		Soft brown sandy gravelly CLAY. Gravel is fine to coarse sub-rounded to angular of brick, glass and coal. Medium brick cobble content (MADE GROUND)
								2.40	30.90		Brown, yellowish brown and reddish brown sandy fine to coarse sub angular to rounded GRAVEL of sandstone, coal and quartzite (MADE GROUND)
								3.90	29.40		Brown and dark brown sandy fine to coarse sub angular to rounded GRAVEL of sandstone quartzite and granite. Occasional black staining (GLACIOFLUVIAL DEPOSITS) *...at 3.00mbgl becoming wet* *...at 3.00 to 3.30mbgl light brown clayey*
								7.25	26.05		Stiff brown gravelly CLAY. Gravel is medium to coarse sub-rounded to sub-angular of sandstone, siltstone and quartzite. Low sandstone and siltstone cobble content (DEVENSIAN TILL) *...at 5.20 to 5.70mbgl sandy*
		8.00 - 9.50	NI 60 150	67	27	17		8.60	24.70		Reddish brown slightly clayey gravelly SAND. Gravel is fine to medium sub-angular to rounded of sandstone and quartzite (DEVENSIAN TILL)
								9.50	23.80		Extremely weak to very weak reddish brown fine to medium grained SANDSTONE. Joints are very close to close spaced horizontal planar rough (CHESTER FORMATION)
								9.88	23.42		Extremely weak reddish brown non intact gravel of SANDSTONE (CHESTER

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.20m depth. 3. Groundwater observed at 3.00mbgl 4. On completion borehole was backfilled with bentonite and resurfaced with concrete.

Rotary Core Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 28/08/2024 - 29/08/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383750.01 N397232.12
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Beretta T41

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
RBH101A	RC	33.30m AoD	RM	1:50	Sheet 2 of 3

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		9.50 - 11.00	NI 120 210	29	68	55					Extremely weak reddish brown non intact gravel of SANDSTONE (CHESTER FORMATION)
		11.00 - 12.50		75	70	44					Very weak reddish brown fine to medium grained SANDSTONE with coarse rounded mudstone clasts. Joints are close to medium spaced horizontal to sub-horizontal planar rough with occasional clay infill (CHESTER FORMATION)
											...at 10.60 to 11.30mbgl becoming medium to coarse grained and very weak. Some yellowish brown to orangish brown coloration.
								12.00	21.30		
		12.50 - 14.00	50 130 300	81	79	43					Weak reddish brown fine to medium grained SANDSTONE. Joints are very close to medium spaced horizontal planar smooth (CHESTER FORMATION)
		14.00 - 15.50	NI 210 360	89	75	55					
		15.50 - 17.00		99	79	65					
		17.00 - 18.50	NI 80 150	96	85	41					
								17.50	15.80		Weak reddish brown fine to medium grained SANDSTONE. Joints closely spaced horizontal planar smooth (CHESTER FORMATION)
		18.50 - 20.00		95	93	64					
								18.65	14.65		Weak to moderately weak reddish brown fine to medium grained SANDSTONE with medium to coarse rounded tabular mudstone clasts. Joints are close to medium spaced horizontal to sub horizontal planar smooth (CHESTER FORMATION)

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.20m depth. 3. Groundwater observed at 3.00mbgl 4. On completion borehole was backfilled with bentonite and resurfaced with concrete.

Rotary Core Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 28/08/2024 - 29/08/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383750.01 N397232.12
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Beretta T41

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
RBH101A	RC	33.30m AoD	RM	1:50	Sheet 3 of 3

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description
		20.00 - 21.50	NI 120 220	97	73	51					Weak to moderately weak reddish brown fine to medium grained SANDSTONE with medium to coarse rounded tabular mudstone clasts. Joints are close to medium spaced horizontal to sub horizontal planar smooth (CHESTER FORMATION)
		21.50 - 23.00	90 220 440	100	97	85		21.70	11.60		Weak reddish brown fine to medium grained SANDSTONE with medium to coarse grained tabular mudstone clasts. Joints are close to medium spaced horizontal to sub horizontal planar rough (CHESTER FORMATION)
		23.00 - 24.50	150 180 530	100	93	83		23.30	10.00		Weak reddish brown fine to medium grained SANDSTONE. Joints are close to medium spaced horizontal to sub-horizontal planar smooth (CHESTER FORMATION)
		24.50 - 25.50		100	100	100		25.50	7.80		End of Borehole at 25.500m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)

Remarks

1. Position checked with Ground Penetrating Radar, CAT and Genny prior to excavation. 2. Inspection pit hand dug to 1.20m depth. 3. Groundwater observed at 3.00mbgl 4. On completion borehole was backfilled with bentonite and resurfaced with concrete.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383734.11 N397228.36
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS102	WS	33.44m AoD	RM	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	33.34		Concrete (MADE GROUND)	
		0.50	ES					Slightly clayey gravelly SAND. Gravel is fine to coarse subangular to angular of brick and concrete. Low brick cobble content (MADE GROUND)	
					0.90	32.54		Firm To stiff slightly gravelly sandy CLAY. gravel is fine to medium subrounded to subangular of brick (MADE GROUND)	1
		1.10 - 3.00	B		1.10	32.34		Medium Dense yellowish brown SAND and GRAVEL. Gravel is fine to coarse subangular to rounded of quartzite, sandstone and granite (GLACIOFLUVIAL DEPOSITS)	
		1.20	SPT	N=23 (3,5/5,6,6,6)					
		2.00	SPT	N=20 (3,4/3,4,6,7)					2
		3.00	SPT	N=22 (4,6/5,5,6,6)				*...at 3.00 to 3.50mbgl black staining*	3
	▼	3.40	ES						
					3.50	29.94		Firm to stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub angular to rounded of sandstone and quartzite (DEVENSIAN TILL)	
		3.80	ES						
		3.80		HVP=90					
		4.00	SPT	N=24 (3,3/4,6,7,7)					4
		4.20	D						
		5.00	SPT	N=23 (6,5/5,6,6,6)					5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 3.50mbgl. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 3.50mbgl. Response zone between 1.00 and 3.50mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383734.11 N397228.36
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS102	WS	33.44m AoD	RM	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45	27.99		Firm to stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub angular to rounded of sandstone and quartzite (DEVENSIAN TILL)
								End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 3.50mbgl. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 3.50mbgl. Response zone between 1.00 and 3.50mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383749.64 N397239.64
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS103	WS	32.86m AoD	RM	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.10	32.76		Light brown sandy fine to coarse gravel of limestone. Medium limestone cobble content (MADE GROUND)	
								Dark brown to black slightly clayey sandy GRAVEL. Gravel is fine to coarse subangular to angular of brick and concrete (MADE GROUND)	
								...at 0.50 to 0.90mbgl brick and concrete cobbles	
					0.90	31.96		Soft light brown slightly sandy gravelly CLAY. Gravel is fine to coarse rounded to angular of brick, sandstone, coal (MADE GROUND)	1
		1.00	ES						
		1.20	SPT	N=6 (1,1/1,2,1,2)					
		1.50	D						
		1.50		HVP=42					
		2.00	SPT	N=13 (4,3/3,3,3,4)					2
		2.20		HVP=24					
					2.55	30.31		Brown slightly clayey sandy fine to medium rounded GRAVEL of sandstone and quartzite (GLACIOFLUVIAL DEPOSITS)	
					2.80	30.06		Very soft black slightly sandy organic CLAY (GLACIOFLUVIAL DEPOSITS)	
		3.00	SPT	N=7 (1,1/2,1,1,3)					3
					3.20	29.66		Very loose to loose grey clayey sandy fine to coarse GRAVEL. Gravel is fine to coarse subangular to rounded of sandstone, quartzite and granite (GLACIOFLUVIAL DEPOSITS)	
								...at 3.40mbgl becoming yellow brown	
▼		3.90	D						
▼		4.00	SPT	N=1 (2,1/0,0,0,1)					4
					4.40	28.46		Firm brown slightly gravelly CLAY. Gravel is fine to coarse rounded of sandstone and quartzite (DEVENSIAN TILL)	
		4.50	D						
		4.50		HVP=22					
		4.80 - 5.00	ES						
		4.80		HVP=48					
		5.00	SPT	N=9 (1,1/2,2,2,3)				*...at 4.90mbgl becoming stiff*	5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 4.00mbgl. 3. Upon completion borehole was backfilled with arisings.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383749.64 N397239.64
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS103	WS	32.86m AoD	RM	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45	27.41		Firm brown slightly gravelly CLAY. Gravel is fine to coarse rounded of sandstone and quartzite (DEVENSIAN TILL)
								End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 4.00mbgl. 3. Upon completion borehole was backfilled with arisings.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383756.48 N397235.84
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS104	WS	33.07m AoD	RM	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.10	32.97		Asphalt (MADE GROUND)
					0.25	32.82		Dark brown sandy fine to coarse sub angular to angular GRAVEL of brick, concrete, asphalt and limestone (MADE GROUND)
		0.70	ES					Dark brown to black slightly clayey very sandy fine to coarse GRAVEL of brick, clinker, limestone, and concrete ashy in places (MADE GROUND)
					0.85	32.22		Soft brown sandy gravelly CLAY. Gravel is fine to coarse subangular to angular of brick and ceramic (MADE GROUND)
		1.20	SPT	N=4 (2,2/1,1,1,1)				
		1.50	ES					
		1.50		HVP=16				
								...at 1.75 to 1.95mbgl becoming dark brown
		2.00	SPT	N=4 (1,0/1,0,2,1)	1.95	31.12		Very soft brown mottled black slightly sandy organic CLAY. Gravel fine to medium rounded to subangular of brick and sandstone. Organic odour (MADE GROUND)
					2.80	30.27		Dense yellowish brown slightly clayey sandy GRAVEL. Gravel is fine to coarse subangular to rounded of sandstone and quartzite (GLACIOFLUVIAL DEPOSITS)
		3.00	SPT	N=32 (7,6/11,7,8,6)				
					3.55	29.52		Stiff brown slightly sandy slightly gravelly CLAY gravel is fine to medium rounded to subangular of coal, sandstone and quartzite (DEVENSIAN TILL)
		3.80		HVP=120				
		4.00	SPT	N=23 (3,3/3,5,7,8)				
		5.00	SPT	N=27 (4,6/6,7,8,6)	5.00	28.07		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 3.30mbgl. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 2.50mbgl. Response zone between 0.50 and 2.50mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383756.48 N397235.84
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS104	WS	33.07m AoD	RM	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 3.30mbgl. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 2.50mbgl. Response zone between 0.50 and 2.50mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383757.00 N397224.51
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS105	WS	33.50m AoD	RM	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	33.40		Asphalt (MADE GROUND)
		0.50 0.50	B ES					Dark brown to black slightly clayey very gravelly SAND. Gravel is fine to coarse subangular to angular of brick, slate, concrete and rare glass. Medium brick cobble content (MADE GROUND)
					0.90	32.60		Soft brown sandy gravelly CLAY. Gravel is fine to medium rounded to subangular of brick, sandstone and quartzite (MADE GROUND)
		1.20 - 3.90 1.20	B SPT	N=19 (3,3/5,5,5,4)	1.20	32.30		Medium dense to dense yellowish brown gravelly SAND. Gravel is fine to coarse subangular to rounded of sandstone, quartzite and granite (GLACIOFLUVIAL DEPOSITS)
		1.50	ES					
		2.00	SPT	N=33 (5,8/9,8,7,9)				
		3.00	SPT	N=17 (4,4/4,4,4,5)				
	▼	3.70	ES					
		4.00	SPT	N=16 (5,5/4,3,4,5)	3.90	29.60		Stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub rounded to rounded of sandstone and quartzite (DEVENSIAN TILL)
		4.70		HVP=104				
		4.80 - 5.00	D					
		5.00	SPT	N=18 (4,5/5,5,4,4)	5.00	28.50		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 3.80mbgl. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 4.00mbgl. Response zone between 1.00 and 4.00mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383757.00 N397224.51
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS105	WS	33.50m AoD	RM	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater observed at 3.80mbgl. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 4.00mbgl. Response zone between 1.00 and 4.00mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383730.70 N397205.21
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS106	WS	33.63m AoD	RM	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Black slightly gravelly very clayey SAND. Gravel medium to coarse subangular to angular of brick. Frequent roots and rootlets (MADE GROUND)
					0.40	33.23		
		0.50	ES					Medium dense brown gravelly SAND. Gravel is fine to coarse subangular to angular of brick and slate. Medium brick cobble content (MADE GROUND)
		1.20	SPT	N=23 (3,5/5,6,6,6)				
		1.80	ES		1.80	31.83		
		2.00	SPT	N=20 (3,4/3,4,6,7)				Firm brown sandy gravelly CLAY. Gravel is fine to coarse subangular to angular of brick and slate (MADE GROUND)
					2.20	31.43		Medium dense brown gravelly fine to coarse SAND. Gravel is fine to coarse sub angular to rounded of sandstone, quartzite and granite (GLACIOFLUVIAL DEPOSITS)
		3.00	SPT	N=22 (4,6/5,5,6,6)				
					3.80	29.83		Firm to stiff slightly gravelly CLAY. Gravel is fine to coarse rounded of sandstone and quartzite (DEVENSIAN TILL)
		4.00	SPT	N=24 (3,3/4,6,7,7)				
		5.00	SPT	N=23 (6,5/5,6,6,6)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater not observed. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 2.00mbgl. Response zone between 0.50 and 2.00mbgl.

Percussion Drilling Log

Project Name: Plot 9B First Street	Client: Vita Meadows Ltd	Date: 02/07/2024
Location: Manchester	Contractor: MT Geoservices	Co-ords: E383730.70 N397205.21
Project No. : 4770	Crew Name: M.E. & D.O.	Drilling Equipment: Dando Terrier

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS106	WS	33.63m AoD	RM	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					5.45	28.18		Firm to stiff slightly gravelly CLAY. Gravel is fine to coarse rounded of sandstone and quartzite (DEVENSIAN TILL)
								End of Borehole at 5.450m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Position scanned for services prior to excavation. 2. Groundwater not observed. 3. Upon completion borehole was installed with a 50mm standpipe to a depth of 2.00mbgl. Response zone between 0.50 and 2.00mbgl.

Geotechnical Engineering Limited

BOREHOLE LOG

CP/RC109

CLIENT ASK PROPERTY DEVELOPMENTS LTD

SITE PLOTS 6, 7 & 8 FIRST STREET, MANCHESTER

Sheet 1 of 3

Start Date 25 April 2016 Easting 383761 Scale 1 : 50

End Date 27 April 2016 Northing 397225 Ground level 33.40mOD Depth 26.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	I_f	instru -ment	description	depth (m)	reduced level (m)	legend
25/04/16 1515hrs	1B	0.00	0.10						Dark brown slightly clayey sandy subangular fine to coarse brick and concrete GRAVEL with high a subangular brick cobble content. (MADE GROUND)			
	1ES	0.00	0.00									
	2B	0.30	0.60									
	2ES	0.30								0.60	32.80	
	3B	0.60	0.80						Firm dark brown slightly sandy gravelly CLAY with a high subangular brick cobble content. Gravel is subangular fine to coarse brick and concrete. (MADE GROUND)			
	3ES	0.60										
	4B	1.00	1.20									
	4ES	1.00								1.20	32.20	
	5D	1.20	1.65	1.20	S 7				Firm dark brown slightly sandy gravelly clayey SILT. Gravel is subangular and subrounded fine to coarse sandstone and mudstone. Frequent rootlets. (MADE GROUND)			
	6L	1.20	2.20									
	5ES	1.50										
25/04/16 1740hrs 1.85m	7D	2.20	2.65	2.20	S 25					2.20	31.20	
26/04/16 0830hrs 1.23m	8L	2.20	3.20						Brown slightly silty sandy subangular to rounded fine to coarse sandstone and mudstone GRAVEL. 2.20 - 2.70m: Light brown fine to coarse sand.			
	6ES	2.20										
	7ES	3.00										
	9D	3.20	3.65	3.10	S 11							
	10L	3.20	4.20							3.80	29.60	
	11D	4.20	4.65	4.20	S 17				Firm dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular and subrounded fine coal, mudstone and siltstone.	4.20	29.20	
	12L	4.20	5.20						NO RECOVERY.			
	13L	5.20	5.40							5.20	28.20	
	14D	5.40	5.85	4.20	S 25				Stiff dark brown slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium coal and siltstone.			
	15L	5.40	6.90									
	16L	6.90	8.00	6.30						7.50	25.90	
26/04/16 1815hrs 2.68m	17D	8.00	8.30	8.00	S*100				Light reddish grey slightly silty slightly gravelly fine to coarse SAND. Gravel is subrounded fine and medium siltstone and sandstone.	8.00	25.40	
									Continued Next Page	{8.00}		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-8.00m. Waterflush rotary core drilled (116mm) 8.00-26.00m.

CASING: 140mm diam to 8.00m

BACKFILL: On completion, hole backfilled with bentonite pellets.

REMARKS: Polymer added to waterflush 2.20 to 26.00m. Downhole magnetometry for UXO risk mitigation carried out 0.00-8.00m. No anomalies encountered.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered prior to use of water flush.

AGS

CONTRACT	CHECKED
31847	CT

Geotechnical Engineering Ltd. Tel. 01452 527743 31847.GPJ TRIALJH.GPJ GEOTECH2.GLB 13/07/2016 16:05:23 AW EC

Geotechnical Engineering Limited

BOREHOLE LOG

CP/RC109

CLIENT ASK PROPERTY DEVELOPMENTS LTD

SITE PLOTS 6, 7 & 8 FIRST STREET, MANCHESTER

Sheet 2 of 3

Start Date 25 April 2016 Easting 383761 Scale 1 : 50

End Date 27 April 2016 Northing 397225 Ground level 33.40mOD Depth 26.00 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	I_f	instru -ment	description	depth (m)	reduced level (m)	legend
27/04/16 0830hrs 4.60m	18C	8.00 - 9.50			87	NA		Very dense dark brown slightly gravelly fine to coarse SAND. Gravel is subrounded fine and medium siltstone.			
		9.50 - 9.73	8.00	C*200					9.50	23.90	
	19C	9.50 - 11.00			0	NR		NO RECOVERY.			
		11.00 - 11.23	8.00	C*200					11.00	22.40	
	20C	11.00 - 12.50			80 36 10	NI 60 200		Extremely weak reddish brown fine to coarse SANDSTONE. Fractures are subhorizontal rarely subvertical very closely to closely spaced planar smooth and rough. 11.00 - 12.50m: Limited recovery. 11.30m: 20mm band of fine and medium sand. 11.50 - 11.90m: Slightly gravelly fine and medium sand tending to extremely weak sandstone. Gravel is subangular fine to coarse lithorelicts of extremely weak mudstone.	12.50	20.90	
	21C	12.50 - 14.00	8.00		96 92 86	NI 220 320		Weak reddish brown fine and medium SANDSTONE. Fractures are subhorizontal to 10° closely to medium spaced planar rough. 13.10 - 13.15m: Extremely weak. 13.15m: Fracture infilled (<5mm) with reddish brown sandy clay.			
	22C	14.00 - 15.50	8.00		100 66 66			14.55 - 14.60m: Thin bed of extremely weak reddish brown mudstone.	14.60	18.80	
								Very weak reddish brown mottled yellowish brown fine and medium SANDSTONE disintegrated to gravelly fine and medium sand with frequent lenses (<50mm) of extremely weak mudstone. Gravel is subangular medium and coarse lithorelicts of extremely weak sandstone.	15.00	18.40	
	23C	15.50 - 17.00	8.00		96 88 70			Weak reddish brown fine and medium SANDSTONE. Fractures are subhorizontal to 10° very closely to medium spaced planar and undulating rough. 16.68 - 16.70m: Extremely weak.			
	24C	17.00 - 18.50	8.00		100 98 93			17.25 - 17.75m: Abundant subangular fine to coarse tabular mudstone.			
								Continued Next Page	{18.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

Groundwater not encountered prior to use of water flush.

AGS

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Geotechnical Engineering Limited

BOREHOLE LOG

CP/RC109

CLIENT ASK PROPERTY DEVELOPMENTS LTD

SITE PLOTS 6, 7 & 8 FIRST STREET, MANCHESTER — Sheet 3 of 3

Start Date 25 April 2016 — Easting 383761 — Scale 1 : 50

End Date 27 April 2016 — Northing 397225 — Ground level 33.40mOD — Depth 26.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	I_f	instru -ment	description	depth (m)	reduced level (m)	legend
	25C	18.50	20.00	8.00		95 95 83			18.80 - 19.05m: Abundant very thin mudstone lenses.			
	26Cs	19.30	19.60									
	27C	20.00	21.50	8.00		96 78 64	NI 200 470		20.20m: Two very closely spaced 10° fractures infilled (up to 20mm) with sandy clay.			
										21.30	12.10	
	28C	21.50	23.00	8.00		90 68 58	NI 60 150		Weak locally extremely weak reddish brown fine and medium SANDSTONE with frequent closely spaced very thin beds of extremely weak mudstone weathered to clay.			
							NI 120 240			22.20	11.20	
	29C	23.00	24.50	8.00		96 84 80			Weak reddish brown fine and medium SANDSTONE. Fractures are subhorizontal to 20° extremely closely to closely spaced planar and undulating rough.			
	30C	24.50	26.00	8.00		100 93 80			24.70 - 24.75m: Extremely weak.			
27/04/16 1600hrs 2.32m	31Cs	25.60	25.85						25.40m: Thick lamination of reddish brown mudstone (up to 10mm).	26.00	7.40	
									Borehole completed at 26.00m.	{28.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

Groundwater not encountered prior to use of water flush.

AGS

CONTRACT 31847

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Geotechnical Engineering Limited

TRIAL PIT LOG

WS107

CLIENT ASK PROPERTY DEVELOPMENTS LTD

SITE PLOTS 6, 7 & 8 FIRST STREET, MANCHESTER

Sheet 1 of 1

Start Date 18 April 2016 Easting 383733 Scale 1 : 25

End Date 18 April 2016 Northing 397239 Ground level 33.00mOD Depth 0.50 m

water record	sample/test no/type	sample/test result	sample/test depth (m)	description	depth (m)	level (m)	legend
	1ES		0.00	Dark grey slightly gravelly sandy clayey SILT with high brick cobble content. (MADE GROUND)			
	2ES		0.30- 0.50		0.50	32.50	
Dry.				Trial pit completed at 0.50m.			

Notes

Trial pit excavated by hand.
Groundwater was not encountered.
Trial pit sides remained stable.
On completion, the trial pit was backfilled and the surface reinstated.
Pit backfilled at 0.50m due to presence of unknown service.
Downhole magnetometry for UXO risk mitigation carried out 0.00-0.50m. No anomalies encountered.

Sketch of Foundation - Not to scale. All dimensions in metres.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

AGS

CONTRACT	CHECKED
31847	CT

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Geotechnical Engineering Limited

BOREHOLE LOG



WS107A

CLIENT ASK PROPERTY DEVELOPMENTS LTD

SITE PLOTS 6, 7 & 8 FIRST STREET, MANCHESTER

Sheet 1 of 1

Start Date 19 April 2016 Easting 383734 Scale 1 : 50

End Date 19 April 2016 Northing 397239 Ground level 33.00mOD Depth 4.45 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
19/04/16 1200hrs	1ES	0.00 - 0.00						Dark brown slightly sandy gravelly clayey SILT. Gravel is angular to subrounded fine to coarse brick, concrete and charcoal. Low brick cobble content. (MADE GROUND)	0.50	32.50	
	1B	0.30 - 0.50						Dark brown slightly sandy slightly gravelly clayey SILT with frequent brick cobbles. (MADE GROUND)	0.80	32.20	
	2ES	0.30 - 0.50						Dark brown silty very gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick, charcoal, flint, sandstone and crystalline. (MADE GROUND)	1.10	31.90	
	2B	0.60 - 0.80						Loose and very loose dark brown slightly sandy gravelly clayey SILT. Gravel is angular to subrounded fine to coarse brick, charcoal, flint, sandstone and crystalline. Frequent brick cobbles. (MADE GROUND)			
	3ES	0.60 - 0.80									
	3B	0.90 - 1.10									
	4ES	0.90 - 1.10	Nil	S 4							
	4D	1.20 - 1.65									
	5L	1.20 - 2.00									
	5ES	1.50									
	6D	2.00 - 2.45	2.00	S<1							
	6ES	2.00									
	7L	2.00 - 3.00									
	7ES	2.50									
	8D	3.00 - 3.45	3.00	S 1							
	9L	3.00 - 4.00							3.40	29.60	
	10D	4.00 - 4.45	3.00	S 27				Stiff dark brown mottled dark orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse sandstone.			
19/04/16 1730hrs Dry	8ES	4.00							4.45	28.55	
								Borehole completed at 4.45m.	{8.00}		

EQUIPMENT: Geotechnical Terrier 2000 rig.

METHOD: Hand dug inspection pit 0.00-1.10m. Dynamic sampled (98mm) 1.20m-3.00m (84mm) 3.00-4.00m.

CASING: 113mm diam to 3.00m.

BACKFILL: On completion, hole backfilled with bentonite and local materials.

REMARKS: Downhole magnetometry for UXO risk mitigation carried out 0.00-4.00m. No anomalies encountered.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m) casing (m) rose to (m) time to rise (min) remarks

Groundwater not encountered.

AGS

CONTRACT 31847

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Geotechnical Engineering Limited

BOREHOLE LOG

WS110

CLIENT ASK PROPERTY DEVELOPMENTS LTD

SITE PLOTS 6, 7 & 8 FIRST STREET, MANCHESTER

Sheet 1 of 1

Start Date 28 April 2016 Easting 383767 Scale 1 : 50

End Date 28 April 2016 Northing 397228 Ground level 30.85mOD Depth 3.15 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
28/04/16 0830hrs	1ES	0.00							Vegetation over dark brown and black silty sandy (ashy) angular and subangular fine to coarse brick, concrete and slag GRAVEL. Rare roots (up to 10mm diam) and rootlets. (MADE GROUND)	0.10	30.75	
	1B	0.30 - 0.50										
	2ES	0.30										
	2B	0.60 - 0.80										
	3ES	0.60										
	3B	1.00 - 1.20										
	4ES	1.00										
		1.20 - 1.65		Nil	S 4				Light brown and red subangular and subrounded brick COBBLES with much light brown silty, sandy angular to subrounded fine to coarse brick and charcoal gravel. Rare roots (up to 25mm) and rootlets. (MADE GROUND)	1.20	29.65	
	4L	1.20 - 2.70										
	5ES	1.50							Very loose and loose dark grey slightly clayey gravelly fine to coarse SAND with a high brick cobble content. Gravel is subangular fine to coarse brick and concrete. (MADE GROUND)	1.90	28.95	
	6ES	2.00							Orangish brown slightly clayey gravelly fine to coarse SAND. Gravel is subangular and subrounded fine to coarse mudstone and siltstone.			
	7ES	2.50										
28/04/16 1310hrs Dry	5D	2.70	3.15	Nil	S 16				2.70m: Medium dense.			
									Borehole completed at 3.15m.	3.15	27.70	
										{8.00}		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Dynamic sampled (113mm) 1.20-2.70m.

CASING: None used.

BACKFILL: On completion, hole backfilled with local materials.

REMARKS:Downhole magnetometry for UXO risk mitigation carried out 0.00-2.70m. No anomalies encountered.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m) casing (m) rose to (m) time to rise (min) remarks

Groundwater not encountered.

AGS

CONTRACT 31847

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Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	27-06-19	27-06-19	IB/JC	Hand tools	n/a	n/a	IB	27-06-19	
RO	1.20	13.00	28-06-19	28-06-19	IB/JC	Dando 250	n/a	Duplex	IB	28-06-19	

Location details:

mE: 383732.50
mN: 397245.28
mAOD: 32.93
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(1.20)	Sandy GRAVEL of brick fragments. (MADE GROUND)						
			31.73	1.20	Sandy gravelly CLAY. (GLACIOFLUVIAL SHEET DEPOSITS)						
					1.20 - 8.90 m: Bands of sand and gravel						
				(7.70)							
			24.03	8.90	SANDSTONE. (CHESTER FORMATION)						
					8.90 - 9.90 m: Weak						
	(51) Inst (Ø)					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
		13.00

Depth related remarks:

From	to:	Remarks:

Flush details:

Depth:	Type:	Return:	Colour:
0.00 - 13.00	air/mist		

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: First Street Plots 9 & 10
Project No: 4302
Client: ASK Property Developments

Exploratory position reference:

BH02

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	27-06-19	27-06-19	IB/JC	Hand tools	n/a	n/a	IB	27-06-19	
RO	1.20	13.00	28-06-19	28-06-19	IB/JC	Dando 250	n/a	Duplex	IB	28-06-19	

Location details:

mE: 383732.50
mN: 397245.28
mAOD: 32.93
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
				(4.10)							
	SP (51)		19.93	13.00	Borehole ends at 13.00 m (Termination reason: Refusal)						
	Inst (Ø)					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm): Depth: Casing:
13.00

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: First Street Plots 9 & 10
Project No: 4302
Client: ASK Property Developments

Exploratory position reference:

BH02

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	LM	Method:	Hand excavated	Width:	0.50	mE:	383704.75	Start:	20/11/2017
Checked by:	DD			Length:	0.50	mN:	397223.14	End:	20/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	34.60	Logged:	20/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(1.20)	Soft dark brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of slag, tile, brick, timber and metal (MADE GROUND)	0.40	ES1	
			33.40 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:
Depth: Rose to: Remarks:

Depth related remarks:
From to: Remarks:

General remarks:
Weather:
Stability: Good
Remarks:

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT
Scale: 1:25

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:
HDP111
Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	HP	Method:	Hand excavated	Width:	0.50	mE:	383710.47	Start:	09/11/2017
Checked by:	DD			Length:	0.50	mN:	397229.82	End:	09/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	33.10	Logged:	09/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			32.97 0.13	Black angular coarse GRAVEL of macadam (MADE GROUND)			
				Brown gravelly SAND with low cobble content. Gravel is angular to subrounded fine to coarse of brick, clinker, concrete and sandstone. Cobbles are angular of brick (MADE GROUND)	0.20 0.20	PID ES1	0.0 ppmv
			32.80 0.30				
			32.70 0.40	CONCRETE (MADE GROUND)			
			(0.40)	Brown gravelly SAND with medium cobble content. Gravel is angular to subrounded fine to coarse of sandstone, brick and clinker. Cobbles are angular of brick (MADE GROUND)			
			32.30 0.80	Yellowish brown gravelly SAND. Gravel is angular to rounded fine to coarse of sandstone, mudstone, brick and clinker (MADE GROUND)			
			(0.40)				
			31.90 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth: Rose to: Remarks:

Depth related remarks:

From to: Remarks:

General remarks:

Weather:

Stability: Good

Remarks:

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

HDP112

Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	HP	Method:	Hand excavated	Width:	0.50	mE:	383722.73	Start:	09/11/2017
Checked by:	DD			Length:	0.50	mN:	397235.16	End:	09/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	33.08	Logged:	09/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Install'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			32.88 0.20	MACADAM (MADE GROUND)			
			(1.00)	Yellowish brown gravelly slightly clayey SAND. Gravel is subangular to subrounded fine to coarse of brick, sandstone, mudstone and clinker (MADE GROUND)	0.50 0.50	PID ES1	0.0 ppmv
			31.88 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:			Depth related remarks:			General remarks:	
Depth:	Rose to:	Remarks:	From	to:	Remarks:	Weather:	
						Stability:	Good
						Remarks:	

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.	Project: Plots 6 & 7 First Street	Exploratory position reference:
Log issue: DRAFT	Project No: 3296	**HDP113**
Scale: 1:25	Client: ASK Property Ltd	Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	HP	Method:	Hand excavated	Width:	0.50	mE:	383733.02	Start:	09/11/2017
Checked by:	DD			Length:	0.50	mN:	397240.35	End:	09/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	32.98	Logged:	09/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			32.86 0.12	Brown sandy rounded coarse GRAVEL of sandstone, mudstone and quartz (MADE GROUND)			
				MACADAM (MADE GROUND)			
			32.58 0.40	Dark brown gravelly slightly clayey SAND with medium cobble content. Gravel is angular fine to coarse of brick, macadam and sandstone. Cobbles are angular of brick	0.50 0.50	PID D1	0.0 ppmv
			(0.50)	(MADE GROUND)			
			32.08 0.90	Firm brown sandy gravelly CLAY. Gravel is angular to subrounded of brick, clinker, sandstone and mudstone	1.00 1.00	PID ES2	0.0 ppmv
			(0.30)	(MADE GROUND)			
			31.78 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:
Depth: Rose to: Remarks:

Depth related remarks:
From to: Remarks:

General remarks:
Weather:
Stability: Good
Remarks:

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT
Scale: 1:25

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:
HDP114
Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	HP	Method:	Hand excavated	Width:	0.50	mE:	383742.73	Start:	09/11/2017
Checked by:	DD			Length:	0.50	mN:	397247.55	End:	09/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	32.57	Logged:	09/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
				MACADAM (MADE GROUND)			
			32.37 0.20				
				Brown gravelly SAND. Gravel is angular fine to coarse of sandstone, brick and macadam (MADE GROUND)	0.30 0.30	PID ES1	0.0 ppmv
			32.17 0.40				
				Brown gravelly clayey SAND with medium cobble content. Gravel is angular fine to coarse of brick, clinker and sandstone. Cobbles are angular of brick (MADE GROUND)	0.70 0.70	PID D2	0.0 ppmv
			(0.80)				
			31.37 1.20				
				Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:
Depth: Rose to: Remarks:

Depth related remarks:
From to: Remarks:

General remarks:
Weather:
Stability: Good
Remarks:

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT
Scale: 1:25

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:
HDP115

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	LM	Method:	Hand excavated	Width:	0.50	mE:	383710.43	Start:	20/11/2017
Checked by:	DD			Length:	0.50	mN:	397212.29	End:	20/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	34.66	Logged:	20/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(1.20)	Soft dark brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of ash, tile, brick, timber and metal (MADE GROUND)	0.60	ES1	
			33.46 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth: Rose to: Remarks:

Depth related remarks:

From to: Remarks:

General remarks:

Weather:

Stability: Good

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

HDP117

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	LM	Method:	Hand excavated	Width:	0.50	mE:	383770.99	Start:	20/11/2017
Checked by:	DD			Length:	0.50	mN:	397246.27	End:	20/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	32.00	Logged:	20/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Install'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			31.86 0.14	ASPHALT (MADE GROUND)			
				Soft dark brown mottled red brown sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of sandstone, mudstone, brick, concrete clinker and tile (MADE GROUND)			
			(1.06)		0.60	ES1	
			30.80 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:			Depth related remarks:			General remarks:	
Depth:	Rose to:	Remarks:	From	to:	Remarks:	Weather:	
						Stability:	Good
						Remarks:	

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.	Project: Plots 6 & 7 First Street	Exploratory position reference:
Log issue: DRAFT	Project No: 3296	**HDP119**
Scale: 1:25	Client: ASK Property Ltd	Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	LM	Method:	Hand excavated	Width:	0.50	mE:	383715.05	Start:	20/11/2017
Checked by:	DD			Length:	0.50	mN:	397206.83	End:	20/11/2017
		Plant:	Hand tools	Orientation:		mAOD:	34.27	Logged:	20/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(1.20)	Soft dark brown sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of ash, tile, brick, timber and metal (MADE GROUND)	0.50 0.50	ES1 ES1	
			33.07 1.20	Trial pit ends at 1.20m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth: Rose to: Remarks:

Depth related remarks:

From to: Remarks:

General remarks:

Weather:

Stability: Good

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

HDP121

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	21-11-17	21-11-17	PS	Hand tools	n/a	n/a	LM	24-11-17	
RO	0.00	16.60	21-11-17	21-11-17	PS	Comacchio 205	n/a	DTH hammer	Crew	24-11-17	

Location details:

mE: 383723.86
mN: 397227.10
mAOD: 33.14
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					FILL (Driller's Description) (MADE GROUND)						
	(50)				CLAY (Driller's Description) (GLACIAL TILL)						
					SANDSTONE (Driller's Description) (CHESTER FORMATION)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
107	16.60	

Depth related remarks:

From	to:	Remarks:

Flush details:

Depth:	Type:	Return:	Colour:
1.20 - 16.60	air/mist	100%	brown

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP20

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	21-11-17	21-11-17	PS	Hand tools	n/a	n/a	LM	24-11-17	
RO	0.00	16.60	21-11-17	21-11-17	PS	Comacchio 205	n/a	DTH hammer	Crew	24-11-17	

Location details:

mE:	383723.86
mN:	397227.10
mAOD:	33.14
Grid:	OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
	(50)										
	SP				Borehole ends at 16.60 m (Termination reason: Target depth)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
107	16.60	

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT

Scale: 1:50

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

RP20

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	1.20	27-11-17	27-11-17	BG	Comacchio 305	n/a	Tricone steel	Crew	20-11-17	
RO	0.00	17.50	27-11-17	27-11-17	BG	Comacchio 305	n/a	Tricone steel	Crew	20-11-17	

Location details:

mE: 383737.89
mN: 397236.47
mAOD: 33.05
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					Gravelly SAND with house bricks (Driller's Description) (MADE GROUND)						
					Light brown CLAY with yellow sand bands (Driller's Description) (MADE GROUND)						
					Firm dark brown CLAY (Driller's Description) (GLACIAL TILL)						
					Weathered reddish brown SANDSTONE (Driller's Description) (CHESTER FORMATION)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	17.50	6.00

Depth related remarks:

From	to:	Remarks:

Flush details:

Depth:	Type:	Return:	Colour:
1.20 - 17.50	air/mist	100%	brown

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP21

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
RO	0.00	1.20	27-11-17	27-11-17	BG	Comacchio 305	n/a	Tricone steel	Crew	20-11-17	
RO	0.00	17.50	27-11-17	27-11-17	BG	Comacchio 305	n/a	Tricone steel	Crew	20-11-17	

Location details:

mE: 383737.89
mN: 397236.47
mAOD: 33.05
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					Reddish brown SANDSTONE (Driller's Description) (CHESTER FORMATION)						
					Borehole ends at 17.50 m (Termination reason: Target depth)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
120	17.50	6.00

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP21

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	22-11-17	22-11-17	PS	Hand tools	n/a	n/a	LM	23-11-17	
RO	1.20	16.50	22-11-17	22-11-17	PS	Comacchio 205	n/a	DTH hammer	Crew	23-11-17	

Location details:

mE: 383756.03
mN: 397244.51
mAOD: 32.61
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					FILL (Driller's Description) (MADE GROUND)						
					CLAY (Driller's Description) (GLACIAL TILL)						
					SANDSTONE (Driller's Description) (CHESTER FORMATION)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
107	16.50	

Depth related remarks:

From	to:	Remarks:

Flush details:

Depth:	Type:	Return:	Colour:
1.20 - 16.50	air/mist	100%	brown

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP22

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	22-11-17	22-11-17	PS	Hand tools	n/a	n/a	LM	23-11-17	
RO	1.20	16.50	22-11-17	22-11-17	PS	Comacchio 205	n/a	DTH hammer	Crew	23-11-17	

Location details:

mE: 383756.03
mN: 397244.51
mAOD: 32.61
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					Borehole ends at 16.50 m (Termination reason: Target depth)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
107	16.50	

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP22

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	20-11-17	20-11-17		Hand tools	n/a	n/a	LM	14-11-17	

Location details:

mE: 383719.21
mN: 397206.62
mAOD: 33.54
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					Grey and black angular fine to medium GRAVEL of asphalt and concrete (MADE GROUND)						
					Soft dark brown sandy gravelly CLAY. Gravel is angular fine to coarse of brick and concrete (MADE GROUND)						0.80 ES1
					Multicoloured gravelly clayey SAND (including ash). Gravel is angular fine to coarse of clinker, brick and concrete. Rare whole bricks and cobbles of concrete. Rare fragments of metal and glass (MADE GROUND)						
					Borehole ends at 1.20 m (Termination reason: Target depth)						

	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm): Depth: Casing:

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP24

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill bit:	Logger:	Logged:	Remarks:
IP	0.00	1.20	20-11-17	20-11-17		Hand tools	n/a	n/a	LM	20-11-17	

Location details:

mE: 383737.13
mN: 397215.48
mAOD: 33.48
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks/ samples
					Asphalt GRAVEL						
					(MADE GROUND)						
					Light grey brown gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of clinker glass brick and concrete						0.25 ES1
					(MADE GROUND)						
					Brown fine to coarse SAND						
					(MADE GROUND)						
					Borehole ends at 1.20 m (Termination reason: Target depth)						
	Inst					Water	Casing	Depth/Core Run	TCR SCR RQD	If	Results/remarks

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Diameter & casing:

Dia (mm): Depth: Casing:

Depth related remarks:

From to: Remarks:

Flush details:

Depth: Type: Return: Colour:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in meters.

Log issue: DRAFT
Scale: 1:50

Project: Plots 6 & 7 First Street
Project No: 3296
Client: ASK Property Ltd

Exploratory position reference:

RP25

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:		Dates:	
Logged by:	HP	Method:	Mechanically excavated	Width:	0.60	mE:	383738.22	Start:	08/11/2017
Checked by:	DD			Length:	2.98	mN:	397230.01	End:	08/11/2017
		Plant:	JCB 3CX	Orientation:		mAOD:	33.22	Logged:	08/11/2017
		Shoring:	None	Bearing =		Grid:	OSGB		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			33.14 0.08	MACADAM			
				(MADE GROUND)	0.10	PID	0.0 ppmv
				Light brown sandy gravelly CLAY. Gravel is angular fine to coarse of brick sandstone and macadam	0.10	ES1	
			32.92 0.30	(MADE GROUND)	0.25	PID	0.0 ppmv
				Grey angular COBBLES of sandstone with some gravelly SAND. Gravel is angular to subrounded fine to coarse of sandstone	0.25	ES2	
			(0.50)	(MADE GROUND)	0.50	PID	0.0 ppmv
					0.50	ES3	
			32.42 0.80				
				Yellowish brown gravelly SAND. Gravel is rounded fine to coarse of sandstone, mudstone, quartz, clinker brick and pottery			
				(MADE GROUND)	1.00	PID	0.0 ppmv
					1.00	ES4	
					2.00	PID	0.0 ppmv
					2.00	ES5	
			(3.20)				
					3.00	PID	0.0 ppmv
					3.00	ES6	
			29.22 4.00				
				Trial pit ends at 4.00m (Target depth)	4.00	PID	0.0 ppmv
					4.00	ES7	

Depth	Type & No	Results

Groundwater entries:

Depth: Rose to: Remarks:

Depth related remarks:

From to: Remarks:

General remarks:

Weather:

Stability: Unstable 3.5m - 4.0m

Remarks:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

TP105

Dynamic Sample Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Logger:	Logged:	Remarks:
IP	0.00	1.20	28-06-19	28-06-19	PM	Hand tools	NA	28-06-19	
WLS	1.20	5.00	28-06-19	28-06-19	PM	Archway Dart	NA	28-06-19	

Location details:

mE: 383732.08
mN: 397224.66
mAOD: 33.34
Grid: OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results
				(1.30)	Grey very sandy fine to coarse, subangular GRAVEL of brick and concrete. Frequent cobbles of brick and concrete. Sand is fine to coarse. (MADE GROUND)					
			32.04	1.30						
				(0.50)	Brown very gravelly fine to coarse SAND. Gravel is fine to medium, subangular to subrounded of mudstone and sandstone. (MADE GROUND)			1.50	ES1	
			31.54	1.80				1.80	D2	
				(0.70)	Soft to firm brown slightly sandy slightly gravelly CLAY. Gravel is fine ot coarse, subangular to subrounded of brick and sandstone. Sand is fine to coarse. Rare plastic. (MADE GROUND)					
	(51)		30.84	2.50						
				(1.00)	Light brown sandy fine to coarse, subangular to subrounded GRAVEL of sandstone. Sand is fine to coarse. (GLACIOFLUVIAL SHEET DEPOSITS)			2.80	D3	
	SP (51)		29.84	3.50						
				(1.50)	Very stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse, subangular to subrounded of sandstone. Sand is fine to coarse. (GLACIOFLUVIAL SHEET DEPOSITS)					
			28.34	5.00						
					Dynamic sample ends at 5.00 m (Target depth)					
	Inst (Ø)					Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Casing:

Cased to: Diameter (mm):

Depth related remarks:

From to: Remarks

Run details:

From: to: Ø Duration: Recovery:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: FINAL
Scale: 1:50

Project: First Street Plots 9 & 10
Project No: 4302
Client: ASK Property Developments

Exploratory position reference:

WS02

Sheet 1 of 1

Dynamic Sample Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Logger:	Logged:	Remarks:
WLS	0.00	5.45	08-11-17	08-11-17	LS	Archway DART	LM	08-11-17	Hammer ID: DART239 Er(%) 66

Location details:

mE:	383755.28
mN:	397251.77
mAOD:	32.20
Grid:	OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Water	Casing	Depth	Type & No	Results
			32.00	0.20	Dark greyish brown mottled black very gravelly fine to coarse SAND. Gravel is subangular fine to medium of asphalt with concrete and brick fragments			0.10	PID	0.1 ppmv
								0.10	ES	
				(0.40)	(MADE GROUND)			0.25	PID	0.1 ppmv
								0.25	ES	
			31.60	0.60	Light brown slightly clayey very gravelly fine to coarse SAND. Gravel is anguloar to subangular fine to coarse of sandstone, mudstone, concrete and brick fragments			0.50	PID	0.0 ppmv
								0.50	ES	
					(MADE GROUND)			1.00	PID	0.0 ppmv
								1.00	ES	
					Dark greyish brown mottled black very gravelly fine to coarse SAND. Gravel is subangular fine to medium of asphalt with concrete, brick fragments, tile, glass, timber fragments and clinker	Dry		1.20 - 1.65	S	N=7 (1,0/3,2,1,1)
					(MADE GROUND)					
				(2.70)		Dry		2.00 - 2.45	S	N=1 (3,2/0,0,0,1)
								2.00	PID	0.0 ppmv
						Dry		3.00 - 3.45	S	N=13 (1,3/3,3,4,3)
								3.00	PID	0.0 ppmv
								3.00	ES	
			28.90	3.30	Light brownish grey very silty slightly gravelly fine to coarse SAND. Gravel is angular fine of tile and brick fragments					
	(51)				(MADE GROUND)					
						Dry		4.00 - 4.45	S	N=8 (2,2/2,2,2,2)
								4.00	PID	0.4 ppmv
				(1.95)				4.00	ES	
	SP (51)					Dry		5.00 - 5.45	S	N=28 (6,6/5,6,6,11)
								5.00	PID	0.0 ppmv
								5.00	ES	
			26.95	5.25	Stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine of mudstone					
			26.75	5.45	(GLACIAL TILL)					
					Dynamic sample ends at 5.45 m (Target depth)					

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
3.80	3.80		

Casing:

Cased to: Diameter (mm):

Depth related remarks:

From to: Remarks

Run details:

From:	to:	Duration:	Recovery:
1.20	2.00		50
2.00	3.00		40
3.00	4.00		70
4.00	5.00		80

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

WS105

Dynamic Sample Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Logger:	Logged:	Remarks:
WLS	0.00	0.80	09-11-17	09-11-17	LS	Archway DART	HP	09-11-17	Hammer ID: DART239 Er(%) 66

Location details:

mE:	383818.92
mN:	397278.28
mAOD:	31.57
Grid:	OSGB

Backfill/ Install'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results
			31.43	0.14	MACADAM (MADE GROUND)					
				(0.66)	Brown slightly clayey gravelly SAND with medium cobble content. Gravel is angular fine to coarse of brick, macadam and sandstone. Cobbles are angular of brick					
			30.77	0.80	(MADE GROUND)					
					Dynamic sample ends at 0.80 m (Obstruction)					

Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck: Rose to: Casing: Sealed:

Casing:

Cased to: Diameter (mm):

Depth related remarks:

From to: Remarks

Run details:

From: to: Duration: Recovery:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

WS106

Dynamic Sample Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Logger:	Logged:	Remarks:
WLS	0.00	5.45	08-11-17	08-11-17	LS	Archway DART	LM	08-11-17	Hammer ID: DART239 Er(%) 66

Location details:

mE:	383743.81
mN:	397218.93
mAOD:	33.42
Grid:	OSGB

Backfill/ Instalh	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Water	Casing	Depth	Type & No	Results
				(0.30)	Black slightly clayey very sandy angular to subangular fine to medium GRAVEL of asphalt			0.10	PID	0.4 ppmv
								0.10	ES	
			33.12	0.30	(MADE GROUND)			0.25	PID	0.3 ppmv
					Light orangish brown very silty gravelly fine to coarse SAND. Gravel is subrounded fine to medium of mudstone and sandstone with rare asphalt, concrete, brick fragments, clinker and glass			0.25	ES	
								0.50	PID	0.0 ppmv
								0.50	ES	
	(51)			(1.30)	(MADE GROUND)			1.00	PID	0.0 ppmv
								1.00	ES	
						Dry		1.20 - 1.65	S	N=25 (2,5/6,6,7,6)
			31.82	1.60	Firm dark brown very sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of asphalt, concrete, clinker, brick fragments, tile, glass and sandstone					
					(MADE GROUND)	Dry		2.00 - 2.45	S	N=22 (3,3/5,5,5,7)
								2.00	PID	0.0 ppmv
								2.00	ES	
				(2.10)						
	SP (51)					Dry		3.00 - 3.45	S	N=17 (6,4/5,4,4,4)
								3.00	PID	0.0 ppmv
								3.00	ES	
			29.72	3.70	Stiff to very stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine of mudstone and sandstone					
					(MADE GROUND)	Dry		4.00 - 4.45	S	N=19 (3,3/4,4,5,6)
								4.00	PID	0.0 ppmv
								4.00	ES	
				(1.75)						
						Dry		5.00 - 5.45	S	N=25 (5,5/5,5,7,8)
			27.97	5.45	Dynamic sample ends at 5.45 m (Target depth)					

Samples & In Situ Testing

Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
3.70	3.70		

Casing:

Cased to: Diameter (mm):

Depth related remarks:

From to: Remarks

Run details:

From:	to:	Duration:	Recovery:
1.20	2.00		90
2.00	3.00		90
3.00	4.00		80
4.00	5.00		100

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Plots 6 & 7 First Street

Project No: 3296

Client: ASK Property Ltd

Exploratory position reference:

WS107

APPENDIX C – CHEMICAL TESTING RESULTS

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

Final Test Report

Envirolab Job Number:	24/06510
Issue Number:	1
Date:	17-Jul-24
Client:	ROCP LIMITED Commercial Wharf 6 Commercial Street Castlefield Manchester M15 4PZ
Project Manager:	Reece McGuinness
Project Name:	Plot 9B First Street
Project Ref:	4770
Order No:	PBJ20277
Date Samples Received:	27-Jun-24
Date Instructions Received:	3-Jul-24
Date Analysis Completed:	17-Jul-24

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

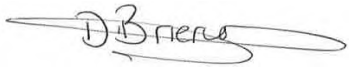
IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

HWOL TPH Code: EH_CU_1D_AL: Extractable hydrocarbons - i.e. everything extracted by the solvent(s), Clean-up - e.g. by florisil, silica gel, GC - Single coil gas chromatography, Aliphatics only

Approved by:



Danielle Brierley
Client Services Supervisor

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	24/06510/1				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				RBH101				
Depth to Top				0.5				
Depth to Bottom								
Date Sampled				24/06/2024				
Sample Type				Soil				
Sample Matrix Code				4AB				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**8.39**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.56**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.08**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**5.3**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**4.38**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**277**		100	-	-
Mineral Oil (mg/kg)$_{A\ EH_CU_1D_AL}$	A-T-007	N	N	**477**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.003	**0.030**	0.5	2	25
Barium	A-T-025	N	N	0.045	**0.450**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	0.009	**0.090**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.007	**0.070**	0.5	10	30
Nickel	A-T-025	N	N	0.002	**0.020**	0.4	10	40
Lead	A-T-025	N	N	0.017	**0.170**	0.5	10	50
Antimony	A-T-025	N	N	0.058	**0.580**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.010	**0.100**	4	50	200
Chloride	A-T-026	N	N	1	**12**	800	15000	25000
Fluoride	A-T-026	N	N	0.6	**6.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	29	**292**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	56	**560**	4000	60000	100000
Phenol Index	A-T-050	N	N	0.04	**0.40**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<2.0	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.5				
Conductivity (µS/cm)	A-T-037	N	N	113				
Mass Sample (kg)				0.185				
Dry Matter (%)	A-T-044	N	N	94.7				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	24/06510/9				
Client Sample Number								
Client Sample ID				WS103				
Depth to Top				1				
Depth to Bottom								
Date Sampled				27/06/2024				
Sample Type				Soil				
Sample Matrix Code				6AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**7.82**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.13**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**3.2**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**0.54**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**1.15**		100	-	-
Mineral Oil (mg/kg)$_{A\ EH_CU_1D_AL}$	A-T-007	N	N	**<10**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1 mg/l**	**10:1 mg/kg**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.001	**0.010**	0.5	2	25
Barium	A-T-025	N	N	0.008	**0.080**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	<0.001	**<0.01**	0.5	10	70
Copper	A-T-025	N	N	<0.004	**<0.04**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.006	**0.060**	0.5	10	30
Nickel	A-T-025	N	N	<0.002	**<0.02**	0.4	10	40
Lead	A-T-025	N	N	<0.001	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	0.002	**0.020**	0.06	0.7	5
Selenium	A-T-025	N	N	0.001	**0.010**	0.1	0.5	7
Zinc	A-T-025	N	N	0.009	**0.090**	4	50	200
Chloride	A-T-026	N	N	<1.00	**<10**	800	15000	25000
Fluoride	A-T-026	N	N	0.1	**1.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	3	**33**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	56	**560**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<2.0	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.4				
Conductivity (µS/cm)	A-T-037	N	N	111				
Mass Sample (kg)				0.194				
Dry Matter (%)	A-T-044	N	N	90.2				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 24/06510/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 24/06510
Issue Number: 2 **Date:** 27 September, 2024

Client: ROCP LIMITED
Commercial Wharf 6 Commercial Street
Castlefield
Manchester
M15 4PZ

Project Manager: Reece McGuinness
Project Name: Plot 9B First Street
Project Ref: 4770
Order No: PBJ20277
Date Samples Received: 27/06/24
Date Instructions Received: 03/07/24
Date Analysis Completed: 26/09/24

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
% Moisture at <40C$_A$	11.7	14.2	14.3	8.1	10.0	11.5	14.8	% w/w	0.1	A-T-044
% Stones >10mm$_A$	15.7	3.9	6.5	5.1	10.6	12.8	13.8	% w/w	0.1	A-T-044
pH$_D^{M\#}$	8.39	8.42	8.02	7.63	7.39	8.18	7.91	pH	0.01	A-T-031s
Electrical conductivity @ 20degC$_D$	-	111	-	-	-	-	197	µs/cm	10	A-T-037s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	71	12	167	41	93	44	72	mg/l	10	A-T-026s
Cyanide (total)$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Fraction of organic carbon$_D^{\#}$	0.0438	0.0216	0.0360	0.0305	0.0021	0.0779	0.0215	N/A	0.0003	A-T-032s
Antimony$_D$	24	14	<5	<5	<5	150	<5	mg/kg	5	A-T-024s
Arsenic$_D^{M\#}$	13	2	11	5	4	19	3	mg/kg	1	A-T-024s
Barium$_D$	204	259	73	51	145	222	62	mg/kg	1	A-T-024s
Beryllium$_D$	1.0	0.7	1.0	<0.5	<0.5	1.4	<0.5	mg/kg	0.5	A-T-024s
Boron (water soluble)$_D^{M\#}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	mg/kg	1	A-T-027s
Cadmium$_D^{M\#}$	1.1	2.4	<0.5	<0.5	<0.5	1.3	<0.5	mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	89	15	72	12	10	151	15	mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	16	12	15	11	10	14	12	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	16	12	15	11	10	14	12	mg/kg	1	Calc
Lead$_D^{M\#}$	412	96	91	12	10	1990	59	mg/kg	1	A-T-024s
Mercury$_D$	0.25	<0.17	<0.17	<0.17	<0.17	0.50	<0.17	mg/kg	0.17	A-T-024s
Molybdenum$_D^{M\#}$	2	<1	2	<1	<1	2	<1	mg/kg	1	A-T-024s
Nickel$_D^{M\#}$	24	38	18	9	11	25	9	mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	4	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Vanadium$_D^{M\#}$	26	12	22	13	9	27	13	mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	206	64	113	27	30	236	41	mg/kg	5	A-T-024s
Redox Potential (water soluble)$_D$	-	158	-	-	-	-	209	mV		Redox
TAME$_A$	-	<0.1	-	-	-	-	<0.1	mg/kg	0.1	A-T-057s
Leachate Prep BS EN 12457-1 (2:1) (3 no)$_A$	-	-	is	-	*	-	-			A-T-001
pH (leachable)$_A$	-	-	is	-	7.33	-	-	pH	0.01	A-T-031w
Sulphate (leachable)$_A$	-	-	is	-	172.67	-	-	mg/l	1	A-T-026w
DOC (leachable)$_A$	-	-	is	-	3.6	-	-	mg/l	2	A-T-032w
Antimony (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Arsenic (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
Boron (leachable)$_A$	-	-	is	-	53	-	-	µg/l	10	A-T-025w
Barium (leachable)$_A$	-	-	is	-	36	-	-	µg/l	1	A-T-025w
Beryllium (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Cadmium (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Copper (leachable)$_A$	-	-	is	-	<4	-	-	µg/l	4	A-T-025w
Chromium (leachable)$_A$	-	-	is	-	5	-	-	µg/l	1	A-T-025w
Chromium (hexavalent) (leachable)$_A$	-	-	is	-	<0.05	-	-	mg/l	0.05	A-T-040w
Chromium (trivalent) (leachable)	-	-	is	-	<0.05	-	-	mg/l	0.05	Calc
Lead (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Mercury (leachable)$_A$	-	-	is	-	<0.1	-	-	µg/l	0.1	A-T-025w
Molybdenum (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Nickel (leachable)$_A$	-	-	is	-	<2	-	-	µg/l	2	A-T-025w
Selenium (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Vanadium (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-025w
Zinc (leachable)$_A$	-	-	is	-	4	-	-	µg/l	2	A-T-025w
Carbon Disulphide (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-006w
Hexachlorobutadiene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-006w
1,2,4-Trimethylbenzene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-006w
Isopropylbenzene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-006w
n-propylbenzene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-006w
Styrene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-006w

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	-	NAD	-	NAD	-			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	-	N/A	-	N/A	-			A-T-045

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
PAH-16MS										
Acenaphthene$_A^{M\#}$	8.07	0.37	<0.01	<0.01	<0.01	0.32	0.27	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.56	0.04	<0.01	<0.01	<0.01	0.05	0.03	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	9.83	0.68	<0.02	<0.02	<0.02	0.52	0.72	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	20.1	1.70	<0.04	<0.04	<0.04	1.64	3.20	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	19	1.67	<0.04	<0.04	<0.04	1.67	3.16	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	22.5	1.86	<0.05	<0.05	<0.05	2.03	3.52	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	11.6	1.13	<0.05	<0.05	<0.05	1.08	1.71	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	8.19	0.59	<0.07	<0.07	<0.07	0.66	1.23	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	22.7	1.71	<0.06	<0.06	<0.06	1.81	3.00	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	2.68	0.24	<0.04	<0.04	<0.04	0.24	0.35	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	47.7	3.99	<0.08	<0.08	<0.08	3.71	7.07	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	6.42	0.28	<0.01	<0.01	<0.01	0.23	0.20	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	11.6	1.05	<0.03	<0.03	<0.03	1.01	1.82	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	3.21	0.07	<0.03	<0.03	<0.03	0.11	0.05	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	37.6	2.72	<0.03	<0.03	<0.03	2.36	2.00	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	41.6	3.53	<0.07	<0.07	<0.07	3.30	5.71	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	273	21.6	<0.08	<0.08	<0.08	20.7	34	mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
PAH 16MS (leachable)										
Acenaphthene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable) $_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Naphthalene (leachable) $_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	-	-	is	-	<0.02	-	-	µg/l	0.02	A-T-019w
Total PAH 16MS (leachable)$_A$	-	-	-	-	<0.02	-	-	µg/l	0.02	A-T-019w

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
Speciated PCB-EC7 & WHO12 (leachable)										
PCB BZ 28 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 52 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 101 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 118 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 138 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 153 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 180 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 77 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 81 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 105 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 114 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 123 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 126 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 156 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 157 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 167 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 169 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
PCB BZ 189 (leachable)$_A$	-	-	is	-	<0.002	-	-	µg/l	0.002	A-T-004w
Total Speciated PCB-EC7 & WHO12 (leachable)$_A$	-	-	-	-	<0.002	-	-	µg/l	0.002	A-T-004w

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Diethyl phthalate$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Dibenzofuran$_A$	-	116	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Carbazole$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	594	<500	-	<500	-	<500	µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
4-Nitrophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2-Nitrophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2-Methylphenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2-Chlorophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
1,4-Dichlorobenzene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
1,3-Dichlorobenzene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
1,2-Dichlorobenzene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Phenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Pentachlorophenol$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
n-Dioctylphthalate$_A$	-	<500	<500	-	<500	-	<500	µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Nitrobenzene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Isophorone$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Hexachloroethane$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Hexachlorobutadiene$_A$	-	<100	<100	-	<100	-	<100	µg/kg	100	A-T-052s
Perylene$_A$	-	558	<100	-	<100	-	255	µg/kg	100	A-T-052s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
SVOC+TICS (UKWIR)										
SVOC TICs (Tentatively Identified Compounds)$_A$	-	None detected	-	-	-	-	None detected			A-T-052s
Acenaphthylene$_A$	-	<100	-	-	-	-	<100	µg/kg	100	A-T-052s
Acenaphthene$_A$	-	302	-	-	-	-	113	µg/kg	100	A-T-052s
Anthracene$_A$	-	493	-	-	-	-	251	µg/kg	100	A-T-052s
Benzo(a)anthracene$_A$	-	1870	-	-	-	-	767	µg/kg	100	A-T-052s
Benzo(b)fluoranthene$_A$	-	2250	-	-	-	-	834	µg/kg	100	A-T-052s
Benzo(k)fluoranthene$_A$	-	578	-	-	-	-	368	µg/kg	100	A-T-052s
Benzo(a)pyrene$_A$	-	2020	-	-	-	-	856	µg/kg	100	A-T-052s
Benzo(ghi)perylene$_A$	-	1330	-	-	-	-	544	µg/kg	100	A-T-052s
Chrysene$_A$	-	1790	-	-	-	-	698	µg/kg	100	A-T-052s
Fluoranthene$_A$	-	4100	-	-	-	-	1720	µg/kg	100	A-T-052s
Fluorene$_A$	-	253	-	-	-	-	134	µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene$_A$	-	1160	-	-	-	-	480	µg/kg	100	A-T-052s
Phenanthrene$_A$	-	2140	-	-	-	-	1110	µg/kg	100	A-T-052s
Pyrene$_A$	-	4060	-	-	-	-	1560	µg/kg	100	A-T-052s
Naphthalene$_A$	-	<100	-	-	-	-	<100	µg/kg	100	A-T-052s
Dibenzo(ah)anthracene$_A$	-	235	-	-	-	-	<100	µg/kg	100	A-T-052s
Cresol & Chlorinated Phenol Total$_A$	-	<100	-	-	-	-	<100	µg/kg	100	A-T-052s
Phenols Total (from SVOC)$_A$	-	<100	-	-	-	-	<100	µg/kg	100	A-T-052s
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)$_A$	-	710	-	-	-	-	<100	µg/kg	100	A-T-052s
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/Nitrobenzene)$_A$	-	710	-	-	-	-	<100	µg/kg	100	A-T-052s
Ethers Total (from SVOC)$_A$	-	<100	-	-	-	-	<100	µg/kg	100	A-T-052s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
VOC										
Dichlorodifluoromethane$_{A}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Chloromethane$_{A}$	-	<10	<10	-	<10	-	<10	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Dichloromethane$_{A}$	-	<5	<5	-	<5	-	<5	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	-	<1^{U}	<1^{U}	-	<1^{U}	-	<1^{U}	µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	-	<5	<5	-	<5	-	<5	µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	-	<2	<2	-	<2	-	<2	µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	-	<10	<10	-	<10	-	<10	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	-	<3	<3	-	<3	-	<3	µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
Chlorobenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	-	-	<1	-	<1	-	-	µg/kg	1	A-T-006s
Ethylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
m & p Xylene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
o-Xylene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Styrene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	-	<3	<3	-	<3	-	<3	µg/kg	3	A-T-006s
Isopropylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	-	<2	<2	-	<2	-	<2	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	-	<2	<2	-	<2	-	<2	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	-	<3	<3	-	<3	-	<3	µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	-	<1	<1	-	<1	-	<1	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	-	<3	<3	-	<3	-	<3	µg/kg	3	A-T-006s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
VOC+TICS (UKWIR)										
VOC Total (excl. BTEX)$_A$	-	<10	-	-	-	-	<10	µg/kg	10	A-T-006s
BTEX Total (from VOC)$_A$	-	<1	-	-	-	-	<1	µg/kg	1	A-T-006s
VOC TICs$_A$	-	None detected	-	-	-	-	None detected			A-T-006s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
TPH CWG (UKWIR) with Clean Up										
Ali >C5-C6$_A$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	-	<1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	-	<1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	-	1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	-	3	1	-	<1	-	<1	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	-	19	5	-	<1	-	12	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	24	-	-	-	-	12	mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	-	<2	<2	-	<2	-	<2	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	-	1	<1	-	<1	-	<1	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	7	2	-	<1	-	2	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	-	34	4	-	<1	-	4	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	-	159	9	-	<1	-	18	mg/kg	1	A-T-055s
EPH Total Ali & Aro (>C10-C16)$_A^{\#}$	-	9	-	-	-	-	2	mg/kg	1	A-T-055s
EPH Total Ali & Aro (>C8-C10)$_A^{\#}$	-	<1	-	-	-	-	<1	mg/kg	1	A-T-055s
EPH Total Ali & Aro (>C16-C35)$_A^{M\#}$	-	215	-	-	-	-	33	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	200	-	-	-	-	24	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	-	224	-	-	-	-	36	mg/kg	1	Calc-As Recd
BTEX and MTBE Total$_A$	-	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Benzene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	<0.01	<0.01	-	<0.01	-	<0.01	mg/kg	0.01	A-T-022s
VPH total (>C5-C8)$_A^{\#}$	-	<0.01	-	-	-	-	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
TPH UKCWG (leachable) with Clean Up										
Ali >C5-C6 (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
Ali >C6-C8 (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
Ali >C8-C10 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Ali >C10-C12 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Ali >C12-C16 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Ali >C16-C21 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Ali >C21-C35 (leachable)$_A$	-	-	is	-	24	-	-	µg/l	20	A-T-055w
Ali >C35-C44 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Total Aliphatics (leachable)$_A$	-	-	is	-	24	-	-	µg/l	10	Calc-As Recd
Aro >C5-C7 (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
Aro >C7-C8 (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
Aro >C8-C10 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Aro >C10-C12 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Aro >C12-C16 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Aro >C16-C21 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Aro >C35-C44 (leachable)$_A$	-	-	is	-	<10	-	-	µg/l	10	A-T-055w
Total Aromatics (leachable) GCxGC$_A$	-	-	is	-	<20	-	-	µg/l	20	Calc-As Recd
TPH (Ali & Aro >C5-C44) (leachable)$_A$	-	-	is	-	24	-	-	µg/l	20	Calc-As Recd
BTEX - Benzene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
BTEX - Toluene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
BTEX - o Xylene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	-	-	is	-	<1	-	-	µg/l	1	A-T-022w
MTBE (leachable)$_A$	-	-	is	-	<2	-	-	µg/l	1	A-T-022w
Aro >C21-C35 (leachable)$_A$	-	-	is	-	<20	-	-	µg/l	20	A-T-055w

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101	WS106	WS106	WS105	WS105	WS104	WS104			
Depth to Top	0.50	0.50	1.80	1.50	3.70	0.70	1.50			
Depth To Bottom										
Date Sampled	24-Jun-24	28-Jun-24	28-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	4AB	4AB	6AE	4A	4A	4AE	6ABE			
TPH UKCWG with Clean Up										
Ali >C35-C44$_A$	-	-	<1	-	<1	-	-	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	7	-	<1	-	-	mg/kg	1	Calc-As Recd
Aro >C35-C44$_A$	-	-	<1	-	<1	-	-	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	15	-	<2	-	-	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C44)$_A$	-	-	22	-	<2	-	-	mg/kg	1	Calc-As Recd

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
% Moisture at <40C$_A$	12.5	13.6	8.8	12.0	8.0	11.1		% w/w	0.1	A-T-044
% Stones >10mm$_A$	2.4	<0.1	<0.1	11.4	8.0	<0.1		% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.82	8.47	8.38	8.06	7.32	8.06		pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	41	89	159	307	84	130		mg/l	10	A-T-026s
Cyanide (total)$_A$$^{M\#}$	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		mg/kg	0.2	A-T-050s
Fraction of organic carbon$_D$$^{\#}$	0.0054	0.0128	0.0739	0.0450	0.0052	0.0107		N/A	0.0003	A-T-032s
Antimony$_D$	<5	<5	7	43	<5	<5		mg/kg	5	A-T-024s
Arsenic$_D$$^{M\#}$	4	2	12	17	3	1		mg/kg	1	A-T-024s
Barium$_D$	56	72	238	328	91	76		mg/kg	1	A-T-024s
Beryllium$_D$	0.6	1.1	1.2	1.2	<0.5	1.0		mg/kg	0.5	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	<0.5	<0.5	1.5	1.5	<0.5	0.6		mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	18	23	61	97	12	21		mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	22	31	18	17	10	27		mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-040s
Chromium (trivalent)	22	31	18	17	10	27		mg/kg	1	Calc
Lead$_D$$^{M\#}$	31	39	352	559	20	14		mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	0.95	<0.17	<0.17		mg/kg	0.17	A-T-024s
Molybdenum$_D$$^{M\#}$	<1	<1	1	2	<1	<1		mg/kg	1	A-T-024s
Nickel$_D$$^{M\#}$	16	32	29	24	13	29		mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1	<1	<1	<1		mg/kg	1	A-T-024s
Vanadium$_D$$^{M\#}$	21	28	29	27	10	28		mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	49	59	258	316	33	63		mg/kg	5	A-T-024s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	-	Trace Amosite	NAD	-	-				A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-				A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	Loose Fibres	-	-	-				A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	-	N/A	N/A	-	-				A-T-045

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing)$_D$	-	-	Trace	-	-	-		% w/w	0.001	A-T-054

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	0.09	0.54	0.46	0.01^U	<0.01^U		mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	0.12	0.10	<0.01	<0.01		mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	0.14	0.99	0.85	0.02	<0.02		mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.10	0.44	3.28	3.32	0.08	<0.04		mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.15	0.44	4.10	3.86	0.10	<0.04		mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.16	0.54	4.53	4.36	0.11	<0.05		mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.10	0.24	2.95	2.73	0.07	<0.05		mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	0.17	1.50	1.39	<0.07	<0.07		mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.11	0.46	3.38	3.44	0.11	<0.06		mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	0.05	0.57	0.55	<0.04	<0.04		mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.19	1.16	6.43	6.87	0.18	<0.08		mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	0.05	0.44	0.32	<0.01	<0.01		mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.10	0.24	2.85	2.67	0.06	<0.03		mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03	0.33	0.12	<0.03	<0.03		mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.04	0.35	3.54	3.28	0.09	0.06		mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.19	1.02	5.87	6.18	0.17	<0.07		mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	1.14	5.39	41.4	40.5	1.00	<0.08		mg/kg	0.01	A-T-019s

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Hexachlorobenzene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Diethyl phthalate$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Dimethyl phthalate$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Dibenzofuran$_A$	-	-	270	-	-	-		µg/kg	100	A-T-052s
Carbazole$_A$	-	-	246	-	-	-		µg/kg	100	A-T-052s
Butylbenzyl phthalate$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate$_A$	-	-	2160	-	-	-		µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
4-Nitrophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
3+4-Methylphenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
4-Chloro-3-methylphenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2-Nitrophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2-Methylphenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2-Chlorophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2,6-Dinitrotoluene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2,4-Dinitrotoluene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2,4-Dimethylphenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2,4-Dichlorophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2,4,6-Trichlorophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2,4,5-Trichlorophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
1,4-Dichlorobenzene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
1,3-Dichlorobenzene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
1,2-Dichlorobenzene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2-Chloronaphthalene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
2-Methylnaphthalene$_A$	-	-	279	-	-	-		µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Phenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Pentachlorophenol$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
n-Dioctylphthalate$_A$	-	-	<500	-	-	-		µg/kg	500	A-T-052s
n-Dibutylphthalate$_A$	-	-	261	-	-	-		µg/kg	100	A-T-052s
Nitrobenzene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Isophorone$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Hexachloroethane$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Hexachlorobutadiene$_A$	-	-	<100	-	-	-		µg/kg	100	A-T-052s
Perylene$_A$	-	-	1130	-	-	-		µg/kg	100	A-T-052s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
VOC										
Dichlorodifluoromethane$_{A}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Chloromethane$_{A}$	-	-	<10	-	-	-		µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene)$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Bromomethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Chloroethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Trichlorofluoromethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1-Dichloroethene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Carbon Disulphide$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Dichloromethane$_{A}$	-	-	<5	-	-	-		µg/kg	5	A-T-006s
trans 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1-Dichloroethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
cis 1,2-Dichloroethene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
2,2-Dichloropropane$_{A}^{\#}$	-	-	<1^{U}	-	-	-		µg/kg	1	A-T-006s
Bromochloromethane$_{A}^{\#}$	-	-	<5	-	-	-		µg/kg	5	A-T-006s
Chloroform$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1,1-Trichloroethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1-Dichloropropene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Carbon Tetrachloride$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,2-Dichloroethane$_{A}^{\#}$	-	-	<2	-	-	-		µg/kg	2	A-T-006s
Benzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Trichloroethene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,2-Dichloropropane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Dibromomethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Bromodichloromethane$_{A}^{\#}$	-	-	<10	-	-	-		µg/kg	10	A-T-006s
cis 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Toluene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
trans 1,3-Dichloropropene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1,2-Trichloroethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,3-Dichloropropane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Tetrachloroethene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Dibromochloromethane$_{A}^{\#}$	-	-	<3	-	-	-		µg/kg	3	A-T-006s
1,2-Dibromoethane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
Chlorobenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane$_{A}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Ethylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
m & p Xylene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
o-Xylene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Styrene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Bromoform$_{A}^{\#}$	-	-	<3	-	-	-		µg/kg	3	A-T-006s
Isopropylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane$_{A}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,2,3-Trichloropropane$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
Bromobenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
n-Propylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
2-Chlorotoluene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
4-Chlorotoluene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
tert-Butylbenzene$_{A}^{\#}$	-	-	<2	-	-	-		µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
sec-Butylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
4-Isopropyltoluene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,3-Dichlorobenzene$_{A}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,4-Dichlorobenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
n-Butylbenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,2-Dichlorobenzene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP)$_{A}$	-	-	<2	-	-	-		µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene$_{A}$	-	-	<3	-	-	-		µg/kg	3	A-T-006s
Hexachlorobutadiene$_{A}^{\#}$	-	-	<1	-	-	-		µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene$_{A}$	-	-	<3	-	-	-		µg/kg	3	A-T-006s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
TPH CWG (UKWIR) with Clean Up										
Ali >C5-C6$_A$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	-	-	<5	-	<1	<1		mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	-	-	<5	-	<1	<1		mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	-	-	<5	-	<1	1		mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	-	-	8	-	1	<1		mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	-	-	99	-	4	6		mg/kg	1	A-T-055s
Aro >C5-C7$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	-	-	8	-	<1	<1		mg/kg	1	A-T-055s
Aro >C10-C12$_A$	-	-	7	-	<1	<1		mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	24	-	1	2		mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	-	-	109	-	1	3		mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	-	-	512	-	5	7		mg/kg	1	A-T-055s
BTEX - Benzene$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	-	<0.01	-	<0.01	<0.01		mg/kg	0.01	A-T-022s

Envirolab Job Number: 24/06510

Client Project Name: Plot 9B First Street

Client Project Ref: 4770

Lab Sample ID	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13	24/06510/14		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS103	WS102	WS105	WS102	WS102				
Depth to Top	1.00	4.80	0.50	0.50	3.40	3.80				
Depth To Bottom		5.00								
Date Sampled	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24				
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL				
Sample Matrix Code	6AE	6A	4AB	4AB	4AB	3A				
TPH UKCWG with Clean Up										
Ali >C35-C44$_A$	-	-	39	-	<1	<1		mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	146	-	5	7		mg/kg	1	Calc-As Recd
Aro >C35-C44$_A$	-	-	34	-	<1	<1		mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	693	-	7	12		mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C44)$_A$	-	-	839	-	12	19		mg/kg	1	Calc-As Recd

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.
Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). "TRACE" will be reported as a quantification result.
PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: ROCP LIMITED, Commercial Wharf 6 Commercial Street, Castlefield, Manchester, M15 4PZ

Project: Plot 9B First Street

Clients Project No: 4770

Project No: 24/06510

Date Received: 03/07/2024 (am)

Cool Box Temperatures (°C): 16.3, 20.1

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13
Client Sample No												
Client Sample ID/Depth	RBH101 0.50m	WS106 0.50m	WS106 1.80m	WS105 1.50m	WS105 3.70m	WS104 0.70m	WS104 1.50m	WS103 1.00m	WS103 4.80-5.00m	WS102 0.50m	WS105 0.50m	WS102 3.40m
Date Sampled	24/06/24	28/06/24	28/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
A-T-004s	16/07/2024							16/07/2024				
A-T-004w			08/07/2024		12/07/2024							
A-T-006s		08/07/2024	08/07/2024		08/07/2024		08/07/2024			08/07/2024		
A-T-006w			08/07/2024		11/07/2024							
A-T-007s	10/07/2024							10/07/2024				
A-T-019s	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024	14/07/2024
A-T-019w			08/07/2024		14/07/2024							
A-T-022s	09/07/2024	08/07/2024	08/07/2024		08/07/2024		08/07/2024	09/07/2024		08/07/2024		09/07/2024
A-T-022w			08/07/2024		11/07/2024							
A-T-024s	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	11/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	16/07/2024
A-T-025w	17/07/2024		08/07/2024		11/07/2024			17/07/2024				
A-T-026s	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	16/07/2024
A-T-026w	17/07/2024		08/07/2024		12/07/2024			17/07/2024				
A-T-026w (F)	17/07/2024							17/07/2024				
A-T-027s	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	16/07/2024
A-T-030s	16/07/2024							16/07/2024				
A-T-031s	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	16/07/2024
A-T-031w	17/07/2024		08/07/2024		11/07/2024			17/07/2024				
A-T-032s	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	09/07/2024	10/07/2024	16/07/2024
A-T-032w	17/07/2024		08/07/2024		13/07/2024			17/07/2024				
A-T-037s		11/07/2024					11/07/2024					
A-T-037w	17/07/2024							17/07/2024				
A-T-040s	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	16/07/2024
A-T-040w			08/07/2024		12/07/2024							
A-T-042sTCN	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024	09/07/2024
A-T-044	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024	26/09/2024
A-T-045	05/07/2024	05/07/2024		05/07/2024		05/07/2024		05/07/2024		05/07/2024	09/07/2024	
A-T-050s	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024	12/07/2024
A-T-050w	17/07/2024							17/07/2024				
A-T-052s		16/07/2024	10/07/2024		10/07/2024		16/07/2024			10/07/2024		
A-T-054										09/07/2024		
A-T-055s		15/07/2024	17/07/2024		15/07/2024		15/07/2024			16/07/2024		15/07/2024

Lab Sample ID	24/06510/1	24/06510/3	24/06510/4	24/06510/5	24/06510/6	24/06510/7	24/06510/8	24/06510/9	24/06510/10	24/06510/11	24/06510/12	24/06510/13
Client Sample No												
Client Sample ID/Depth	RBH101 0.50m	WS106 0.50m	WS106 1.80m	WS105 1.50m	WS105 3.70m	WS104 0.70m	WS104 1.50m	WS103 1.00m	WS103 4.80-5.00m	WS102 0.50m	WS105 0.50m	WS102 3.40m
Date Sampled	24/06/24	28/06/24	28/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
A-T-055w			08/07/2024		11/07/2024							
A-T-057s		15/07/2024					15/07/2024					
A-T-ANCs	16/07/2024							16/07/2024				
Calc	10/07/2024	10/07/2024	10/07/2024	10/07/2024	12/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	10/07/2024	16/07/2024
Calc-As Recd		10/07/2024	10/07/2024		11/07/2024		10/07/2024			12/07/2024		09/07/2024
Calc-no stones	17/07/2024							17/07/2024				
Probe (w)	17/07/2024							17/07/2024				
Redox		11/07/2024					11/07/2024					

Lab Sample ID	24/06510/14
Client Sample No	
Client Sample ID/Depth	WS102 3.80m
Date Sampled	27/06/24
A-T-004s	
A-T-004w	
A-T-006s	
A-T-006w	
A-T-007s	
A-T-019s	14/07/2024
A-T-019w	
A-T-022s	09/07/2024
A-T-022w	
A-T-024s	16/07/2024
A-T-025w	
A-T-026s	16/07/2024
A-T-026w	
A-T-026w (F)	
A-T-027s	16/07/2024
A-T-030s	
A-T-031s	16/07/2024
A-T-031w	
A-T-032s	16/07/2024
A-T-032w	
A-T-037s	
A-T-037w	
A-T-040s	16/07/2024
A-T-040w	
A-T-042sTCN	09/07/2024
A-T-044	26/09/2024
A-T-045	
A-T-050s	12/07/2024
A-T-050w	
A-T-052s	
A-T-054	
A-T-055s	15/07/2024
A-T-055w	
A-T-057s	

Lab Sample ID	24/06510/14
Client Sample No	
Client Sample ID/Depth	WS102 3.80m
Date Sampled	27/06/24
A-T-ANCs	
Calc	16/07/2024
Calc-As Recd	09/07/2024
Calc-no stones	
Probe (w)	
Redox	

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/06955
Issue Number: 1 **Date:** 24 July, 2024

Client: ROCP LIMITED
Commercial Wharf 6 Commercial Street
Castlefield
Manchester
M15 4PZ

Project Manager: Reece McGuinness
Project Name: First Street, Manchester, Plot 90
Project Ref: 4770
Order No: PBJ20282
Date Samples Received: 16/07/24
Date Instructions Received: 16/07/24
Date Analysis Completed: 24/07/24

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

UKAS TESTING 1247

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
pH (w)$_{A}^{\#}$	6.88							pH	0.01	A-T-031w
COD (settled)$_{A}^{\#}$	10							mg/l	5	A-T-034w
BOD (settled, 5 day)$_{A}$	<1							mg/l	1	A-T-048
Hardness Total$_{A}^{\#}$	553							mg/l Ca CO3	4	A-T-049w
Sulphate (w)$_{A}^{\#}$	321							mg/l	1	A-T-026w
Cyanide (total) (w)$_{A}^{\#}$	<0.005							mg/l	0.005	A-T-042wTCN
Phenols - Total by HPLC (w)$_{A}$	<0.01							mg/l	0.01	A-T-050w
DOC - Dissolved Organic Carbon (w)$_{A}^{\#}$	2.3							mg/l	2	A-T-032w
Antimony (dissolved)$_{A}$	<1							µg/l	1	A-T-025w
Arsenic (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Boron (dissolved)$_{A}^{\#}$	209							µg/l	10	A-T-025w
Barium (dissolved)$_{A}^{\#}$	182							µg/l	1	A-T-025w
Beryllium (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Cadmium (dissolved)$_{A}^{\#}$	<0.2							µg/l	0.2	A-T-025w
Copper (dissolved)$_{A}^{\#}$	<4							µg/l	4	A-T-025w
Chromium (dissolved)$_{A}^{\#}$	1							µg/l	1	A-T-025w
Chromium (hexavalent) (w)$_{A}^{\#}$	<0.01							mg/l	0.01	A-T-040w
Chromium (trivalent) (w)	<0.01							mg/l	0.01	Calc
Lead (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Mercury (dissolved)$_{A}^{\#}$	<0.1							µg/l	0.1	A-T-025w
Molybdenum (dissolved)$_{A}^{\#}$	1.3							µg/l	0.5	A-T-025w
Nickel (dissolved)$_{A}^{\#}$	4							µg/l	2	A-T-025w
Selenium (dissolved)$_{A}^{\#}$	3							µg/l	1	A-T-025w
Vanadium (dissolved)$_{A}^{\#}$	<1							µg/l	1	A-T-025w
Zinc (dissolved)$_{A}^{\#}$	4							µg/l	2	A-T-025w

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
PAH 16MS (w)										
Acenaphthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Acenaphthylene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Anthracene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(a)anthracene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(a)pyrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(ghi)perylene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Chrysene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Fluoranthene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Fluorene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Naphthalene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Phenanthrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Pyrene (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w
Total PAH 16MS (w)$_A^\#$	<0.01							µg/l	0.01	A-T-019w

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
SVOC (excluding PAH-16) (w)										
1,2,4-Trichlorobenzene$_A$	<1							µg/l	1	A-T-052w
1,2-Dichlorobenzene$_A$	<1							µg/l	1	A-T-052w
1,3-Dichlorobenzene$_A$	<1							µg/l	1	A-T-052w
1,4-Dichlorobenzene$_A$	<1							µg/l	1	A-T-052w
2,4,5-Trichlorophenol$_A$	<1							µg/l	1	A-T-052w
2,4,6-Trichlorophenol$_A$	<1							µg/l	1	A-T-052w
2,4-Dichlorophenol$_A$	<1							µg/l	1	A-T-052w
2,4-Dimethylphenol$_A$	<1							µg/l	1	A-T-052w
2,4-Dinitrotoluene$_A$	<1							µg/l	1	A-T-052w
2,6-Dinitrotoluene$_A$	<1							µg/l	1	A-T-052w
2-Chloronaphthalene$_A$	<1							µg/l	1	A-T-052w
2-Chlorophenol$_A$	<1							µg/l	1	A-T-052w
2-Methylnaphthalene$_A$	<1							µg/l	1	A-T-052w
2-Methylphenol$_A$	<1							µg/l	1	A-T-052w
2-Nitrophenol$_A$	<1							µg/l	1	A-T-052w
4-Bromophenyl phenyl ether$_A$	<1							µg/l	1	A-T-052w
4-Chloro-3-methylphenol$_A$	<1							µg/l	1	A-T-052w
Bis(2-chloroisopropyl)ether$_A$	<1							µg/l	1	A-T-052w
3+4-Methylphenol$_A$	<1							µg/l	1	A-T-052w
4-Nitrophenol$_A$	<1							µg/l	1	A-T-052w
Bis(2-chloroethyl)ether$_A$	<1							µg/l	1	A-T-052w
Bis(2-chloroethoxy)methane$_A$	<1							µg/l	1	A-T-052w
Bis(2-ethylhexyl)phthalate$_A$	<10							µg/l	10	A-T-052w
Butylbenzyl phthalate$_A$	<1							µg/l	1	A-T-052w
Carbazole$_A$	<1							µg/l	1	A-T-052w
Dibenzofuran$_A$	<1							µg/l	1	A-T-052w
n-Dibutylphthalate$_A$	<1							µg/l	1	A-T-052w
n-Dioctylphthalate$_A$	<10							µg/l	10	A-T-052w
n-Nitroso-n-dipropylamine$_A$	<1							µg/l	1	A-T-052w
Diethyl phthalate$_A$	<1							µg/l	1	A-T-052w
Dimethyl phthalate$_A$	<1							µg/l	1	A-T-052w
Hexachlorobutadiene$_A$	<1							µg/l	1	A-T-052w

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
Hexachlorobenzene SVOC$_A$	<1							µg/l	1	A-T-052w
Pentachlorophenol SVOC$_A$	<1							µg/l	1	A-T-052w
Phenol$_A$	<1							µg/l	1	A-T-052w
Hexachloroethane$_A$	<1							µg/l	1	A-T-052w
Nitrobenzene$_A$	<1							µg/l	1	A-T-052w
Isophorone$_A$	<1							µg/l	1	A-T-052w
Perylene$_A$	<1							µg/l	1	A-T-052w

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
VOC (w)										
Dichlorodifluoromethane$_A$	<1							µg/l	1	A-T-006w
Chloromethane$_A$	<10							µg/l	10	A-T-006w
Vinyl Chloride$_A^{\#}$	<1							µg/l	1	A-T-006w
Bromomethane$_A^{\#}$	<1							µg/l	1	A-T-006w
Chloroethane$_A^{\#}$	<1							µg/l	1	A-T-006w
Trichlorofluoromethane$_A^{\#}$	<1							µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^{\#}$	<1							µg/l	1	A-T-006w
Dichloromethane$_A$	<5							µg/l	5	A-T-006w
Carbon Disulphide$_A^{\#}$	<1							µg/l	1	A-T-006w
1,1-Dichloroethene$_A^{\#}$	<1							µg/l	1	A-T-006w
1,1-Dichloroethane$_A^{\#}$	<1							µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^{\#}$	<1							µg/l	1	A-T-006w
Bromochloromethane$_A^{\#}$	<5							µg/l	5	A-T-006w
Chloroform$_A^{\#}$	2							µg/l	1	A-T-006w
2,2-Dichloropropane$_A^{\#}$	<1							µg/l	1	A-T-006w
1,2-Dichloroethane$_A^{\#}$	<2							µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^{\#}$	<1							µg/l	1	A-T-006w
1,1-Dichloropropene$_A^{\#}$	<1							µg/l	1	A-T-006w
Benzene$_A^{\#}$	<1							µg/l	1	A-T-006w
Carbon Tetrachloride$_A^{\#}$	<1							µg/l	1	A-T-006w
Dibromomethane$_A^{\#}$	<1							µg/l	1	A-T-006w
1,2-Dichloropropane$_A^{\#}$	<1							µg/l	1	A-T-006w
Bromodichloromethane$_A^{\#}$	<10							µg/l	10	A-T-006w
Trichloroethene$_A^{\#}$	<1							µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^{\#}$	<1							µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^{\#}$	<1							µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^{\#}$	<1							µg/l	1	A-T-006w
Toluene$_A^{\#}$	<1							µg/l	1	A-T-006w
1,3-Dichloropropane$_A^{\#}$	<1							µg/l	1	A-T-006w
Dibromochloromethane$_A^{\#}$	<3							µg/l	3	A-T-006w
1,2-Dibromoethane$_A^{\#}$	<1							µg/l	1	A-T-006w
Tetrachloroethene$_A$	<1							µg/l	1	A-T-006w

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
1,1,1,2-Tetrachloroethane$_A$	<1							µg/l	1	A-T-006w
Chlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
Ethylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
m & p Xylene$_A^\#$	<1							µg/l	1	A-T-006w
Bromoform$_A^\#$	<3							µg/l	3	A-T-006w
Styrene$_A^\#$	<1							µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1							µg/l	1	A-T-006w
o-Xylene$_A^\#$	<1							µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1							µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1							µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1							µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1							µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1							µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	<2							µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2							µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3							µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3							µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1							µg/l	1	A-T-006w

Envirolab Job Number: 24/06955

Client Project Name: First Street, Manchester, Plot 90

Client Project Ref: 4770

Lab Sample ID	24/06955/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	RBH101									
Depth to Top	9.50									
Depth To Bottom										
Date Sampled	16-Jul-24									
Sample Type	WATER - EW									
Sample Matrix Code	N/A									
TPH UKCWG (w) with Clean Up										
Ali >C5-C6 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Ali >C8-C10 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Ali >C10-C12 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Ali >C12-C16 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Ali >C16-C21 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Ali >C21-C35 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Ali >C35-C44 $(w)_A$	<5							µg/l	5	A-T-055w
Total Aliphatics $(w)_A$	<5							µg/l	5	Calc-As Recd
Aro >C5-C7 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Aro >C8-C10 $(w)_A$	<5							µg/l	5	A-T-055w
Aro >C10-C12 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Aro >C12-C16 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Aro >C16-C21 $(w)_A^{\#}$	<5							µg/l	5	A-T-055w
Aro >C21-C35 $(w)_A^{\#}$	<10							µg/l	10	A-T-055w
Aro >C35-C44 $(w)_A$	<5							µg/l	5	A-T-055w
Total Aromatics $(w)_A$	<10							µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C44) $(w)_A$	<10							µg/l	10	Calc-As Recd
BTEX - Benzene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
MTBE $(w)_A^{\#}$	<1							µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "D" on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
Trace	Asbestos found not suitable for Gravimetric Quantification – not enough to accurately weigh.
N/A	Not applicable

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.
Quantification: Generally a 2 stage process including visual identification, hand picking and weighing, and fibre counting. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres). "TRACE" will be reported as a quantification result.
PLEASE INFORM THE LABORATORY IF YOU WOULD LIKE THE STAGE 3 SEDIMENTATION PROCESS CARRIED OUT. Note this will be subcontracted.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: ROCP LIMITED, Commercial Wharf 6 Commercial Street, Castlefield, Manchester, M15 4PZ

Project: First Street, Manchester, Plot 90

Clients Project No: 4770

Project No: 24/06955

Date Received: 16/07/2024 (pm)

Cool Box Temperatures (°C): 13.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/06955/1
Client Sample No	
Client Sample ID/Depth	RBH101 9.50m
Date Sampled	16/07/24
A-T-006w	18/07/2024
A-T-019w	19/07/2024
A-T-022w	22/07/2024
A-T-025w	22/07/2024
A-T-026w	18/07/2024
A-T-031w	18/07/2024
A-T-032w	24/07/2024
A-T-034w	18/07/2024
A-T-040w	18/07/2024
A-T-042wTCN	19/07/2024
A-T-048	22/07/2024
A-T-049w	18/07/2024
A-T-050w	19/07/2024
A-T-052w	24/07/2024
A-T-055w	19/07/2024
Calc	22/07/2024
Calc-As Recd	22/07/2024

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX D – GEOTECHNICAL TESTING RESULTS

SOCOTEC
Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Materials Testing

Project: 24092885

Quote: BEC240937074 V1.1

Project Ref: ROC Consulting

Site: P242090-Comerical Wharf 6

Contact: Hannah Wortley

Address: SOCOTEC Central
Leofric Business Park
Progress Close
Coventry
CV3 2TF

E-Mail: Hannah.Wortley@socotec.co.uk

Phone: 07485985091

No. Samples Received: 2

Date Received: 23/09/2024

Analysis Completed: 27/09/2024

Date Issued: 27/09/2024

Report Type: Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Co-Ordinator
Julie Dickinson
01283 554670
Julie.Dickinson@socotec.co.uk

Project Number: 24092885

Client: SOCOTEC Materials Testing
Date Issued: 27/09/2024
Project Name: ROC Consulting - P242090-Comerical Wharf 6

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
24092885-001	CEN24-01790-S002		SOLID	Silt Sample
24092885-002	CEN24-01790-S010		SOLID	Silt Sample

Project Number: 24092885

Client: SOCOTEC Materials Testing
Date Issued: 27/09/2024
Project Name: ROC Consulting - P242090-Comerical Wharf 6

UKAS TESTING 1252

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID: 24092885-001 / Sampling Date: / Customer ID: CEN24-01790-S002	SOCOTEC Sample ID: 24092885-002 / Sampling Date: / Customer ID: CEN24-01790-S010
CLANDPREP	Total Moisture at 35°C	0.1 %	N	7.7	8.5
	Major Constituents	-	N	SILT	SILT
	Minor Constituents	-	N	Gravel	Gravel
	Miscellaneous Constituents	-	N	n/a	n/a
	Colour of Material	-	N	Brown	Brown
ICPWSS	Water Soluble Sulphate as SO4 2:1 Ext	10 mg/l	U	45	20
ICPACIDS	Acid Soluble Sulphate as SO4	20 mg/kg	U	154	76
WSLM59	Sulphur as S	0.005 % m/m	N	0.011	<0.005

Project Number: 24092885

Client: SOCOTEC Materials Testing
Date Issued: 27/09/2024
Project Name: ROC Consulting - P242090-Comerical Wharf 6

Deviating Sample Report

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
CEN24-01790-S002	24092885-001	**CLANDPREP**					✓	✓
CEN24-01790-S002	24092885-001	**ICPACIDS**					✓	✓
CEN24-01790-S002	24092885-001	**ICPWSS**					✓	✓
CEN24-01790-S002	24092885-001	**WSLM59**					✓	✓
CEN24-01790-S010	24092885-002	**CLANDPREP**					✓	✓
CEN24-01790-S010	24092885-002	**ICPACIDS**					✓	✓
CEN24-01790-S010	24092885-002	**ICPWSS**					✓	✓
CEN24-01790-S010	24092885-002	**WSLM59**					✓	✓

Analysis Method

Method Code	Method Description	Analysis Method
CLANDPREP	Moisture Content @ 35°C	As Received
CLANDPREP	Solid Material Description	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.

F Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.

G The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any accreditation marked with ^ signify results are reported on a dry weight basis of 105 ° C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any results marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by another SOCOTEC department or by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

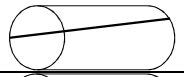
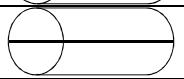
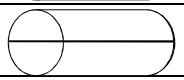
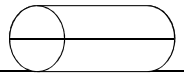
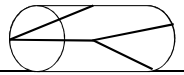
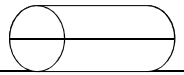
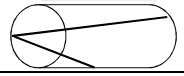
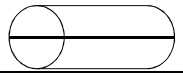
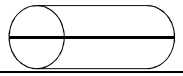
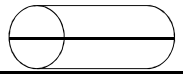
Summaries of analysis methods are available upon request.

End of Certificate of Analysis

ISRM : 1985 DETERMINATION OF POINT LOAD STRENGTH

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CV3 2TF
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UKAS TESTING
0001

BH No.	Depth (m)	Sample No.	Rock Type	Test Type (D, A, B)	Sample Width (Axial & Block) W (mm)	Point Separation D (mm)	Failure Load P (kN)	Equivalent Diameter De (mm)	P/De2 Is (MPa)	Correction Factor F	Point Load Index $Is_{(50)}$ (MPa)	Conversion Factor C *	Characteristic UCS * (MPa)	Sketched Mode of Failure	Load direction relative to discontinuities ⊥ ∥ ⫽ N/A	Failure Validation (V or I)	Strength Term (BS 5930:1999 Amdt.1/ BS EN ISO 14689-1:2003)
RBH-101A	8.6-8.64	01790-S001	Brown firm sandy siltstone	B	W1 (B) 48.72 W2 (B) 48.26 W (A) 48	33	0.60	45	0.3	1.0	0.3	21.0	5.9		N/A	V	Weak
RBH-101A	8.77-8.92	01790-S002	Reddish brown firm sandstone with clay pockets	A	W1 (B) 89.22 W2 (B) W (A) 89	68	0.20	88	0.0	1.3	0.0	21.0	0.7			V	Extremely weak
RBH-101A	10.56-10.64	01790-S004	Reddish brown firm sandstone with clay pockets	A	W1 (B) 89.66 W2 (B) W (A) 90	52	0.90	77	0.2	1.2	0.2	21.0	3.9			V	Very weak
RBH-101A	11.12-11.25	01790-S005	Reddish brown firm sandstone with clay pockets	A	W1 (B) 88.71 W2 (B) W (A) 89	68	0.60	88	0.1	1.3	0.1	21.0	2.1			V	Very weak
RBH-101A	13.29-13.36	01790-S007	Reddish brown firm sandstone with clay pockets	A	W1 (B) 91.18 W2 (B) W (A) 91	39	1.70	67	0.4	1.1	0.4	21.0	9.0			V	Weak
RBH-101A	14.07-14.28	01790-S008	Reddish brown firm sandstone with clay pockets	A	W1 (B) 88.54 W2 (B) W (A) 89	62	1.60	84	0.2	1.3	0.3	21.0	6.1			V	Weak
RBH-101A	16.7-16.75	01790-S011	Reddish brown firm sandstone with clay pockets	A	W1 (B) 89.73 W2 (B) W (A) 90	43	0.50	70	0.1	1.2	0.1	21.0	2.5			V	Very weak
RBH-101A	17.52-17.63	01790-S012	Reddish brown firm sandstone with clay pockets	A	W1 (B) 84.02 W2 (B) W (A) 84	52	2.10	75	0.4	1.2	0.5	21.0	9.5			V	Weak
RBH-101A	19.02-19.10	01790-S013	Reddish brown firm sandstone with clay pockets	A	W1 (B) 90.26 W2 (B) W (A) 90.26	80	3.60	96	0.4	1.3	0.5	21.0	11.0			V	Weak
RBH-101A	20.19-20.37	01790-S015	Reddish brown firm sandstone with clay pockets	A	W1 (B) 89.54 W2 (B) W (A) 90	47	2.50	73	0.5	1.2	0.6	21.0	11.6			V	Weak

Test type:
D = Diametral, A = Axial, B = Block/Lump

Failure validation:
V = Valid, I = Invalid

* From ASTM D 5731- 05 "Standard Test Method for Determination of the Point Load Strength Index of Rock"

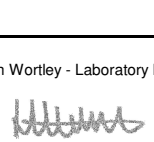
Site: Comercial Wharf 6 Commercial Street Manchester

Client: ROC Consulting

Contract No. P242090/24/01

Date tested: 04/10/2024

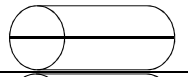
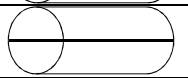
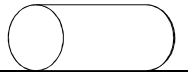
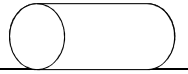
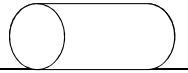
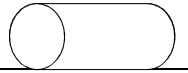
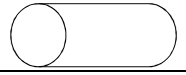
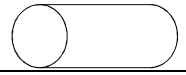
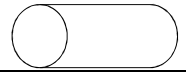
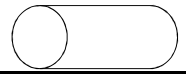
Checked and Approved Hannah Wortley - Laboratory Manager



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UKAS TESTING
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BH No.	Depth (m)	Sample No.	Rock Type	Test Type (D, A, B)	Sample Width (Axial & Block) W (mm)	Point Separation D (mm)	Failure Load P (kN)	Equivalent Diameter De (mm)	P/De2 Is (MPa)	Correction Factor F	Point Load Index $Is_{(50)}$ (MPa)	Conversion Factor C *	Characteristic UCS * (MPa)	Sketched Mode of Failure	Load direction relative to discontinuities ⊥ ∥ ⫽ N/A	Failure Validation (V or I)	Strength Term (BS 5930:1999 Amdt.1/ BS EN ISO 14689-1:2003)
RBH-101A	22.1-22.4	01790-S016	Reddish brown firm sandstone with clay pockets	A	W1 (B) 90.16 W2 (B) W (A) 90	65	3.90	86	0.5	1.3	0.7	21.0	14.0			V	Weak
RBH-101A	25.3-25.5	01790-S018	Reddish brown firm sandstone with clay pockets	A	W1 (B) 89.86 W2 (B) W (A) 90	57	1.60	81	0.2	1.2	0.3	21.0	6.4			V	Weak
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	
					W1 (B) W2 (B) W (A)							21.0				V	

Test type:	Failure validation:
D = Diametral, A = Axial, B = Block/Lump	V = Valid, I = Invalid

* From ASTM D 5731- 05 "Standard Test Method for Determination of the Point Load Strength Index of Rock"

Site: Comercial Wharf 6 Commercial Street Manchester

Client: ROC Consulting

Contract No. P242090/24/02

Date tested: 04/10/2024

Checked and Approved Hannah Wortley - Laboratory Manager



LABORATORY REPORT

Contract Number: PSL24/4721

Report Date: 09 August 2024

Client's Reference: 4770

Client Name: ROC Consulting
Langar Road
Barnstone
Nottingham
NG13 9GH

For the attention of: Reece Mcguinness

Contract Title: Plot 9B First Street

Date Received: 3/7/2024
Date Commenced: 3/7/2024
Date Completed: 9/8/2024

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

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Doncaster,
DN4 0AR
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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
WS102		B	1.10	3.00	Brown slightly clayey silty SAND & GRAVEL.
WS102		D	4.20		Brown gravelly very sandy CLAY.
WS103		D	1.40		Brown gravelly sandy CLAY.
WS103		D	4.50		Brown gravelly sandy CLAY.
WS105		B	0.50		Brown slightly clayey silty SAND & GRAVEL.
WS105		B	1.20	3.90	Brown very gravelly silty SAND.
WS105		D	4.80	5.00	Brown slightly gravelly very sandy CLAY.
RBH101		D	3.00		Brown very gravelly very sandy CLAY.
RBH101		D	4.00		Stiff brown very gravelly very sandy CLAY.
RBH101		D	5.00		Brown slightly gravelly slightly sandy CLAY.
RBH101		U	4.00	5.00	Stiff brown slightly sandy CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Plot 9B First Street

Contract No:
PSL24/4721
Client Ref:
4770

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
WS102		D	4.20		14			34	18	16	83	Low Plasticity CL
WS103		D	1.40		21			38	19	19	89	Intermediate Plasticity CI
WS103		D	4.50		20			40	21	19	87	Intermediate Plasticity CI
WS105		D	4.80	5.00	13			31	17	14	93	Low Plasticity CL
RBH101		D	3.00		10			27	14	13	65	Low Plasticity CL
RBH101		D	4.00		12			29	15	14	68	Low Plasticity CL
RBH101		D	5.00		17			43	24	19	97	Intermediate Plasticity CI

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

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PSL PROFESSIONAL SOILS LABORATORY A PRENNA GROUP COMPANY

Plot 9B First Street

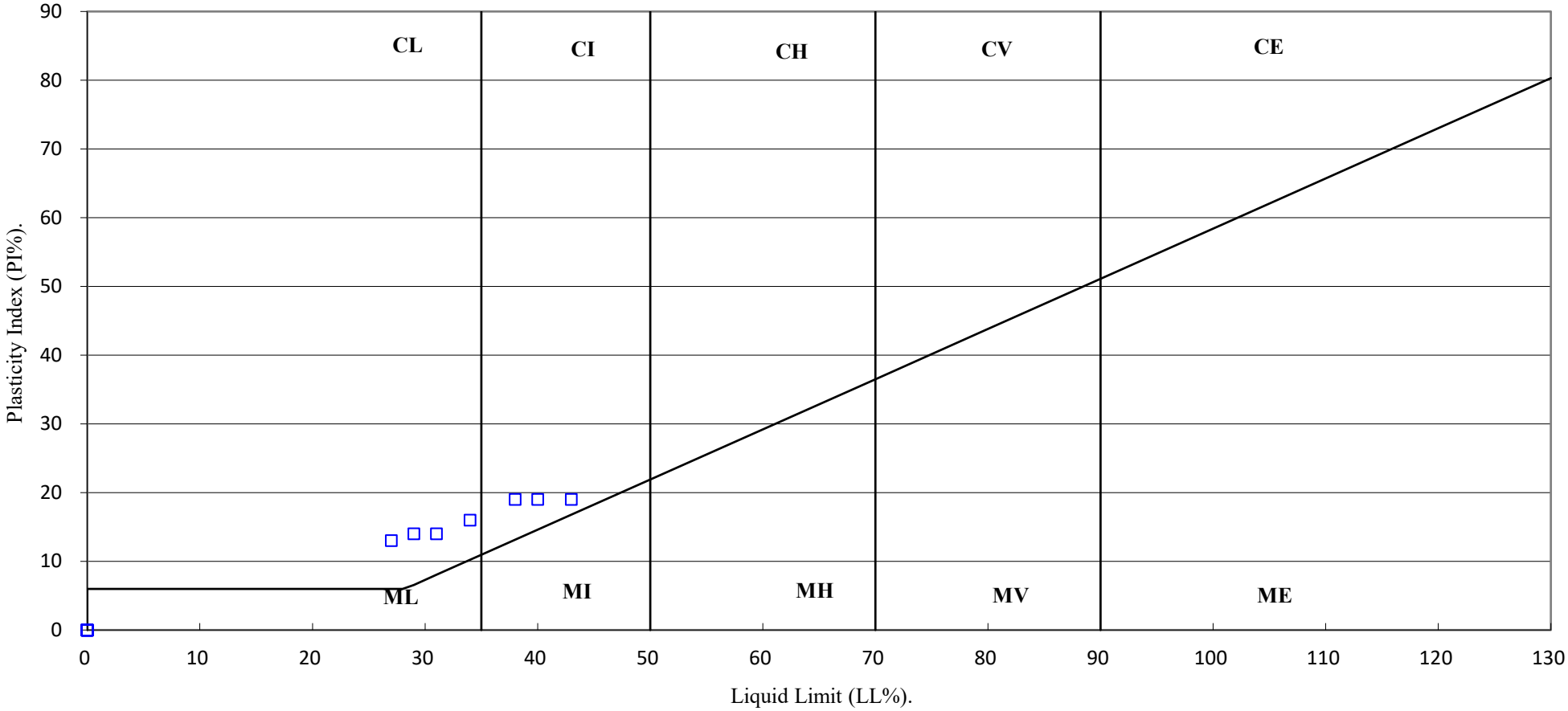
Contract No:

PSL24/4721

Client Ref:

4770

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	Plot 9B First Street	Contract No: PSL24/4721
PROFESSIONAL SOILS LABORATORY A PRENNA GROUP COMPANY		Client Ref: 4770

PARTICLE SIZE DISTRIBUTION TEST

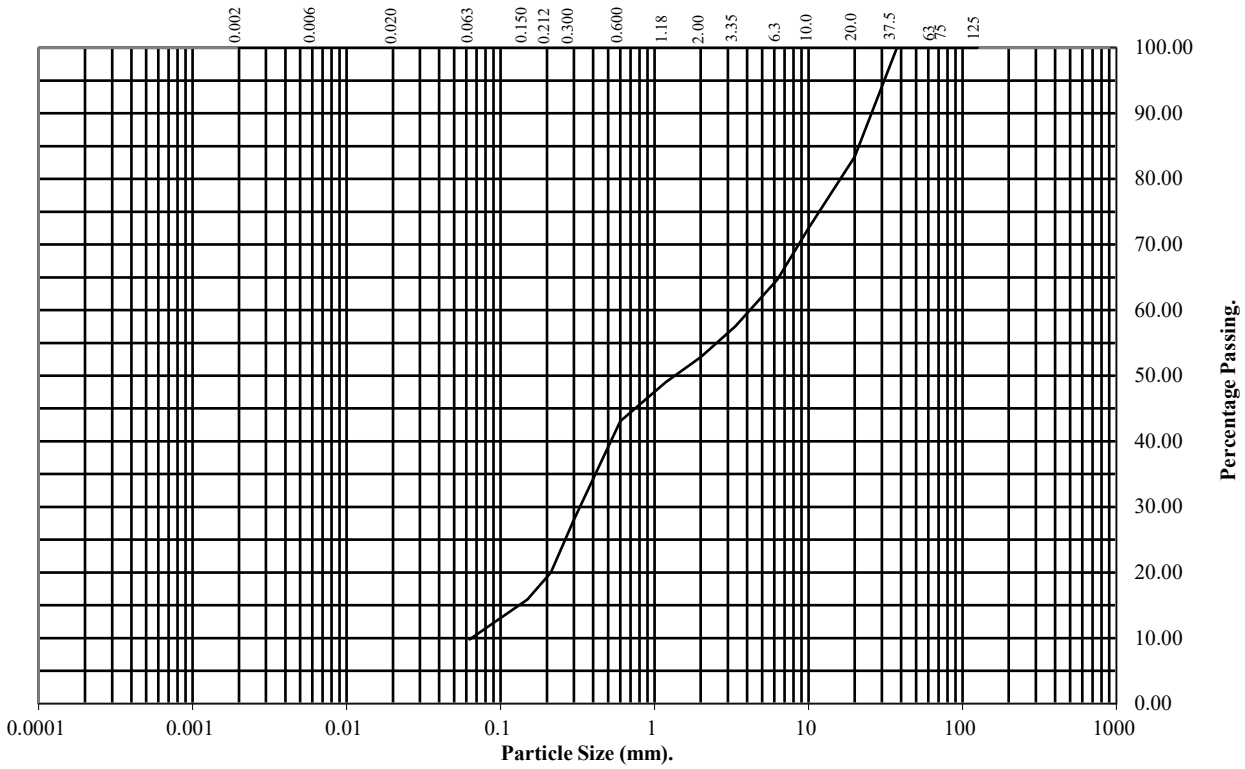
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **WS102** **Top Depth (m):** **1.10**

Sample Number: **Base Depth(m):** **3.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	83
10	72
6.3	65
3.35	58
2	53
1.18	49
0.6	43
0.3	28
0.212	20
0.15	16
0.063	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	47
Sand	43
Silt/Clay	10

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Plot 9B First Street

Contract No: PSL24/4721

Client Ref: 4770

PARTICLE SIZE DISTRIBUTION TEST

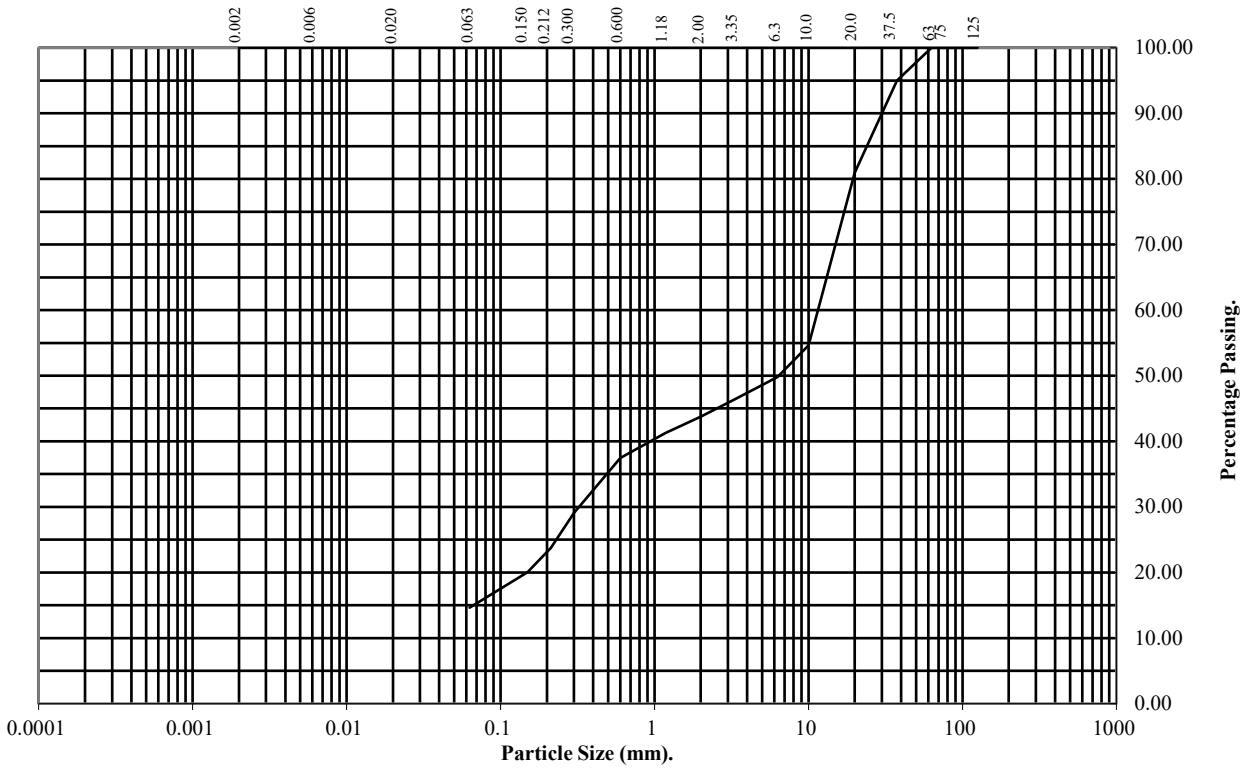
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **WS105** **Top Depth (m):** **0.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	95
20	81
10	55
6.3	50
3.35	46
2	44
1.18	41
0.6	37
0.3	29
0.212	24
0.15	20
0.063	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	29
Silt/Clay	15

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Plot 9B First Street

Contract No: PSL24/4721

Client Ref: 4770

PARTICLE SIZE DISTRIBUTION TEST

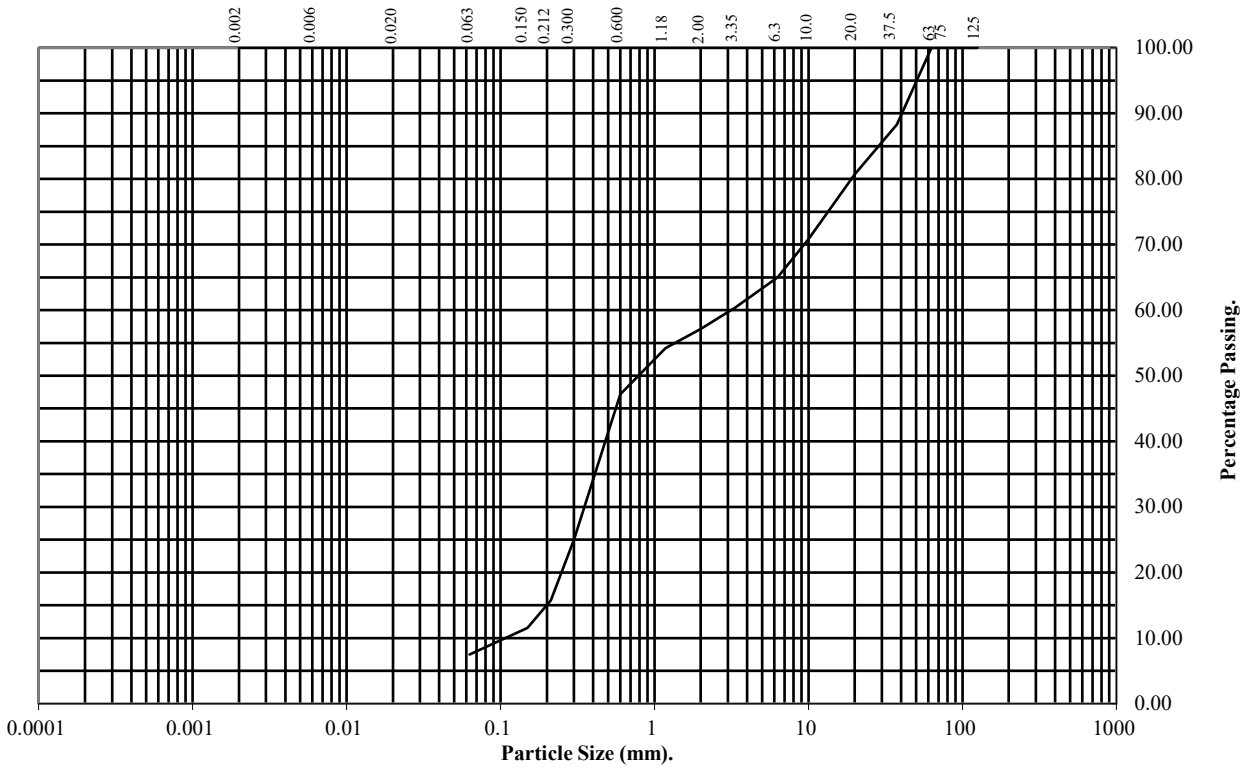
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **WS105** **Top Depth (m):** **1.20**

Sample Number: **Base Depth(m):** **3.90**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	88
20	81
10	71
6.3	65
3.35	60
2	57
1.18	54
0.6	47
0.3	25
0.212	16
0.15	12
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	43
Sand	50
Silt/Clay	7

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Plot 9B First Street

Contract No: PSL24/4721

Client Ref: 4770

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

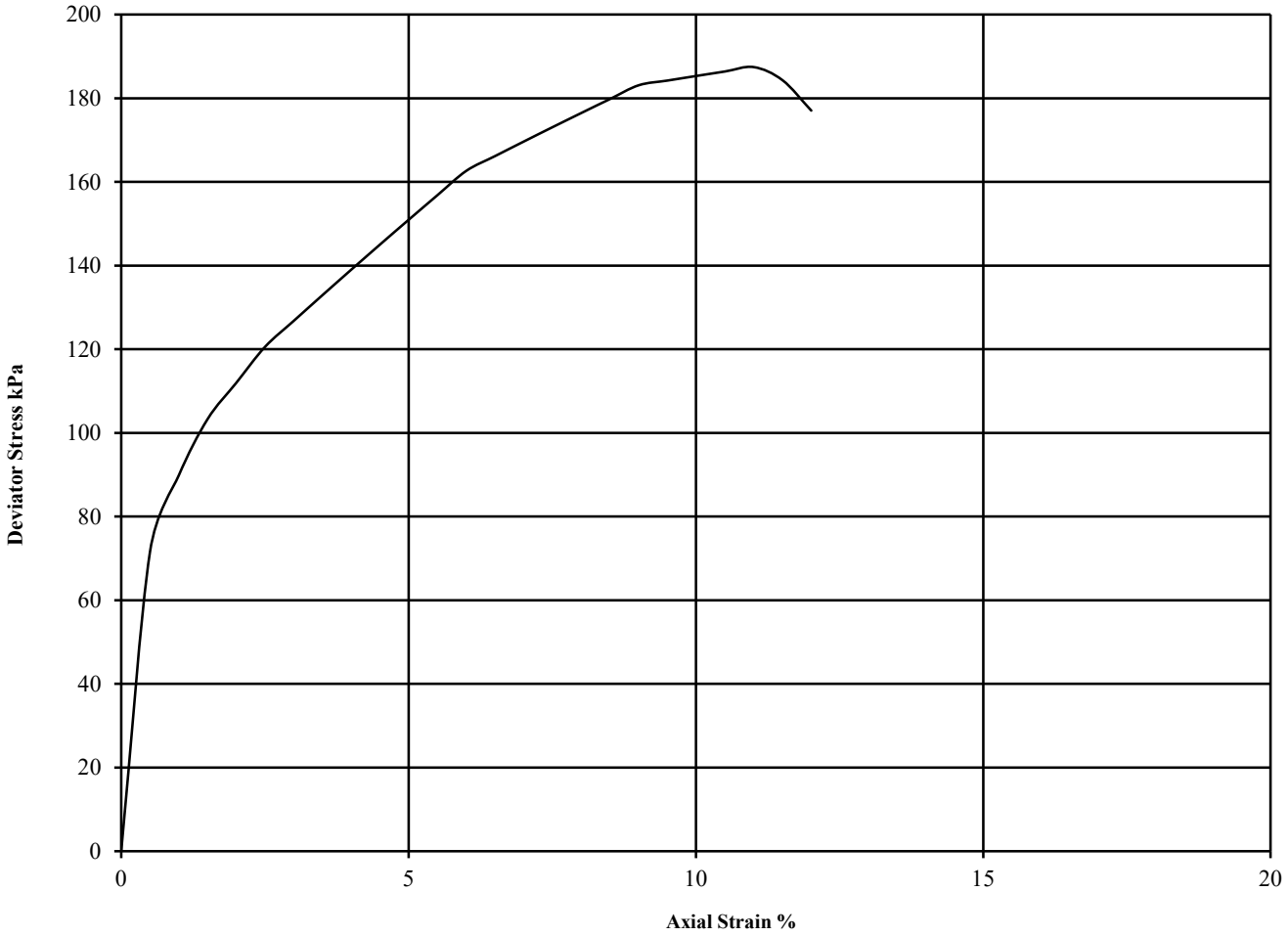
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: RBH101 **Top Depth (m):** 4.00

Sample Number: **Base Depth (m):** 5.00

Sample Type U



Diameter (mm):		38	Height (mm):		76	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.84
1	11	2.25	2.02	90	187	94	11.0	Brittle	See summary of soil descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Plot 9B First Street

Contract No: PSL24/4721

Client Ref: 4770

ONE DIMENSIONAL CONSOLIDATION TEST

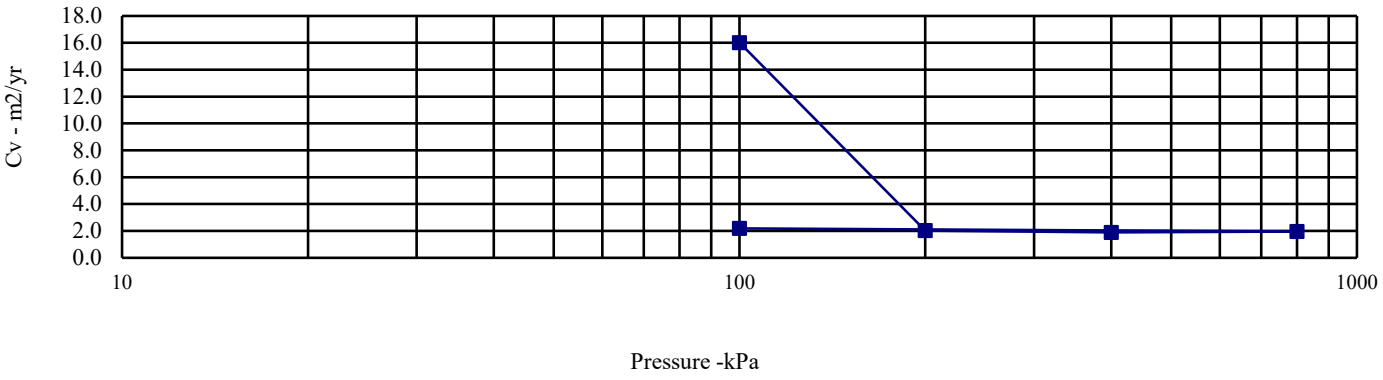
BS 1377: Part 5: 1990: Clause 3

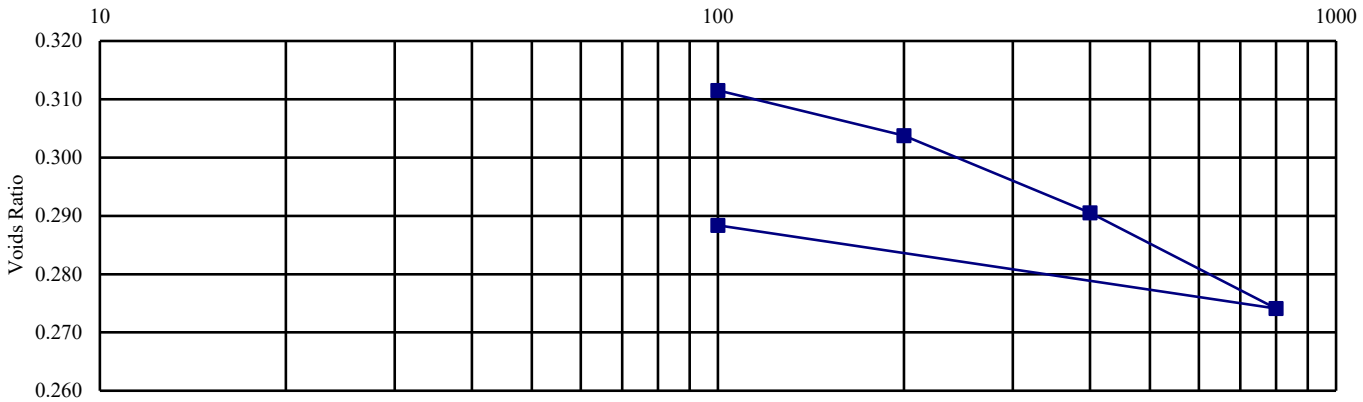
Hole Number: **RBH101** **Top Depth (m):** **4.00**

Sample Number: **Base Depth (m) :**

Sample Type: **D**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	12						
Bulk Density (Mg/m3):	2.25	0	100	0.081	16.019	Method used to determine CV:	T90
Dry Density (Mg/m3):	2.00	100	200	0.059	2.038		
Voids Ratio:	0.322	200	400	0.051	1.894	Nominal temperature during test ' C:	20
Degree of saturation:	100.5	400	800	0.032	1.952		
Height (mm):	20.028	800	100	0.016	2.179	Remarks: See summary of soil descriptions	
Diameter (mm)	50.018						
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Plot 9B First Street

Contract No: **PSL24/4721**

Client Ref: **4770**

7 - 11 Harding Street
Leicester
LE1 4DH

Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

Analytical Test Report: L24/06997/PSL - 24-48135

Your Project Reference:	**PSL24/4721 Plot 9B First Street**		
Your Order Number:	PSL24/4721	Samples Received / Instructed:	01/08/2024 / 01/08/2024
Report Issue Number:	1	Sample Tested:	01/08 to 07/08/2024
Samples Analysed:	4 samples	Report issued:	08/08/2024

Signed



James Gane
Analytical Services Manager
CTS Group

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

Date of Issue: 08.08.2024

Issued by: J. Gane

Issue No: 4

Rev No: 11

7 - 11 Harding Street
Leicester
LE1 4DH

L24/06997/PSL - 24-48135

Project Reference - PSL24/4721 Plot 9B First Street

Analytical Test Results - Chemical Analysis

Lab Reference			386763	386764	386765	386766
Client Sample ID			-	-	-	-
Client Sample Location			WS103	RBH101	RBH101	RBH101
Client Sample Type			D	D	D	D
Client Sample Number			-	-	-	-
Depth - Top (m)			3.90	1.20	2.00	6.00
Depth - Bottom (m)			3.90	1.20	2.00	6.00
Date of Sampling			-	-	-	-
Time of Sampling			-	-	-	-
Sample Matrix			Clay	Clay	Clay	Clay
Determinant	**Units**	**Accreditation**				
Water soluble sulphate (as SO_4)	(mg/l)	u	100	110	46	85
Acid Soluble Sulphate	(%)	u	0.05	0.08	0.02	0.03
Total Sulphur	(%)	UKAS	0.12	0.09	0.02	0.06
pH Value	pH Units	MCERTS	8.3	8.5	8.4	8.5

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Leicester
LE1 4DH

L24/06997/PSL - 24-48135

Project Reference - PSL24/4721 Plot 9B First Street

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
386763	-	WS103	D	-	Dark brown silty clay	-	-	100
386764	-	RBH101	D	-	Made Ground- dark brown silty gravelly sandy clay with frequent brick fragments slag	-	-	84
386765	-	RBH101	D	-	Dark brown sandy gravelly silty clay	-	-	79
386766	-	RBH101	D	-	Brown sandy gravelly silty clay	-	-	100

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L24/06997/PSL - 24-48135

Project Reference - PSL24/4721 Plot 9B First Street

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
386763	-	WS103	D	-	
386764	-	RBH101	D	-	
386765	-	RBH101	D	-	
386766	-	RBH101	D	-	

7 - 11 Harding Street
Leicester
LE1 4DH

L24/06997/PSL - 24-48135

Project Reference - PSL24/4721 Plot 9B First Street

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preperation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)

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L24/06997/PSL - 24-48135

Project Reference - PSL24/4721 Plot 9B First Street

Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided
C - Received in inappropriate container
H - Contains headspace
T - Temperature on receipt exceeds storage temperature
R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
386763	-	WS103	D	-		A
386764	-	RBH101	D	-		A
386765	-	RBH101	D	-		A
386766	-	RBH101	D	-		A

Uniaxial Compressive Strength Of Rock Summary of Results

Hole No.	Sample				Rock Type	Specimen Dimensions [2]			Bulk Density [2]	Water Content [1]	Uniaxial Compression [3]				Remarks
	No.	Depth (m)		type		Dia.	Height	H/D			Stress Rate	Time to failure	Mode of failure	UCS	
		from	to			mm	mm		Mg/m [3]	%	MPa/s	secs		MPa	
RBH101A	S006	12.66	12.95	C	SANDSTONE	87.8	207.9	2.4	2.17	9.3	0.5	289	S - Single shear	7.2	
RBH101A	S009	14.70	15.03	C	SANDSTONE	89.6	207.1	2.3	2.09	7.2	0.6	234	S - Single shear	6.2	
RBH101A	S014	19.57	19.85	C	SANDSTONE	89.6	211.9	2.4	2.23	12	0.5	404	S - Single shear	10	
RBH101A	S017	21.69	22.13	C	SANDSTONE	89.7	213.8	2.4	2.19	9.1	0.5	513	S - Single shear	14	

Notes :

Test Specification : International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as received at the laboratory

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

QA Ref
RLR 2
Rev 2.19
Apr 19

UKAS TESTING

0001

SOCOTEC

Project No: P242090-ROC Consulting

Project Name: Commercial Wharf 6 Commercial Street Manchester M15 4PZ

Figure
RUCS

The results reported relate only to the samples tested; opinions and interpretations expressed herein are outside the scope of UKAS accreditation. © Copyright 2019 SOCOTEC UK Limited

Printed: 10/10/2024

APPENDIX E – GROUND GAS / WATER MONITORING RESULTS

Civil, Structural & Environmental Engineers Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4770	**Site:**	Plot 9B First Street
	Date:	09/07/2024	**Client:**	Vita Meadows Ltd
	Engineer:	ML	**Equipment:**	GA5000 Serial No: G503221

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Overcast	Overcast	Overcast
Barometric Pressure Trend:	Rising	Rising	Rising

Surface Ground Conditions:	Dry

VISIT ONE	**Start**	**Finish**	
Time:	10:52	**Time:**	11:56
Barometric Pressure:	1011	**Barometric Pressure:**	1012
Background Oxygen:	20.9	**Background Oxygen:**	20.9

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
RBH101	**-4.9**	**0**	**0.2**	**19.3**	**0**	**0/1**	**-4.9**	**0**	**0.2**	**20.2**	**0**	**0/0**	**7.93**	**14.57**	**6.64**	
WS102	**0**	**0**	**4.7**	**10.4**	**0**	**0/1**	**0**	**0**	**4.7**	**10.4**	**0**	**0/0**	**Dry**	**3.45**	**-**	
WS104	**0**	**0**	**1.9**	**17.2**	**0**	**0/0**	**0**	**0**	**1.6**	**18.7**	**0**	**0/0**	**Dry**	**2.56**	**-**	
WS105	**-0.1**	**0**	**5.3**	**11.5**	**0**	**0/0**	**-0.1**	**0**	**5.1**	**11.7**	**0**	**0/0**	**3.79**	**3.90**	**0.01**	
WS106	**0**	**0**	**0.5**	**20.4**	**0**	**0/0**	**0**	**0**	**0.1**	**20.6**	**0**	**0/0**	**Dry**	**1.98**	**-**	

Comments:

ROC CONSULTING **Civil, Structural & Environmental Engineers** Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4770	**Site:**	Plot 9B First Street
	Date:	16/07/2024	**Client:**	Vita Meadows Ltd
	Engineer:	ML	**Equipment:**	GA5000 Serial No: G503807

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Raining	Sunny	Raining
Barometric Pressure Trend:	Steady	Rising	Falling
Surface Ground Conditions:	Wet		

VISIT TWO	**Start**		**Finish**
Time:	0930	**Time:**	1054
Barometric Pressure:	1004	**Barometric Pressure:**	1005
Background Oxygen:	20.9	**Background Oxygen:**	20.9

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
RBH101	**-0.5**	**0**	**0.2**	**19.2**	**0**	**0/1**	**-0.4**	**0**	**0.1**	**20.6**	**0**	**0/1**	**8.27**	**14.65**	**6.38**	
WS102	**0.1**	**0.1**	**5.4**	**8**	**0**	**0/0**	**0**	**0**	**5.4**	**8**	**0**	**0/0**	**Dry**	**3.45**	**-**	
WS104	**0**	**0**	**1.9**	**17.6**	**0**	**0/0**	**0**	**0**	**1.6**	**18.7**	**0**	**0/0**	**Dry**	**2.56**	**-**	
WS105	**0**	**0**	**5.3**	**11.4**	**0**	**0/0**	**0**	**0**	**5.3**	**11.4**	**0**	**0/0**	**3.89**	**3.9**	**-**	
WS106	**0**	**0**	**0.4**	**17.1**	**0**	**0/0**	**0**	**0**	**0.4**	**18.1**	**0**	**0/0**	**1.71**	**1.98**	**0.27**	

Comments:

ROC CONSULTING **Civil, Structural & Environmental Engineers** Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4770	**Site:**	Plot 9B First Street
	Date:	22/07/2024	**Client:**	Vita Meadows Ltd
	Engineer:	ML	**Equipment:**	GA5000 Seral No: G503807

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Cloudy	Cloudy	Cloudy
Barometric Pressure Trend:	Falling	Rising	Rising
Surface Ground Conditions:	Dry		

VISIT THREE	**Start**	**Finish**	
Time:	0846	**Time:**	948
Barometric Pressure:	1008	**Barometric Pressure:**	1008
Background Oxygen:	20.9	**Background Oxygen:**	20.9

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
RBH101	**6.6**	**0**	**0.9**	**18.5**	**0**	**0/0**	**0.1**	**0**	**0.1**	**20.4**	**0**	**0/0**	**8**	**14.56**	**6.56**	
WS102	**0**	**0**	**2.4**	**15.6**	**0**	**0/0**	**0**	**0**	**2.4**	**15.6**	**0**	**0/0**	**Dry**	**3.46**	**-**	
WS104	**-0.3**	**0**	**6**	**12.1**	**0**	**0/0**	**-0.1**	**0**	**5.9**	**12.4**	**0**	**0/0**	**Dry**	**2.3**	**-**	
WS105	**0**	**0**	**4.6**	**12.5**	**0**	**0/0**	**0**	**0**	**4.4**	**13.4**	**0**	**0/0**	**3.67**	**3.91**	**0.24**	
WS106	**0**	**0**	**0.6**	**19.7**	**0**	**0/0**	**0**	**0**	**0.1**	**20.4**	**0**	**0/0**	**Dry**	**1.99**	**-**	

Comments:

RoC CONSULTING **Civil, Structural & Environmental Engineers** Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4770	**Site:**	Plot 9B First Street
	Date:	01/08/2024	**Client:**	Vita Meadows Ltd
	Engineer:	ML	**Equipment:**	GA5000 Serial No: G503220

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Sunny	Sunny	Cloudy
Barometric Pressure Trend:	Steady	Falling	Steady
Surface Ground Conditions:	Dry		

VISIT FOUR	**Start**	**Finish**	
Time:	1050	**Time:**	1234
Barometric Pressure:	1011	**Barometric Pressure:**	1011
Background Oxygen:	20.9	**Background Oxygen:**	20.9

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
RBH101	**0.1**	**0**	**0.7**	**19**	**0**	**0/1**	**0.1**	**0**	**0.2**	**20.9**	**0**	**0/0**	**7.97**	**14.57**	**6.6**	
WS102	**0.1**	**0**	**4.3**	**11.6**	**0**	**0/0**	**0.1**	**0**	**4.3**	**11.6**	**0**	**0/0**	**Dry**	**3.46**	**-**	
WS104	**0.4**	**0**	**6.3**	**12.4**	**0**	**0/0**	**0.4**	**0**	**6.2**	**12.4**	**0**	**0/0**	**Dry**	**2.56**	**-**	
WS105	**0.1**	**0**	**4.6**	**12.2**	**0**	**0/0**	**0.1**	**0**	**4.6**	**12.2**	**0**	**0/0**	**3.67**	**3.9**	**0.23**	
WS106	**0.4**	**0**	**0.2**	**19.9**	**0**	**1/0**	**0.3**	**0**	**0.1**	**20.3**	**0**	**0/0**	**1.98**	**1.99**	**0.01**	

Comments:

ROC CONSULTING **Civil, Structural & Environmental Engineers** Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4770	**Site:**	Plot 9B First Street
	Date:	08/08/2024	**Client:**	Vita Meadows Ltd
	Engineer:	ML	**Equipment:**	GA5000 Serial No: G503522

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Cloudy	Cloudy	Cloudy
Barometric Pressure Trend:	Rising	Rising	Falling
Surface Ground Conditions:	Dry		

VISIT FIVE	**Start**		**Finish**
Time:	0837	**Time:**	946.00
Barometric Pressure:	1005	**Barometric Pressure:**	1005
Background Oxygen:	20.9	**Background Oxygen:**	20.9

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
RBH101	**0.7**	**0**	**0.7**	**18.3**	**0**	**0/0**	**0.4**	**0**	**0.2**	**20.1**	**0**	**0/0**	**7.96**	**14.55**	**6.59**	
WS102	**0**	**0**	**1.6**	**18.2**	**0**	**0/0**	**0**	**0**	**1.2**	**19.1**	**0**	**0/0**	**Dry**	**3.46**	**-**	
WS104	**0.3**	**0**	**6**	**14.4**	**0**	**0/0**	**0.3**	**0**	**5.9**	**14.5**	**0**	**0/0**	**Dry**	**2.57**	**-**	
WS105	**0.3**	**0**	**5**	**11.3**	**0**	**0/0**	**0.2**	**0**	**4.6**	**13.1**	**0**	**0/0**	**3.9**	**3.91**	**0.01**	
WS106	**0**	**0**	**0.1**	**20.8**	**0**	**0/0**	**0**	**0**	**0.1**	**20.9**	**0**	**0/0**	**1.97**	**1.98**	**0.01**	

Comments:

ROC CONSULTING **Civil, Structural & Environmental Engineers** Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4770	**Site:**	Plot 9B First Street
	Date:	14/08/2024	**Client:**	Vita Meadows Ltd
	Engineer:	ML	**Equipment:**	GA5000 Serial No: G503409

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Raining	Raining	Cloudy
Barometric Pressure Trend:	Falling	Rising	Rising
Surface Ground Conditions:	Dry		

VISIT SIX	**Start**	**Finish**	
Time:	0837	**Time:**	940.00
Barometric Pressure:	1011	**Barometric Pressure:**	1012
Background Oxygen:	20.8	**Background Oxygen:**	20.8

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
RBH101	**0.2**	**0**	**0.6**	**18.8**	**0**	**0/0**	**0.1**	**0**	**0.2**	**20.4**	**0**	**0/0**	**8.05**	**14.49**	**6.44**	
WS102	**0.3**	**0**	**4**	**12.1**	**0**	**0/0**	**0.2**	**0**	**4**	**12.1**	**0**	**0/0**	**Dry**	**3.46**	**-**	
WS104	**0.3**	**0**	**5.7**	**14.4**	**0**	**0/0**	**0.3**	**0**	**5.6**	**14.5**	**0**	**0/0**	**Dry**	**2.56**	**-**	
WS105	**0.3**	**0**	**6**	**9.9**	**0**	**0/0**	**0.3**	**0**	**6**	**9.9**	**0**	**0/0**	**Dry**	**3.9**	**-**	
WS106	**0.3**	**0**	**0.8**	**19.2**	**0**	**0/0**	**0.3**	**0**	**0.5**	**20.4**	**0**	**0/0**	**Drt**	**1.98**	**-**	

Comments:

COMPLEX CHALLENGES ...
MADE SIMPLE

APPENDIX F – EQUIPMENT CALIBRATION CERTIFICATES

CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 19-Jun-2024

Certificate Number: G503220_2/35757

Issued by: QED Environmental Systems Inc.

Customer: **STRUCTURAL SOILS LIMITED**
SPRING LODGE 172 CHESTER ROAD HELSBY FRODSHAM, CHESHIRE WA6 0AR
GB

Description:

Model: GA5000

Serial Number: G503220

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.42
15.1	15.0	0.66
60.0	59.7	1.03

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.43
15.0	14.8	0.71
39.9	39.8	1.19

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.6	21.7	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 33.0 °C/91.4 °F

O2 readings recorded at: 23.8 °C/74.9 °F

Barometric Pressure: 0990 mbar/29.24 "Hg

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 19-Jun-2024

Certificate Number: G503220_2/35757

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.27"	2.0"

Barometer (mbar)	
Reference	**Instrument Reading**
0990 mbar / 29.24 "Hg	0991 mbar / 29.25 "Hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	500.00	500
H_2S	49.80	50

As received gas check readings are only recorded if the instrument is received in a working condition.
Where the instrument is received damaged no reading can be taken.

Date of Issue : 26 Jun 2024

Approved By Signatory

Craig McPherson
Laboratory Inspection

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 09-Feb-2024

Certificate Number: G503221_10/34592

Issued by: QED Environmental Systems Inc.

Customer: **STRUCTURAL SOILS LIMITED**
SPRING LODGE 172 CHESTER ROAD HELSBY FRODSHAM, CHESHIRE WA6 0AR
GB

Description:

Model: GA5000

Serial Number: G503221

Accredited Results:

Methane (CH4)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.1	5.0	0.42
15.0	15.0	0.66
60.0	59.9	1.03

Carbon Dioxide (CO2)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	5.0	0.43
15.2	15.2	0.71
40.0	40.1	1.19

Oxygen (O2)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
21.5	21.6	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 32.2 °C/89.9 °F Barometric Pressure: 0974 mbar/28.77 "Hg

O2 readings recorded at: 22.6 °C/72.6 °F

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

QED

Date Of Calibration: 09-Feb-2024

Certificate Number: G503221_10/34592

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.64"	2.0"

Barometer (mbar)	
Reference	**Instrument Reading**
0974 mbar / 28.77 "Hg	0974 mbar / 28.77 "Hg

As received gas check readings are only recorded if the instrument is received in a working condition. Where the instrument is received damaged no reading can be taken.

Date of Issue : 12 Feb 2024

Approved By Signatory

Linda Ostrowski

Laboratory Inspection

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GA5K G503221 CALIBRATION

Instrument Run No. 57611
Position: 3
Operator: Julian D Batie
Instance: 118

Started: 2/9/2024 8:19:22 AM
Finished: 2/9/2024 8:37:55 AM

Chemical Cell series: 4
Channel: CO
Range: 500 ppm

Cell Age 0 Years and 11 months

PASS

Channel: CO, Cert Gas ppm : 500.00, Min tol. : 460.00, Max tol. : 540.00, Max - Min tol. : 10
Zero gas tolerance: -5 to 5 ppm

	ZERO				GAS					
	Reading	Min	Max	Max-Min	Reading	Min	Max	Max-Min	Offset	Slope
Factory	-1	-1	-1	0	496	496	497	1	*33071*	48.895
User	0	0	0	0	496	496	497	1	*33071*	48.895
Actual	0	0	0	0	500	500	500	0	*33010*	48.641
Filtered	33010	33005	33018	13	57341	57309	57351	42		

Chemical Cell series: 7
Channel: H2S
Range: 200 ppm

Cell Age 0 Years and 4 months

FAIL

Channel: H2S, Cert Gas ppm : 49.80, Min tol. : 45.82, Max tol. : 53.78, Max - Min tol. : 10
Zero gas tolerance: -5 to 5 ppm

	ZERO				GAS					
	Reading	Min	Max	Max-Min	Reading	Min	Max	Max-Min	Offset	Slope
Factory	0	0	0	0	49	49	49	0	*33135*	111.894
User	0	0	0	0	49	49	49	0	*33135*	111.894
Actual	0	0	0	0	50	50	50	0	*33095*	111.062
Filtered	33095	33092	33098	6	38628	38620	38634	14		

END OF DOCUMENT

OK by Kyle R.

CERTIFICATION OF CALIBRATION

No. 66916

Date Of Calibration: 12-Mar-2024

Certificate Number: G503409_9/34894

Issued by: QED Environmental Systems Inc.

Customer: **STRUCTURAL SOILS LIMITED**
SPRING LODGE 172 CHESTER ROAD HELSBY FRODSHAM, CHESHIRE WA6 0AR
GB

Description:

Model: GA5000

Serial Number: G503409

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.1	5.1	0.42
15.0	15.1	0.66
60.0	59.9	1.03

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.43
15.2	15.0	0.71
40.0	40.1	1.19

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
20.9	21.0	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 34.4 °C/94.0 °F

O2 readings recorded at: 24.1 °C/75.4 °F

Barometric Pressure: 0975 mbar/28.79 "Hg

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance: 118 IGC Instance: 118

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 12-Mar-2024

Certificate Number: G503409_9/34894

Issued by: QED Environmental Systems Inc.

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

QED

Date Of Calibration: 12-Mar-2024

Certificate Number: G503409_9/34894

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.54"	2.0"

Barometer (mbar)	
Reference	**Instrument Reading**
0975 mbar / 28.79 "Hg	0975 mbar / 28.79 "Hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	500	500
H_2S	49.80	50

As received gas check readings are only recorded if the instrument is received in a working condition.
Where the instrument is received damaged no reading can be taken

Date of Issue : 15 Mar 2024

Approved By Signatory

Linda Ostrowski

Laboratory Inspection

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 17-Apr-2024

Certificate Number: G503522_9/35245

Issued by: QED Environmental Systems Inc.

Customer: **STRUCTURAL SOILS LIMITED**
SPRING LODGE 172 CHESTER ROAD HELSBY FRODSHAM, CHESHIRE WA6 0AR
GB

Description:

Model: GA5000

Serial Number: G503522

Accredited Results:

Methane (CH4)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.1	5.0	0.42
15.0	14.8	0.66
60.0	59.7	1.03

Carbon Dioxide (CO2)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	5.0	0.43
15.0	15.0	0.71
40.0	40.0	1.19

Oxygen (O2)

Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
20.9	21.0	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.8 °C/89.3 °F

O2 readings recorded at: 21.6 °C/70.9 °F

Barometric Pressure: 0972 mbar/28.70 "Hg

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

The calibration results published in this certificate were obtained using equipment capable of producing results that are traceable through NIST to the International System of Units (SI). Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATION OF CALIBRATION

No. 66916

Date Of Calibration: 17-Apr-2024

Certificate Number: G503522_9/35245

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CERTIFICATION OF CALIBRATION

PJLA Calibration

No. 66916

QED

Date Of Calibration: 17-Apr-2024

Certificate Number: G503522_9/35245

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.47"	2.0"

Barometer (mbar)	
Reference	**Instrument Reading**
0972 mbar / 28.70 "Hg	0972 mbar / 28.71 "Hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	500	500
H_2S	49.8	50

As received gas check readings are only recorded if the instrument is received in a working condition. Where the instrument is received damaged no reading can be taken.

Date of Issue : 23 Apr 2024

Approved By Signatory

Sarah Schafer

Laboratory Inspection

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

Date Of Calibration: 15-Jun-2024

Certificate Number: G503807_9/35694

Issued by: QED Environmental Systems Inc.

Customer: **STRUCTURAL SOILS LIMITED**
SPRING LODGE 172 CHESTER ROAD HELSBY FRODSHAM, CHESHIRE WA6 0AR
GB

Description:

Model: GA5000

Serial Number: G503807

Accredited Results:

Methane (CH4)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.42
15.1	15.0	0.66
60.0	60.0	1.03

Carbon Dioxide (CO2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
5.0	4.9	0.43
15.0	14.8	0.71
39.9	40.1	1.19

Oxygen (O2)		
Certified Gas (%)	**Instrument Reading (%)**	**Uncertainty (%)**
21.6	21.7	0.25

Gas cylinders are traceable and details can be provided if requested.

CH4, CO2 readings recorded at: 31.0 °C/87.8 °F

O2 readings recorded at: 22.1 °C/71.7 °F

Barometric Pressure: 0988"Hg/29.19 "Hg

Method of Test : The analyzer is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure ISP17.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with NIST requirements.

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CERTIFICATION OF CALIBRATION

PJLA Calibration
No. 66916

QED

Date Of Calibration: 15-Jun-2024

Certificate Number: G503807_9/35694

Issued by: QED Environmental Systems Inc.

Non Accredited results:

Pressure Transducers (inches of water column)					
Transducer	**Certified (Low)**	**Reading (Low)**	**Certified (High)**	**Reading (High)**	**Accuracy**
Relative	0"	0"	40"	40.73"	2.0"
	#Error	"	#Error	"	#Error
	#Error	"	#Error	"	#Error

Barometer (mbar)	
Reference	**Instrument Reading**
0988 mbar / 29.19 "Hg	0990 mbar / 29.23 "Hg

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
CO	500	500
H_2S	49.80	50

As received gas check readings are only recorded if the instrument is received in a working condition.
Where the instrument is received damaged no reading can be taken.

Date of Issue : 19 Jun 2024

Approved By Signatory

Linda Ostrowski
Laboratory Inspection

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APPENDIX G – RSK GACS

Generic assessment criteria for human health: residential scenario without home-grown produce

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009[1]. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009[2]. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC

In 2014, the publication of Category 4 Screening Levels (C4SL)[3,4], as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)[5] used in the generation of SGVs.

C4SL were initially published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010[3]). Further C4SL were published in 2021 for vinyl chloride, tetrachloroethene (PCE) and trichloroethene (TCE). Where a C4SL has been published, the RSK GAC duplicates the C4SL using all input parameters within the SP1010 final project report[3] and associated chemical specific reports[6], and adopts them as GAC for these substances. Due to the use of decimal places rather than significant figures applied to the Contaminated Land Exposure Assessment (CLEA) tool outputs, the GAC presented may be marginally differently to the C4SL values, however any differences between the values are minimal and would not equate to an unacceptable risk.

For all other substances the C4SL exposure modifications relevant for residential without home-grown produce end use have been applied to the current RSK GAC. These include alterations to daily inhalation rates for residential and commercial scenarios, reducing soil adherence factors in children (age classes 1 to 12 only) and reducing exposure frequency for dermal contact outdoors.

The RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015[7] or by the USEPA[14], where a C4SL has not been published.

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the CLEA tool v1.071, supporting EA guidance[5,8,9] and revised exposure scenarios published for the C4SL[3]. The SAC are also termed GAC.

Conceptual model

In accordance with SR3[5], the residential <u>without</u> home-grown produce scenario considers risks to a female child between the ages of 0 and 6 years old as the highest risk scenario. In

accordance with Box 3.1 of SR3[5], the pathways considered for production of the SAC in the residential without home-grown produce scenario are

- direct soil and dust ingestion in areas of soft landscaping
- dermal contact with soil and indoor dust
- inhalation of indoor and outdoor dust and vapours.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium[1], the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure. Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the TDI_{oral} and TDI_{inh}, are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase[9]. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached[9]. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required[9]:

- Free phase contamination may be present.
- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits
- Where the vapour pathway contribution is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, the vapour pathway exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook[9], this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook[9], which explains how to calculate an effective assessment criterion manually.

SR3[5] states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface to indoor air correction factor of 10 into the CLEA model chemical database for all petroleum hydrocarbon fractions (including BTEX, trimethylbenzenes and the polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7[10], the EA TOX[1] reports, the C4SL SP1010 project report and associated chemical specific reports[3,6], the 2015 LQM/CIEH report[7] or the USEPA IRIS database[14]. Where a LLTC[3,6] has been published for a substance, RSK has used these input parameters to derive the RSK GAC. Toxicological and specific chemical parameters for 1,2,4-trimethylbenzene, barium and methyl tertiary-butyl ether (MTBE) were obtained from the CL:AIRE Soil Generic Assessment Criteria report[11].

For TPH, aromatic hydrocarbons C_5–C_8 were not modelled, as this range comprises benzene (>EC5-EC7) and toluene (>EC7-EC8), which are modelled separately.

Physical parameters

For the residential without home-grown produce scenario, the CLEA default building is a small, two-storey terrace house with a concrete ground-bearing slab. SR3[5] notes this residential building type to be the most conservative in terms of potential for vapour intrusion. The building parameters used in the production of the RSK GACs are the default CLEA v1.06 inputs presented in Table 3.3 of SR3[3], with a dust loading factor detailed in Section 9.3 of SR3[5]. The parameters for a sandy loam soil type were used in line with Table 4.4 of SR3[5]. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for this SOM, RSK has produced an additional set of GAC for SOM of 1% and 2.5% for all substances using the CLEA tool.

Summary of modifications to the default CLEA SR3[5] input parameters for residential without home-grown produce

In summary, the RSK GAC were produced using the default input parameters for soil properties, the air dispersion model, building properties and the vapour model detailed in SR3[5]. Modifications to the default SR3[5] exposure scenarios based on the C4SL exposure scenarios[3] are presented in Table 2 below.

The final selected GAC are presented by pathway in Table 3 and the combined GAC in Table 4.

Figure 1: Conceptual model for CLEA residential scenario without home-grown produce

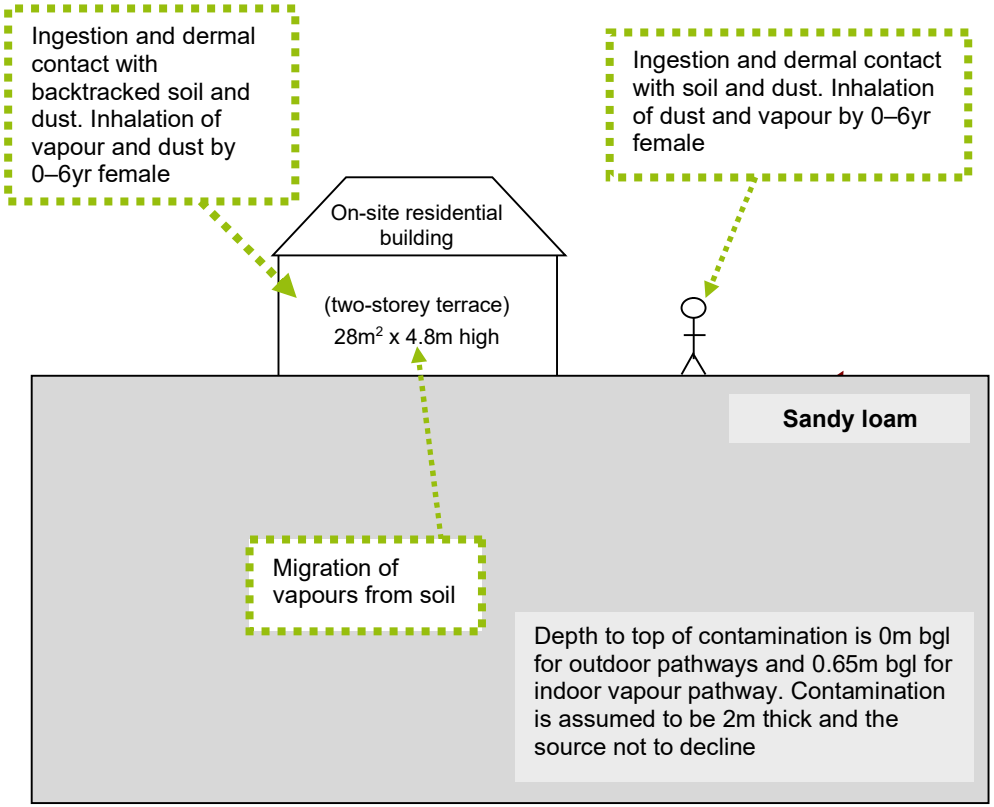


Table 1: Exposure assessment parameters for residential scenario without home-grown produce – inputs for CLEA model

Parameter	Value	Justification
Land use	Residential without home-grown produce	Chosen land use
Receptor	Female child	Key generic assumption given in Box 3.1, SR3[5]
Building	Small terraced house	Key generic assumption given in Box 3.1, SR3[5]. Small, two-storey terraced house chosen, as it is the most conservative residential building type in terms of protection from vapor intrusion (Section 3.4.6, SR3)[5]
Soil type	Sandy loam	Most common UK soil type (Section 4.3.1, from Table 3.1, SR3)[5]
Start age class (AC)	1	Range of age classes corresponding to key generic assumption that the critical receptor is a young female child aged 0–6. From Box 3.1, SR3[5]
End AC	6	
SOM (%)	6	Representative of sandy loamy soil according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents'[13]
	1	To provide SAC for sites where SOM <6% as often observed by RSK
	2.5	
pH	7	Model default

Table 2: Residential without home-grown produce – modified receptor data

Parameter	Unit	Age class					
		1	2	3	4	5	6
Soil to skin adherence factor – (outdoor)	mg soil/cm^2 skin	0.1	0.1	0.1	0.1	0.1	0.1
Justification		Table 3.5, SP1010[3]					
Inhalation rate	m^3 day^{-1}	5.4	8.0	8.9	10.1	10.1	10.1
Justification		Mean value USEPA, 2011[12]; Table 3.2, SP1010[3]					
Notes: For **cadmium**, the exposure assessment for a residential land use is based on estimates representative of lifetime exposure AC1-18. This is because the TDI_{oral} and TDI_{inh} are based on considerations of the kidney burden accumulated over 50 years. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period. See the Environment Agency Science Report SC05002/ TOX 3[1], Science Report SC050021/Cadmium SGV[1] and the project report SP1010[3] for more information.							

References

1. Environment Agency (2009), 'Science Reports SC050021 - SGV and TOX reports for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs'; 'Supplementary information for the derivation of SGV for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs', and 'Contaminants in soil: updated collation of toxicological data and intake values for humans: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin-like PCBs'. Available at: https://www.gov.uk/government/publications/contaminants-in-soil-updated-collation-of-toxicological-data-and-intake-values-for-humans and https://www.gov.uk/government/publications/land-contamination-soil-guideline-values-sgvs (accessed 4 February 2015)

2. Nathanial, C. P., McCaffrey, C., Ashmore, M., Cheng, Y., Gillet, A. G., Ogden, R. C. and Scott, D. (2009), *LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment*, second edition (Nottingham: Land Quality Press).

3. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014). 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination', Revision 2, DEFRA research project SP1010.

4. Department for Environment, Food and Rural Affairs (Defra) (2014), 'SP1010: Development of Category 4 Screening Levels for assessment of land affected by contamination – Policy Companion Document', Revision 2.

5. Environment Agency (2009), *Science Report – SC050021/SR3. Updated technical background to the CLEA model* (Bristol: Environment Agency).

6. Contaminated Land: Applications in Real Environment (CL:AIRE) (2014). 'Appendices C to H). DEFRA research project SP1010'. CL:AIRE (2021). Category 4 Screening Levels: Trichloroethene (TCE). CL:AIRE, London. ISBN 978-1-905046-38-6. CL:AIRE (2021). Category 4 Screening Levels: Vinyl Chloride. CL:AIRE, London. ISBN 978-1-905046-36-2. CL:AIRE (2021). Category 4 Screening Levels: Tetrachloroethene (PCE). CL:AIRE, London. ISBN 978-1-905046-37-9.

7. Nathanial, C. P., McCaffrey, C., Gillet, A. G., Ogden, R. C. and Nathanial, J. F. (2015), *The LQM/CIEH S4ULs for Human Health Risk Assessment* (Nottingham: Land Quality Press).

8. Environment Agency (2009), *Human health toxicological assessment of contaminants in soil. Science Report – Final SC050021/SR2* (Bristol: Environment Agency).

9. Environment Agency (2009), *Science Report – SC050021/SR4 CLEA Software (version 1.05) Handbook* (Bristol: Environment Agency).

10. Environment Agency (2008), *Science Report SC050021/SR7. Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values* (Bristol: Environment Agency).

11. CL:AIRE (2010), *Soil Generic Assessment Criteria for Human Health Risk Assessment* (London: CL:AIRE).

12. USEPA (2011), *Exposure factors handbook*, EPA/600/R-090/052F (Washington, DC: Office of Research and Development).

13. Environment Agency (2009), 'Changes made to the CLEA framework documents after the three-month evaluation period in 2008', released January 2009.

14. USEPA (2010). Hydrogen cyanide and cyanide salts. Integrated Risk Information Systems (IRIS) Chemical Assessment Summary. September 2010. https://www.epa.gov/iris (accessed 9 December 2015)

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITHOUT HOME-GROWN PRODUCE

Table 3

Human Health Generic Assessment Criteria by Pathway for Residential Scenario Without Home-Grown Produce

Compound	Notes	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Metals													
Arsenic	(a,b)	3.99E+01	5.26E+02	NR	NR	3.99E+01	5.26E+02	NR	NR	3.99E+01	5.26E+02	NR	NR
Barium	(b)	1.35E+03	NR	NR	NR	1.35E+03	NR	NR	NR	1.35E+03	NR	NR	NR
Beryllium		1.56E+02	1.72E+00	NR	NR	1.56E+02	1.72E+00	NR	NR	1.56E+02	1.72E+00	NR	NR
Boron		1.08E+04	5.20E+06	NR	NR	1.08E+04	5.20E+06	NR	NR	1.08E+04	5.20E+06	NR	NR
Cadmium	(a)	1.95E+02	4.88E+02	1.49E+02	NR	1.95E+02	4.88E+02	1.49E+02	NR	1.95E+02	4.88E+02	1.49E+02	NR
Chromium (III) - trivalent	(c)	1.98E+04	9.07E+02	NR	NR	1.98E+04	9.07E+02	NR	NR	1.98E+04	9.07E+02	NR	NR
Chromium (VI) - hexavalent	(a,d)	5.91E+01	2.06E+01	NR	NR	5.91E+01	2.06E+01	NR	NR	5.91E+01	2.06E+01	NR	NR
Copper		1.08E+04	1.41E+04	7.13E+03	NR	1.08E+04	1.41E+04	7.13E+03	NR	1.08E+04	1.41E+04	7.13E+03	NR
Lead	(a)	3.14E+02	NR	NR	NR	3.14E+02	NR	NR	NR	3.14E+02	NR	NR	NR
Elemental Mercury (Hg^0)	(d)	NR	2.41E-01	NR	4.31E+00	NR	5.74E-01	NR	1.07E+01	NR	1.25E+00	NR	2.58E+01
Inorganic Mercury (Hg^{2+})		5.71E+01	3.63E+03	5.62E+01	NR	5.71E+01	3.63E+03	5.62E+01	NR	5.71E+01	3.63E+03	5.62E+01	NR
Methyl Mercury (Hg^{4+})		1.80E+01	1.87E+01	9.16E+00	7.33E+01	1.80E+01	3.62E+01	1.20E+01	1.42E+02	1.80E+01	7.68E+01	1.46E+01	3.04E+02
Nickel	(d)	1.88E+02	1.81E+02	NR	NR	1.88E+02	1.81E+02	NR	NR	1.88E+02	1.81E+02	NR	NR
Selenium	(b)	4.31E+02	NR	NR	NR	4.31E+02	NR	NR	NR	4.31E+02	NR	NR	NR
Vanadium		1.17E+03	1.46E+03	NR	NR	1.17E+03	1.46E+03	NR	NR	1.17E+03	1.46E+03	NR	NR
Zinc	(b)	4.05E+04	3.63E+07	NR	NR	4.05E+04	3.63E+07	NR	NR	4.05E+04	3.63E+07	NR	NR
Cyanide (free)		4.03E+01	1.37E+04	4.02E+01	NR	4.03E+01	1.37E+04	4.02E+01	NR	4.03E+01	1.37E+04	4.02E+01	NR
Volatile Organic Compounds													
Benzene	(a)	7.36E+01	9.01E-01	8.90E-01	1.22E+03	7.36E+01	1.68E+00	1.64E+00	2.26E+03	7.36E+01	3.48E+00	3.33E+00	4.71E+03
Toluene		2.87E+04	9.08E+02	8.80E+02	8.69E+02	2.87E+04	2.00E+03	1.87E+03	1.92E+03	2.87E+04	4.55E+03	3.93E+03	4.36E+03
Ethylbenzene		1.29E+04	8.34E+01	8.29E+01	5.18E+02	1.29E+04	1.96E+02	1.93E+02	1.22E+03	1.29E+04	4.58E+02	4.42E+02	2.84E+03
Xylene - m		2.32E+04	8.25E+01	8.22E+01	6.25E+02	2.32E+04	1.95E+02	1.93E+02	1.47E+03	2.32E+04	4.56E+02	4.47E+02	3.46E+03
Xylene - o		2.32E+04	8.87E+01	8.83E+01	4.78E+02	2.32E+04	2.08E+02	2.06E+02	1.12E+03	2.32E+04	4.86E+02	4.76E+02	2.62E+03
Xylene - p		2.32E+04	7.93E+01	7.90E+01	5.76E+02	2.32E+04	1.86E+02	1.85E+02	1.35E+03	2.32E+04	4.36E+02	4.28E+02	3.17E+03
Total xylene		2.32E+04	7.93E+01	7.90E+01	6.25E+02	2.32E+04	1.86E+02	1.85E+02	1.47E+03	2.32E+04	4.36E+02	4.28E+02	3.46E+03
Methyl tertiary-Butyl ether (MTBE)		3.87E+04	1.04E+02	1.04E+02	2.04E+04	3.87E+04	1.69E+02	1.69E+02	3.31E+04	3.87E+04	3.21E+02	3.19E+02	6.27E+04
Trichloroethene (TCE)		9.73E-03	3.61E-02	NR	1.54E+03	2.04E-02	7.57E-02	NR	3.22E+03	4.52E-02	1.68E-01	NR	7.14E+03
Tetrachloroethene (PCE)		1.80E+03	3.19E-01	3.19E-01	4.24E+02	1.80E+03	7.15E-01	7.15E-01	9.51E+02	1.80E+03	1.64E+00	1.64E+00	2.18E+03
1,1,1-Trichloroethane		7.74E+04	9.01E+00	9.01E+00	1.43E+03	7.74E+04	1.84E+01	1.84E+01	2.92E+03	7.74E+04	4.04E+01	4.04E+01	6.39E+03
1,1,1,2 Tetrachloroethane		7.34E+02	1.54E+00	1.53E+00	2.60E+03	7.34E+02	3.56E+00	3.55E+00	6.02E+03	7.34E+02	8.29E+00	8.20E+00	1.40E+04
1,1,2,2-Tetrachloroethane		7.34E+02	3.92E+00	3.90E+00	2.67E+03	7.34E+02	8.04E+00	7.95E+00	5.46E+03	7.34E+02	1.76E+01	1.72E+01	1.20E+04
Carbon Tetrachloride		5.15E+02	2.58E-02	2.58E-02	1.52E+03	5.15E+02	5.65E-02	5.64E-02	3.32E+03	5.15E+02	1.28E-01	1.28E-01	7.54E+03
1,2-Dichloroethane		1.55E+01	9.20E-03	9.20E-03	3.41E+03	1.55E+01	1.33E-02	1.33E-02	4.91E+03	1.55E+01	2.28E-02	2.27E-02	8.43E+03
Vinyl Chloride (chloroethene)		4.85E+00	1.47E-02	1.47E-02	1.36E+03	4.85E+00	1.90E-02	1.90E-02	1.76E+03	4.85E+00	2.91E-02	2.89E-02	2.69E+03
1,2,4-Trimethylbenzene		NR	5.58E+00	NR	4.74E+02	NR	1.29E+01	NR	1.16E+03	NR	2.69E+01	NR	2.76E+03
1,3,5-Trimethylbenzene	(e)	NR	NR	NR	2.30E+02	NR	NR	NR	5.52E+02	NR	NR	NR	1.30E+03
Semi-Volatile Organic Compounds													
Acenaphthene		7.64E+03	4.86E+04	6.60E+03	5.70E+01	7.64E+03	1.18E+05	7.17E+03	1.41E+02	7.64E+03	2.68E+05	7.43E+03	3.36E+02
Acenaphthylene		7.65E+03	4.59E+04	6.55E+03	8.61E+01	7.65E+03	1.11E+05	7.15E+03	2.12E+02	7.65E+03	2.53E+05	7.42E+03	5.06E+02
Anthracene		3.82E+04	1.53E+05	3.06E+04	1.17E+00	3.82E+04	3.77E+05	3.47E+04	2.91E+00	3.82E+04	8.76E+05	3.66E+04	6.96E+00
Benzo(a)anthracene		1.98E+01	2.47E+01	1.10E+01	1.71E+00	1.98E+01	4.37E+01	1.36E+01	4.28E+00	1.98E+01	6.26E+01	1.50E+01	1.03E+01
Benzo(a)pyrene	(a)	5.34E+00	3.51E+01	NR	9.11E-01	5.34E+00	3.77E+01	NR	2.28E+00	5.34E+00	3.89E+01	NR	5.46E+00
Benzo(b)fluoranthene		4.97E+00	1.93E+01	3.95E+00	1.22E+00	4.97E+00	2.13E+01	4.03E+00	3.04E+00	4.97E+00	2.22E+01	4.06E+00	7.29E+00
Benzo(g,h,i)perylene		4.38E+02	1.87E+03	3.55E+02	1.54E-02	4.38E+02	1.94E+03	3.58E+02	3.85E-02	4.38E+02	1.97E+03	3.59E+02	9.23E-02
Benzo(k)fluoranthene		1.31E+02	5.41E+02	1.06E+02	6.87E-01	1.31E+02	5.76E+02	1.07E+02	1.72E+00	1.31E+02	5.91E+02	1.07E+02	4.12E+00
Chrysene		3.95E+01	1.19E+02	2.97E+01	4.40E-01	3.95E+01	1.49E+02	3.12E+01	1.10E+00	3.95E+01	1.66E+02	3.19E+01	2.64E+00

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITHOUT HOME-GROWN PRODUCE

Table 3

Human Health Generic Assessment Criteria by Pathway for Residential Scenario Without Home-Grown Produce

Compound	Notes	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
		Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Dibenzo(a,h)anthracene		3.95E-01	1.45E+00	3.10E-01	3.93E-03	3.95E-01	1.64E+00	3.18E-01	9.82E-03	3.95E-01	1.74E+00	3.22E-01	2.36E-02
Fluoranthene		1.59E+03	3.83E+04	1.53E+03	1.89E+01	1.59E+03	8.87E+04	1.56E+03	4.73E+01	1.59E+03	1.83E+05	1.58E+03	1.13E+02
Fluorene		5.09E+03	6.20E+03	2.80E+03	3.09E+01	5.09E+03	1.53E+04	3.82E+03	7.65E+01	5.09E+03	3.62E+04	4.47E+03	1.83E+02
Indeno(1,2,3-cd)pyrene		5.65E+01	2.12E+02	4.46E+01	6.13E-02	5.65E+01	2.38E+02	4.56E+01	1.53E-01	5.65E+01	2.50E+02	4.60E+01	3.68E-01
Naphthalene		2.50E+03	2.33E+01	2.31E+01	7.64E+01	2.50E+03	5.58E+01	5.46E+01	1.83E+02	2.50E+03	1.31E+02	1.25E+02	4.32E+02
Phenanthrene		1.58E+03	7.17E+03	1.30E+03	3.60E+01	1.58E+03	1.76E+04	1.45E+03	8.96E+01	1.58E+03	4.07E+04	1.52E+03	2.14E+02
Pyrene		3.82E+03	8.79E+04	3.66E+03	2.20E+00	3.82E+03	2.04E+05	3.75E+03	5.49E+00	3.82E+03	4.23E+05	3.79E+03	1.32E+01
Phenol		6.48E+04	4.58E+02	4.55E+02	2.42E+04	6.48E+04	6.95E+02	6.88E+02	3.81E+04	6.48E+04	1.19E+03	1.17E+03	7.03E+04
Total Petroleum Hydrocarbons													
Aliphatic hydrocarbons EC_5-EC_6		3.23E+05	4.24E+01	4.24E+01	3.04E+02	3.23E+05	7.79E+01	7.79E+01	5.58E+02	3.23E+05	1.61E+02	1.61E+02	1.15E+03
Aliphatic hydrocarbons >EC_6-EC_8		3.23E+05	1.04E+02	1.04E+02	1.44E+02	3.23E+05	2.31E+02	2.31E+02	3.22E+02	3.23E+05	5.29E+02	5.29E+02	7.36E+02
Aliphatic hydrocarbons >EC_8-EC_{10}		6.45E+03	2.68E+01	2.68E+01	7.77E+01	6.45E+03	6.55E+01	6.53E+01	1.90E+02	6.45E+03	1.56E+02	1.55E+02	4.51E+02
Aliphatic hydrocarbons >EC_{10}-EC_{12}		6.45E+03	1.33E+02	1.32E+02	4.75E+01	6.45E+03	3.31E+02	3.27E+02	1.18E+02	6.45E+03	7.93E+02	7.67E+02	2.83E+02
Aliphatic hydrocarbons >EC_{12}-EC_{16}		6.45E+03	1.11E+03	1.06E+03	2.37E+01	6.45E+03	2.78E+03	2.42E+03	5.91E+01	6.45E+03	6.67E+03	4.37E+03	1.42E+02
Aliphatic hydrocarbons >EC_{16}-EC_{35}	(b)	6.50E+04	NR	NR	8.48E+00	9.25E+04	NR	NR	2.12E+01	1.11E+05	NR	NR	5.09E+01
Aliphatic hydrocarbons >EC_{35}-EC_{44}	(b)	6.50E+04	NR	NR	8.48E+00	9.25E+04	NR	NR	2.12E+01	1.11E+05	NR	NR	5.09E+01
Aromatic hydrocarbons >EC_8-EC_{10}		2.58E+03	4.74E+01	4.72E+01	6.13E+02	2.58E+03	1.16E+02	1.15E+02	1.50E+03	2.58E+03	2.77E+02	2.69E+02	3.58E+03
Aromatic hydrocarbons >EC_{10}-EC_{12}		2.58E+03	2.58E+02	2.52E+02	3.64E+02	2.58E+03	6.39E+02	5.94E+02	8.99E+02	2.58E+03	1.52E+03	1.24E+03	2.15E+03
Aromatic hydrocarbons >EC_{12}-EC_{16}		2.58E+03	2.85E+03	1.80E+03	1.69E+02	2.58E+03	7.07E+03	2.30E+03	4.19E+02	2.58E+03	1.68E+04	2.48E+03	1.00E+03
Aromatic hydrocarbons >EC_{16}-EC_{21}	(b)	1.86E+03	NR	NR	5.37E+01	1.90E+03	NR	NR	1.34E+02	1.92E+03	NR	NR	3.21E+02
Aromatic hydrocarbons >EC_{21}-EC_{35}	(b)	1.93E+03	NR	NR	4.83E+00	1.93E+03	NR	NR	1.21E+01	1.93E+03	NR	NR	2.90E+01
Aromatic hydrocarbons >EC_{35}-EC_{44}	(b)	1.93E+03	NR	NR	4.83E+00	1.93E+03	NR	NR	1.21E+01	1.93E+03	NR	NR	2.90E+01

Notes:

EC - equivalent carbon. GrAC - groundwater assessment criteria. SAC - soil assessment criteria.

The CLEA model output is colour coded depending upon whether the soil saturation limit has been exceeded.

Calculated SAC exceeds soil saturation limit and may significantly affect the interpretation of any exceedances as the contribution of the indoor and outdoor vapour pathway to total exposure is >10%.

Calculated SAC exceeds soil saturation limit but the exceedance will not affect the SAC significantly as the contribution of the indoor and outdoor vapour pathway to total exposure is <10%.

Calculated SAC does not exceed the soil saturation limit.

The SAC for organic compounds are dependant upon soil organic matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, PAHs napthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway (Section 10.1.1, SR3)

(a) SAC for arsenic, benzene, benzo(a)pyrene, cadmium, chromium VI and lead are derived using the C4SL toxicology data.

(b) SAC for boron and selenium should not include the inhalation pathway as no expert group HCV has been derived; aliphatic and aromatic hydrocarbons >EC16 should not include inhalation pathway due to their non-volatile nature and inhalation exposure being minimal (oral, dermal and inhalation exposure is compared to the oral HCV); arsenic should only be based on oral contribution (rather than combined) owing to the relative small contribution from inhalation in accordance with the SGV report. The Oral SAC should be adopted for zinc and benzo(a)pyrene.

(c) SAC for CrIII should be based on the lower of the oral and inhalation SAC (see LQM/CIEH 2015 Section 6.8)

(d) SAC for elemental mercury, chromium VI and nickel should be based on the inhalation pathway only.

(e) SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used.

Table 4
Human health generic assessment criteria for residential without home-grown produce

Compound	SAC for Soil SOM 1% (mg/kg)	SAC for Soil SOM 2.5% (mg/kg)	SAC for Soil SOM 6% (mg/kg)
Metals			
Arsenic	40	40	40
Barium	1,300	1,300	1,300
Beryllium	1.7	1.7	1.7
Boron	11,000	11,000	11,000
Cadmium	149	149	149
Chromium (III) - trivalent	910	910	910
Chromium (VI) - hexavalent	21	21	21
Copper	7,100	7,100	7,100
Lead	310	310	310
Elemental Mercury (Hg^0)	0.2	0.6	1.2
Inorganic Mercury (Hg^{2+})	56	56	56
Methyl Mercury (Hg^{4+})	9	12	15
Nickel	180	180	180
Selenium	430	430	430
Vanadium	1,200	1,200	1,200
Zinc	40,000	40,000	40,000
Cyanide (free)	40	40	40
Volatile Organic Compounds			
Benzene	0.9	1.6	3.3
Toluene	900 (869)	1,900	3,900
Ethylbenzene	80	190	440
Xylene - m	80	190	450
Xylene - o	90	210	480
Xylene - p	80	180	430
Total xylene	80	180	430
Methyl tertiary-Butyl ether (MTBE)	100	170	320
Trichloroethene (TCE)	0.010	0.020	0.045
Tetrachloroethene (PCE)	0.32	0.71	1.64
1,1,1-Trichloroethane	9.0	18.4	40.4
1,1,1,2 Tetrachloroethane	1.5	3.5	8.2
1,1,2,2-Tetrachloroethane	3.9	8.0	17.2
Carbon Tetrachloride	0.026	0.056	0.128
1,2-Dichloroethane	0.009	0.013	0.023
Vinyl Chloride (chloroethene)	0.015	0.019	0.029
1,2,4-Trimethylbenzene	5.6	12.9	26.9
1,3,5-Trimethylbenzene	NR	NR	NR
Semi-Volatile Organic Compounds			
Acenaphthene	6,600 (57)	7,200	7,400
Acenaphthylene	6,600 (86)	7,200	7,400
Anthracene	31,000 (1.17)	35,000	37,000
Benzo(a)anthracene	11.0	13.6	15.0
Benzo(a)pyrene	5.3	5.3	5.3
Benzo(b)fluoranthene	4.0	4.0	4.1
Benzo(g,h,i)perylene	355	358	359
Benzo(k)fluoranthene	106	107	107
Chrysene	30	31	32
Dibenzo(a,h)anthracene	0.31	0.32	0.32
Fluoranthene	1,500	1,600	1,600
Fluorene	2,800 (31)	3,800 (77)	4,500 (183)
Indeno(1,2,3-cd)pyrene	45	46	46
Naphthalene	23	55	125
Phenanthrene	1,300 (36)	1,450	1,520
Pyrene	3,700	3,800	3,800
Phenol	440*	688	1,170
Total Petroleum Hydrocarbons			
Aliphatic hydrocarbons EC_5-EC_6	42	78	161
Aliphatic hydrocarbons >EC_6-EC_8	100	230	530
Aliphatic hydrocarbons >EC_8-EC_{10}	27	65	155
Aliphatic hydrocarbons >EC_{10}-EC_{12}	130 (48)	330 (118)	770 (283)
Aliphatic hydrocarbons >EC_{12}-EC_{16}	1,100 (24)	2,400 (59)	4,400 (142)
Aliphatic hydrocarbons >EC_{16}-EC_{35}	65,000 (8)	92,000 (21)	111,000
Aliphatic hydrocarbons >EC_{35}-EC_{44}	65,000 (8)	92,000 (21)	111,000
Aromatic hydrocarbons >EC_8-EC_{10}	47	115	269
Aromatic hydrocarbons >EC_{10}-EC_{12}	300	600	1,200
Aromatic hydrocarbons >EC_{12}-EC_{16}	1,800 (169)	2,300 (419)	2,500
Aromatic hydrocarbons >EC_{16}-EC_{21}	1,900	1,900	1,900
Aromatic hydrocarbons >EC_{21}-EC_{35}	1,900	1,900	1,900
Aromatic hydrocarbons >EC_{35}-EC_{44}	1,900	1,900	1,900
Minerals			
Asbestos	Stage 1 test – No asbestos detected with ID; Stage 2 test - <0.001% dry weight (exceedance of either equates to an exceedance of the GAC)[1]		

Notes:

'-' Generic assessment criteria not calculated owing to low volatility of substance and therefore no pathway, or an absence of toxicological data.

NR - SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used

EC - equivalent carbon. SAC - soil assessment criteria.

[1] LOD for weight of asbestos per unit weight of soil calculated on a dry weight basis using PLM, handpicking and gravimetry.

The SAC for organic compounds are dependent on Soil Organic Matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58.
1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, PAHs napthalene, acenaphthene and acenaphthylene, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway, section 10.1.1, SR3.

(VALUE IN BRACKETS)

RSK has adopted an approach for petroleum hydrocarbons in accordance with LQM/CIEH whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the SAC with the corresponding solubility or vapour saturation limits given in brackets.

GENERIC ASSESSMENT CRITERIA FOR CONTROLLED WATERS

Protection of the water environment

The water environment in the United Kingdom is protected under a number of regulatory regimes. The relevant environmental regulator is consulted where there may be a risk that pollution of 'controlled waters' may occur or may have occurred in the past.

The term 'controlled waters' refers to coastal waters, inland freshwaters and groundwater. The EU Water Framework Directive (WFD) (2000/60/EC) is implemented via domestic regulations and guidance, covering aspects of groundwater and surface water protection as well as drinking water supply policy. Domestic legislation and guidance will vary across the United Kingdom. Therefore, the relevant legislation for England, Wales, Northern Ireland and Scotland should be reviewed, alongside guidance provided by the Environment Agency (EA), Natural Resource Wales (NRW), the Scottish Environmental Protection Agency (SEPA) or the Northern Ireland Environment Agency (NIEA), as appropriate.

The main objectives of the protection and remediation of groundwater under threat from land contamination are set out within "The Environment Agency's approach to groundwater protection", version 1.0 (March 2017)[1] and the associated guidance "Land contamination groundwater compliance points: quantitative risk assessments (March 2017)[1a] that have replaced the previous guidance document "Groundwater Principles and Practice (GP3)". When assessing risks to groundwater, the following need to be considered:

- Where pollutants have not yet entered groundwater, all necessary and reasonable measures must be taken to:
    - ***prevent*** *the input of* ***hazardous*** *substances into groundwater (see description of hazardous substances below)*
    - ***limit*** *the entry of other (non-hazardous) pollutants into groundwater to avoid pollution, deterioration in the status of groundwater bodies and to prevent sustained, upward trends in pollutant concentrations in groundwater.*
- Where pollutants have already entered groundwater, the priority is to take all necessary and reasonable measures to:
    - ***minimise*** *further entry of "contaminants" where there is a defined source*
    - ***limit the pollution*** *of groundwater or any effect on the status of the groundwater body from the future expansion of the 'plume', if necessary, by actively reducing its extent.*

Within the context of groundwater risk assessments on sites affected by land contamination, "reasonable" means feasible without involving disproportionate costs. What costs are "disproportionate" depends on site-specific circumstances, which may include:

- Considerations of technical feasibility such as identified by the remedial options appraisal, this may be due to the distribution or nature of the contamination and the available remedial methods to treat the identified contamination;
- Sustainability considerations.

DEFINITIONS AND SUBSTANCE CLASSIFICATIONS

Risks to surface waters:

When assessing risks to surface waters, the following list of definitions should be understood:

Priority substances (PS) are harmful substances originally identified under the Water Framework Directive (WFD) 2000/60/EC as substances 'presenting a significant risk to or via the aquatic environment' at a European level. Member States are required to incorporate the identified **PS** into their country-wide monitoring programmes. There are currently 33 **PS** defined within the Priority Substances Directive (2013/39/EU; Annex 1), with a further 12 additional substances due to come into force from 22 December 2018. Directive 2013/39/EU has been transposed into domestic legislation for England and Wales by The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Under the umbrella of **PS**, there is a sub-set of substances identified as being "hazardous", and these are referred to as **Priority hazardous substances (PHS).** The list of **PHS** is defined at EU level within the Priority Substances Directive (2013/39/EU). The WFD defines hazardous substances as 'substances (or groups of substances) that are toxic, persistent and liable to bio-accumulate, and other substances or groups of substances that give rise to an equivalent level of concern.' There are currently **21 PHS** (previously 15 PHS, with a further 6 substances added in 22 December 2018).

There is also another group of substances defined at EU level and which are referred to as **other pollutants (OP)** in Directive 2013/39/EU**.** These are additional substances which although not **priority substances**, have EQS which are identical to those laid down in the legislation which applied prior to 13 January 2009 (Directive 2008/105/EU). The **OP** are listed along with the **priority substance (PS)** within the Priority Substances Directive (2013/39/EU),and their associated EQS are also listed therein. There are 6 **OP** defined within the Priority Substances Directive (2013/39/EU).

In addition to the EU level substances, there are also a group of pollutants defined at a Member State level, referred to as **Specific pollutants (SP)**. These substances are pollutants which are released in significant quantities into water bodies in each of the individual European Member States. Under the WFD, Member States are required to set their own EQS for these substances. An indicative list of **SP** is given in Annex VIII of the WFD. Many of the substances categorised as **SP** in the UK were formerly List 2 substances under the old Groundwater Directive (80/68/EEC). The **SP** are defined within Part 2 (Table 1) of The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Risks to groundwater:

When assessing risks to groundwater, the following definitions should be understood:

Under the requirements of the Groundwater Daughter Directive (2006/118/EU), the UK has published a list of substances it considers to be **hazardous substances** with respect to groundwater. In their advisory capacity to the government, this list has been derived by the UK Joint Agencies Groundwater Directive Advisory Group (JAGDAG), of which the Environment Agency is a member. The latest JAGDAG list of **hazardous substances** was published in January 2019 and the Environment Agency will use the updated list of hazardous substances from this date for all new activities that may lead to the discharge of hazardous substances to groundwater. The list is extensive and can be found in full at:

https://www.wfduk.org/stakeholders/jagdag

Selecting the appropriate assessment criteria

When assessing the risks to controlled waters, various assessment criteria apply, depending on the nature of the assessment and the conceptual site model.

Where a surface water body is involved, then Environmental Quality Standards (EQS) are the relevant assessment criteria as they are designed to be protective of surface water ecology.

Where a public water supply or a Principal aquifer is involved, then the standards defined in The Water Supply (Water Quality) Regulations(2) are the primary source of assessment criteria. The Private Water Supplies Regulations(3) may also be applicable in some cases. For instances where there are no UK assessment criteria, then the World Health Organisation (WHO) drinking water guidelines(4) may be used.

This appendix presents the generic assessment criteria (GAC) that RSK considers suitable for assessing risks to controlled waters for our most commonly encountered determinants. A full list of EQS for England and Wales are included in The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

The RSK GAC for controlled waters are presented in **Table 1** and **Table 2**. In line with the Environment Agency's Remedial Targets Methodology, the GAC for controlled waters are termed 'target concentrations'.

The appropriate target concentrations should be selected with consideration to:

- the site conceptual model (i.e. the receptor at potential risk);
- whether the substance is already present in groundwater at the site;
- whether or not the substance is classified as a priority hazardous substance under the Priority Substances Directive (2013/39/EC) (see above), or as a hazardous substance according to the current list of JAGDAG determinations(5); and
- background concentrations in the aquifer (if applicable).

It is important to remember that the WFD and Environment Agency guidance(1 & 1a) support a sustainable, risk-based approach be applied to groundwater contamination. Exceedance of any target concentration does not necessarily imply that an unacceptable risk exists or that remediation is inevitably required.

Target concentrations shaded in green are statutory values	Target concentrations shaded in orange are non-statutory values

Note: Units µg/l throughout (unless otherwise stated)

Table 1: Target concentrations for controlled waters (excluding TPH CWG fractions)

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Metals & other inorganics						
Hazardous substance	Specific pollutant	Arsenic	-	10[2]	50[6a]	25[6a]
Non-hazardous pollutant	Priority substance	Cadmium	0.1[7]	5[2]	≤0.08, 0.08, 0.09, 0.15, 0.25 [6b]	0.2[6a]
(Not determined)	-	Chromium (total)	-	50[2]	8.1 Sum values for chromium III and VI	-
(Not determined)	Specific pollutant	Chromium (III)	-	Use value for total chromium	4.7[6a]	-
Hazardous substance	Specific pollutant	Chromium (VI)			3.4[6a]	0.6[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
(Not determined)	Specific pollutant	Copper	-	2,000[2]	1 bioavailable[6a]	3.76 dissolved, where DOC ≤1mg/l[6a]
						3.76µg/l + (2.677µg/l x ((DOC/2) – 0.5µg/l)) dissolved, where DOC >1mg/l[6a]
Hazardous substance	Priority substance	Lead	-	10[2]	1.2 bioavailable[6a]	1.3[6a]
Hazardous substance	**Priority hazardous substance**	Mercury	0.01[7]	1[2]	0.07[6c]	0.07[6c]
Non-hazardous pollutant	Priority substance	Nickel	-	20[2]	4.0 bioavailable[6a]	8.6[6a]
Non-hazardous pollutant	-	Selenium	-	10[2]	-	-
Non-hazardous pollutant	Specific pollutant	Zinc	-	3,000[8]	10.9 bioavailable[6a]	6.8 dissolved [6a]
(Not determined)	Specific pollutant	Iron	-	200[2]	1000[6a]*1	1000[6a])*1
(Not determined)	Specific pollutant	Manganese	-	50[2] (0.05mg/l)	123 bioavailable[6a] (0.123mg/l)	-
(Not determined)	-	Aluminium	-	200[2]	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
					EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	**Priority hazardous substance**	Tributyltin compounds (Tributyltin-cation)	0.001[7]	-	0.0002[6a]	0.0002[6a]
(Not determined)	-	Sodium	-	200,000[2] (200 mg/l)	-	-
Non-hazardous pollutant	Specific pollutant	Cyanide (Hydrogen cyanide)	-	50[2] (0.05 mg/l)	1[6a] (0.001 mg/l)	1[6a] (0.001 mg/l)
Non-hazardous pollutant	-	Total ammoniacal nitrogen[$]	-	500[2] (0.5 mg/l) as NH_4 (472 expressed as NH_3; 389 expressed as N)	300[6f] (0.3 mg/l) as N (364 expressed as NH_3; 386 expressed as NH_4)	-
Non-hazardous pollutant	Specific pollutant	Ammonia un-ionised (equilibrium ratio calculated) (NH_3)	-	-	-	21[6a] (0.021 mg/l)
Non-hazardous pollutant	Specific pollutant	Chlorine	-	-	2[6a] (0.002 mg/l)	10[6d] (0.01 mg/l)
(Not determined)	-	Chloride	-	250,000[2] (250 mg/l)	-	-
(Not determined)	-	Sulphate	-	250,000[2] (250 mg/l)	-	-
(Not determined)	-	Nitrate (as NO_3)	-	50,000[2] (50 mg/l)	-	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
(Not determined)	-	Nitrite (as NO_2)	-	500[2] (0.5 mg/l)	10[9] (0.01 mg/l)	-
Volatile organic compounds (VOC)						
Non-hazardous pollutant	Other pollutant	Tetrachloroethene (tetrachloroethylene; PCE)	0.1[7]	10[2] sum of TCE and PCE	10[6a]	10[6a]
Hazardous substance	Other pollutant	Trichloroethene (trichloroethylene; TCE)	0.1[7]		10[6a]	10[6a]
Hazardous substance *(1,1,2,2-tetra - choloroethane)*	Specific pollutant	Tetrachloroethane	-	-	140[6a]	-
Hazardous substance	Other pollutant	Carbon tetrachloride (tetrachloromethane)	0.1[7]	3.0[2]	12[6a]	12[6a]
Non-hazardous pollutant	Priority substance	1,2-Dichloroethane	1.0[7]	3.0[2]	10[6a]	10[6a]
Non-hazardous pollutant	-	1.2-Dichloroethene (DCE) sum of cis and trans	-	50.0[4]	-	-
Hazardous substance	-	Vinyl chloride (chloroethene, chloroethylene)	-	0.5[2]	-	-
Non-hazardous pollutant	Priority substance	Dichloromethane	-	20[4]	20[6a]	20[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Non-hazardous pollutant	Priority substance	Trichlorobenzenes	0.01[7]	-	0.4[6a]	0.4[(6a)]
Hazardous substance	Priority substance	Trichloromethane (Chloroform)	0.1[7]	100[2a] (sum of **trihalomethanes** – chloroform, bromform, dibromochloromethane, bromodichloromethane)	2.5[6a]	2.5[6a]
(Not determined)	-	Bromoform	-		-	-
(Not determined)	-	Dibromochloromethane	-		-	-
(Not determined)	-	Bromodichloromethane	-		-	-
Non-hazardous pollutant	**Priority hazardous substance**	Di(2-ethylhexyl) phthalate (bis(2-ethylhexyl) phthalate, DEHP)	-	8[4]	1.3[6a]	1.3[6a]
(Not determined)	Specific pollutant	Benzyl butyl phthalate	-	-	7.5[6a]	0.75[6e]
Hazardous substance	**Priority hazardous substance**	Hexachlorobutadiene (as a pesticide, but reported in a VOC suite)	0.005[7]	0.1[2]	0.6[6c]	0.6[6c]
Semi-volatile organic compounds (SVOC)						
(Not determined) *Not to be confused with acenaphthene, which is a hazardous substance*	-	Acenaphthylene (Aro EC12-EC16)	-	-	5.8[10]	
Hazardous substance	**Priority hazardous substance**	Anthracene (Aro EC16-EC21)	-	-	0.1[6a]	0.1[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Non-hazardous pollutant	Priority substance	Naphthalene (Aro EC10-EC12)	-	-	2[6a]	2[6a]
Hazardous substance	Priority substance	Fluoranthene (Aro EC21-EC35) not used as an indicator for this EC band	-	-	0.0063[6a]	0.0063[6a]
Hazardous substance(s)	**Priority hazardous substance(s)**	Benzo(a)pyrene (Aro EC21-EC35)	-	0.01[2]	0.00017[6a]	0.00017[6a]
		Benzo(b)fluoranthene (Aro EC21-EC35)	-	0.1[2] sum of the concentration of the four specified compounds	No EQS for these substances. B(a)P should be used as the indicator compound instead.	
		Benzo(k)fluoranthene (Aro EC21-EC35)	-			
		Benzo(g,h,i)perylene (Aro EC21-EC35)	-			
		Indeno(1,2,3-cd) pyrene (Aro EC21-EC35)	-			
Non-hazardous pollutant	Specific pollutant	Phenol	-	-	7.7[6a]	7.7[6a]
Hazardous substance	Specific pollutant	2,4-Dichlorophenol	0.1[7]	-	4.2[6a]	0.42[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
			Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]				Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Pentachloro-phenol (PCP) (as a pesticide, but reported in an SVOC suite)	0.1[7]	0.1[2]	0.4[6a]	0.4[6a]
Petroleum hydrocarbons						
Hazardous substance	-	Total petroleum hydrocarbons	-	See Table 2 for individual (non-statutory) TPH CWG fractions with respect to drinking water receptors	See individual risk driving compounds (i.e. BTEX and PAH) for specific EQS	
Hazardous substance	Priority substance	Benzene (Aro EC5-EC7)	1[7]	1[2]	10[6a]	8[6a]
Hazardous substance	Specific pollutant	Toluene (Aro EC7-EC8)	4[7]	700[4]	74[6a]	74[6a]
Hazardous substance	-	Ethylbenzene (Aro EC8-EC10)	-	300[4]	300[11]	-
Hazardous substance	-	Xylenes (Aro EC8-EC10)	3[7]	500[4]	30[11]	-
Non-hazardous pollutant	-	Methyl tertiary butyl ether (MTBE)	-	15[12]	-	

Substance classification		Determinant	Target concentrations (µg/l)			
			Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
Groundwater receptors[5]	Surface water receptors[6]				Freshwater	Transitional (estuaries) and coastal waters
Pesticides, fungicides, insecticides and herbicides						
(Not determined) – assume to be Hazardous Substance as per below	-	Total pesticides	-	0.5[2]	-	-
(Not determined) - assume to be Hazardous Substance as per below	-	Other individual pesticides (unless otherwise detailed below)	-	0.1[2]	-	-
Hazardous substance(s)	Other pollutant (Cyclodiene pesticides)	Aldrin	0.003[7]	0.03[2]	0.01[6a] (sum of all four)	0.005[6a] (sum of all four)
		Dieldrin	0.003[7]	0.03[2]		
		Endrin	0.003[7]	0.1[2b] ('other individual pesticide')		
		Isodrin*[2]	0.003[7]	0.1[2b] ('other individual pesticide')		
Hazardous substance	Other pollutant	DDT (total)	0.002[7]	0.1[2] ('other individual pesticide')	0.025[6a]	0.025[6a]
Hazardous substance	Specific pollutant	Carbendazim	-	0.1[2] ('other individual pesticide')	0.15[6a]	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Chlorothalonil	-	0.1[2] ('other individual pesticide')	0.035[6a]	-
Hazardous substance	Priority substance	Cypermethrin	-	0.1[2] ('other individual pesticide')	8.0E^{-5}[6a]	8.0E^{-6}[6a]
Hazardous substance	Specific pollutant	Dimethoate	0.01[7]	0.1[2] ('other individual pesticide')	0.48[6a]	0.48[6a]
(Not determined)	Specific pollutant	Glyphosate	-	0.1[2] ('other individual pesticide')	196[6a]	196[6a]
Hazardous substance	Specific pollutant	Linuron	-	0.1[2] ('other individual pesticide')	0.5[6a]	0.5[6a]
Non-hazardous pollutant	Specific pollutant	Mecoprop	0.04[7]	0.1[2] ('other individual pesticide')	18[6a]	18[6a]
Non-hazardous pollutant	Specific pollutant	Methiocarb	-	0.1[2] ('other individual pesticide')	0.01[6a]	-
Non-hazardous pollutant	Specific pollutant	Pendimethalin	-	0.1[2] ('other individual pesticide')	0.3[6a]	-

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Specific pollutant	Permethrin	0.001[7]	0.1[2] ('other individual pesticide')	0.001[6a]	0.0002[6a]
Hazardous substance	Priority substance	Alachlor	-	0.1[2] ('other individual pesticide')	0.3[6a]	0.3[6a]
Hazardous substance	Priority substance	Atrazine	0.03[7]	100[4] ('other individual pesticide')	0.6[6a]	0.6[6a]
Hazardous substance	Priority substance	Diuron	-	0.1[2] ('other individual pesticide')	0.2[6a]	0.2[6a]
Hazardous substance	**Priority hazardous substance**	Endosulphan	0.005[7]	0.1[2] ('other individual pesticide')	0.005[6a]	0.0005[6a]
Non-hazardous pollutant	Priority substance	Isoproturon	-	0.1[2] ('other individual pesticide')	0.3[6a]	0.3[6a]
Hazardous substance	Priority substance	Simazine	0.03[7]	0.1[2] ('other individual pesticide')	1[6a]	1 [6a]
Hazardous substance	**Priority hazardous substance**	Trifluralin	0.01[7]	0.1[2] ('other individual pesticide')	0.03[6a]	0.03[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters
Hazardous substance	Priority substance	Dichlorvos	-	0.1[2] ('other individual pesticide')	6.0E^{-4}[6a]	6.0E^{-5}[6a]
Hazardous substance	Priority substance	Heptachlor and heptachlor epoxide	-	0.03[2]	2.0E^{-7}[6a]	1.0E^{-08}[6a]
Miscellaneous						
(Not determined)	Specific pollutant	Triclosan (antibacterial agent)	-	-	0.1[6a]	0.1[6a]
Hazardous substance	**Priority hazardous substance**	Perfluoro-octane sulfonic acid (and its derivatives) (PFOS)	-	-	6.5E^{-4}[6a]	1.3E^{-4}[6a]
Hazardous substance	**Priority hazardous substance**	Hexabromo cyclododecane (HBCDD)	-	-	0.0016[6a]	0.0008[6a]

Substance classification		Determinant	Target concentrations (µg/l)			
Groundwater receptors[5]	Surface water receptors[6]		Minimum reporting value	UK drinking water standard (or best equivalent)	EQS or best equivalent	
					Freshwater	Transitional (estuaries) and coastal waters

Notes:

'-' A target concentration is not available.

$Please note that total ammonia (NH_4^+ and NH_3) is equivalent to ammoniacal nitrogen in laboratory reports

*1 Please note that although iron is listed in the 2015 Direction as 1.000 µg/l, the EQS remains at 1mg/l in Scotland and it is assumed this is an error and should read either 1,000 or 1000µg/l.

*2 Please note that although Isodrin is not listed in name within the group of "Cyclodiene pesticides" in Table 1 of Schedule 3 Part 3 of the 2015 Direction[6], the CAS number for Isodrin (465-73-6) **is** listed and therefore it is assumed that it has been missed off the named list of substances.

*3 Total petroleum hydrocarbons is used for consistency, but is an analytical method-defined measurement for a mixture of hydrocarbons subject to environmental analysis[11].

"Bioavailable" in relation to copper, zinc, nickel and manganese (but not lead) is the generic EQSbioavailable[6a] derived from the Metal Bioavailability Assessment Tool (M-BAT) developed by the Water Framework Directive UK Technical Advisory Group (WFDTAG). Exceedance of this value should prompt a site-specific assessment using the M-BAT with pH, DOC and Ca to derive a site-specific EQS termed the $PNEC_{dissolved}$. http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat.

For zinc, if there is an exceedance of the EQSbioavailable in an initial GQRA, Tier 2 required that the EQS for zinc should also have the ambient background concentration of zinc added as well

Table 2: World Health Organization (WHO) guide values for TPH CWG fractions in drinking water[13] (as referenced in CL:AIRE, 2017[11])

TPH CWG fraction	WHO guide value for drinking water[13] (µg/l)
Aliphatic fractions:	
Aliphatic EC5-EC6	15,000
Aliphatic >EC6-EC8	15,000
Aliphatic >EC8-EC10	300
Aliphatic >EC10-EC12	300
Aliphatic >EC12-EC16	300
Aliphatic >EC16-EC21	-
Aliphatic >EC21-EC35	-
Aromatic fractions:	
Aromatic EC5-EC6	10 (benzene)
Aromatic >EC6-EC8	700 (toluene)
Aromatic >EC8-EC10	300 (ethyl benzene) 500 (xylenes)
Aromatic >EC10-EC12	90
Aromatic >EC12-EC16	90
Aromatic >EC16-EC21	90
Aromatic >EC21-EC35	90
Reference: World Health Organisation (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organisation, Geneva[13].	

References

1. Environment Agency (2018), 'The Environment Agency's approach to groundwater protection', version 1.2, February 2018 (formerly contained within GP3). https://www.gov.uk/government/collections/groundwater-protection

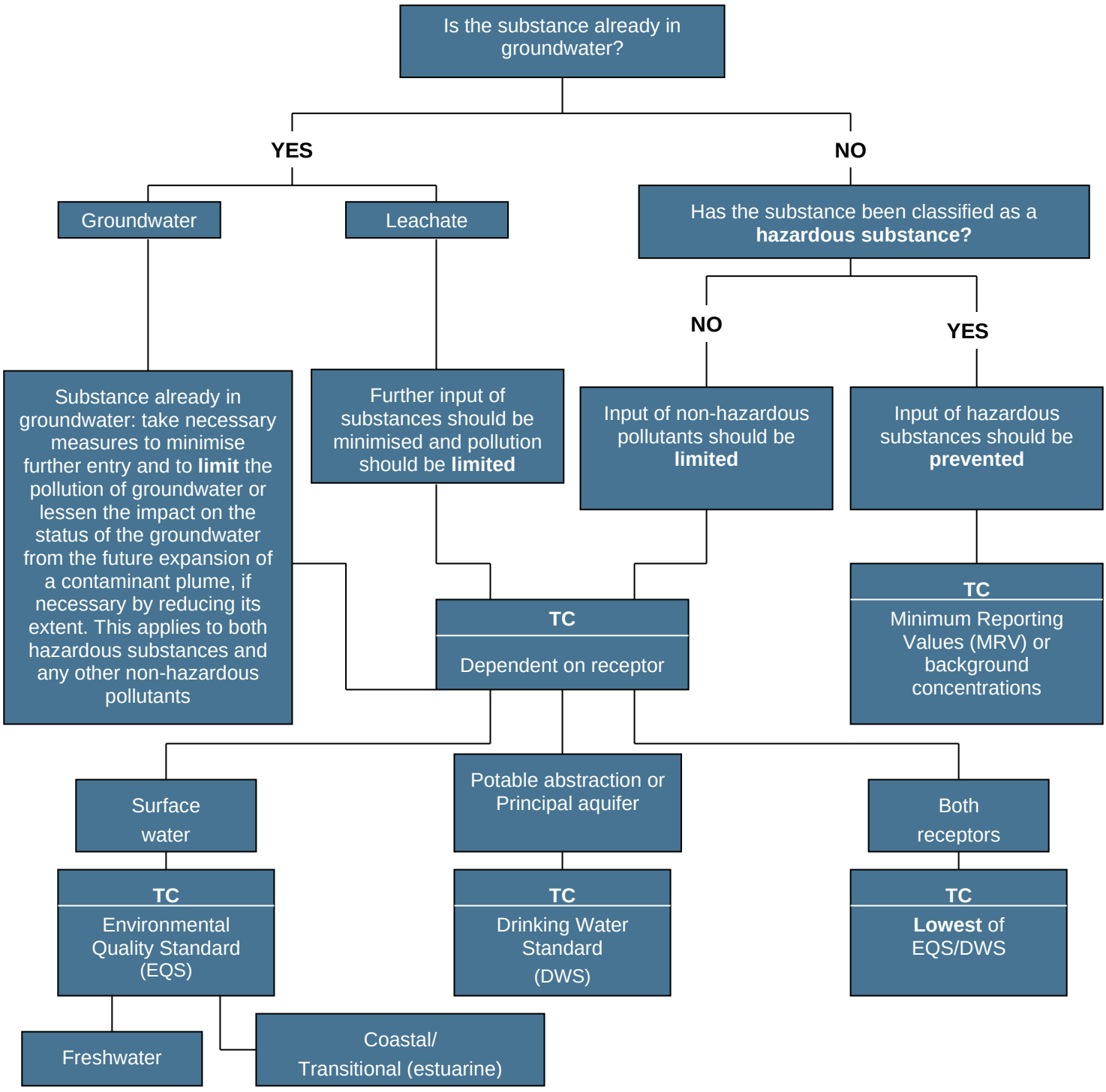
1a. Environment Agency (2017), 'Land contamination groundwater compliance points: quantitative risk assessments', March 2017 (formerly contained within GP3) [accessed 29 March 2017]. https://www.gov.uk/government/collections/groundwater-protection

2. The Water Supply (Water Quality) Regulations 2016 (SI 2016/619)
    - 2a. Sum of chloroform, bromoform, dibromochloromethane and bromodichloromethane
    - 2b. Standard applies to individual pesticides except aldrin, dieldrin, heptachlor and heptachlor epoxide, for which a separate standard is defined.
3. The Private Water Supplies (England) Regulations 2016. SI 2016 / 618
4. WHO (2011), *Guidelines for drinking-water quality*, 4th edn
5. JAGDAG hazard substance determinations (January 2019): This list contains substances that are determined to be hazardous substances or non-hazardous pollutants for the purposes of the groundwater directive 2006/118/EC. https://www.wfduk.org/stakeholders/jagdag [accessed 1 February 2021]
   The absence of an assessment or substance from the list means an assessment has not been completed and is therefore presented as 'Not determined'. For further details on how substances are assessed, see the Joint Agencies Groundwater Directive Advisory Group (JAGDAG) 'Methodology for the determination of hazardous substances in groundwater for the purposes of the groundwater directive 2006/118/EC' which is available from the JAGDAG website. The methodology is a UK –wide framework that sets criteria for how to assess whether a substance is a hazardous substances in groundwater.
6. The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
    - 6a. The EQS for these substances are based on a "long term mean" or an "annual average (AA)" EQS.
    - 6b. For cadmium and its compounds the EQS values vary depending on the hardness of the water as specified in five class categories (Class 1: < 40 mg CaCO3/l, Class 2: 40 to < 50 mg CaCO3/l, Class 3: 50 to < 100 mg CaCO3/l, Class 4: 100 to < 200 mg CaCO3/l and Class 5: ≥ 200 mg CaCO3/l).
    - 6c. The EQS for Mercury and hexachlorobutadiene are based on a "maximum acceptable concentration (MAC)" EQS in absence of an "annual average (AA)" EQS.
    - 6d. The EQS for chlorine in saltwater is based on the 95th percentile concentration of total residual oxidant, which refers to the sum of all oxidising agents existing in water, expressed as available chlorine.
    - 6e. The recommended saltwater standard is derived using a safety factor of 100. Where the standard is failed, it is recommended that supporting evidence of ecological damage should be obtained before committing to expensive action.
    - 6f. EQS for total ammonia is as per Schedule 3, Part 1, Table 7 of of the above directions. EQS applies to river types 1, 2 and 4 and 6 (namely upland and low alkalinity). The EQS for a lowland and high alkalinity rivers (types 3, 5 and 7) is 600µg/l (0.6mg/l).

   Additional information on the Metal Bioavailability Assessment Tool (M-BAT) is available at http://www.wfduk.org/resources/rivers-lakes-metal-bioavailability-assessment-tool-m-bat

7. Minimum reporting values listed at https://www.gov.uk/government/publications/values-for-groundwater-risk-assessments/hazardous-substances-to-groundwater-minimum-reporting-values (updated 13 January 2017; accessed 29 March 2017). Note target concentration for xylenes is 3 μg/l each for o-xylene and m/p xylene as it may not be possible to separate m- and p-xylene; 135 tcb, 124 tcb, 123 tcb each to 0.01 μg/l)
8. The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (as amended). SI 1996 / 3001
9. Council Directive on the Quality of Fresh Waters Needing Protection or Improvement in Order to Support Fish Life (Freshwater Fish Directive) (78/659/EEC)
10. WRc plc (2002), R&D Technical Report P45.
11. CL:AIRE, 2017. Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies. V1.1.
12. Drinking Water Inspectorate (London, UK). Environmental Information Request on MTBE in drinking water. Ref. DWI 1/10/18; dated 28 November 2006. Value is based on the odour threshold for MTBE, which is lower than a health-based guideline value
13. World Health Organisation (WHO), 2008. Petroleum products in drinking-water. Background document for development of WHO guidelines for drinking water quality. WHO/SDE/WSH/05.08/123. World Health Organisation, Geneva. [accessed 29 March 2017] http://www.who.int/water_sanitation_health/dwq/chemicals/petroleumproducts_2add_june2008.pdf

FLOW CHART TO ASSIST WITH SELECTION OF TARGET CONCENTRATIONS



TC = Target concentration

When leachate is being assessed the 'compliance point' is the groundwater body. Therefore dilution within the groundwater body may be applied with caution before comparing with the TC.

When directly assessing a receptor, e.g., a river, the appropriate TC should be selected.

APPENDIX H – GQRA SCEENING SOILS

Project name	Plot 9B First Street
Project code	4770
Client name	Vita Meadows Ltd
Address	
NGR	
Land use	Residential without home-grown produce
SOM	1%
GAC version	2021_00

Notes

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects	Lab sample ID	24/06510/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	24/06510/6
									Client sample ID	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	WS105
									Depth to top	0.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	3.7
									Depth to bottom						5				
									Date sampled	24/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
Metals and Inorganics																			
Antimony	mg/kg			150	<5	13	5	8		24	7	<5	<5	<5	<5	150	<5	<5	<5
Arsenic	mg/kg	40		19	1	13	13	0		13	12	3	1	4	2	19	3	5	4
Barium	mg/kg	1300		328	51	13	13	0		204	238	91	76	56	72	222	62	51	145
Beryllium	mg/kg	1.7		1.4	<0.5	13	9	4		1	1.2	<0.5	1	0.6	1.1	1.4	<0.5	<0.5	<0.5
Boron (water soluble)	mg/kg	11000			<1.0	13	0	13		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	mg/kg	149		2.4	<0.5	13	6	7		1.1	1.5	<0.5	0.6	<0.5	<0.5	1.3	<0.5	<0.5	<0.5
Chromium	mg/kg	910	21	31	10	13	13	0		16	18	10	27	22	31	14	12	11	10
Chromium (trivalent)	mg/kg	910		31	10	13	13	0		16	18	10	27	22	31	14	12	11	10
Chromium (hexavalent)	mg/kg	21			<1	13	0	13		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	mg/kg	7100		151	10	13	13	0		89	61	12	21	18	23	151	15	12	10
Lead	mg/kg	310		1990	10	13	13	0		412	352	20	14	31	39	1990	59	12	10
Mercury	mg/kg	56	0.2	0.95	<0.17	13	3	10		0.25	<0.17	<0.17	<0.17	<0.17	<0.17	0.5	<0.17	<0.17	<0.17
Molybdenum	mg/kg			2	<1	13	5	8		2	1	<1	<1	<1	<1	2	<1	<1	<1
Nickel	mg/kg	180		38	9	13	13	0		24	29	13	29	16	32	25	9	9	11
Selenium	mg/kg	430		4	<1	13	1	12		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Vanadium	mg/kg	1200		29	9	13	13	0		26	29	10	28	21	28	27	13	13	9
Zinc	mg/kg	40000		316	27	13	13	0		206	258	33	63	49	59	236	41	27	30
Cyanide (total)	mg/kg		24		<1	13	0	13		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Asbestos																			
Asbestos in soil		Detect				7	1	6		NAD	Trace Amosite			NAD		NAD		NAD	
Asbestos Matrix (microscope)		Detect				7	1	6		-	Loose Fibres			-		-		-	
Asbestos in soil % composition (hand picking and weighing)	% w/w	0.001				0	0	0											
Petroleum Hydrocarbons																			
Ali >C5-C6	mg/kg	42			<0.01	7	0	7			<0.01	<0.01	<0.01				<0.01		<0.01
Ali >C6-C8	mg/kg	100			<0.01	7	0	7			<0.01	<0.01	<0.01				<0.01		<0.01
Ali >C8-C10	mg/kg	27			<1	7	0	7			<5	<1	<1				<1		<1
Ali >C10-C12	mg/kg	130	48		<1	7	0	7			<5	<1	<1				<1		<1
Ali >C12-C16	mg/kg	1100	24	1	<1	7	2	5			<5	<1	1				<1		<1
Ali >C16-C21	mg/kg			8	<1	7	4	3			8	1	<1				<1		<1
Ali >C21-C35	mg/kg			99	<1	7	6	1			99	4	6				12		<1
Ali >C16-C35 calculated	mg/kg	65000	8	107	<1	7	6	1			107	5	6				12		<1
Ali >C35-C44	mg/kg	65000	8	39	<1	5	1	4			39	<1	<1						<1
Total Aliphatics	mg/kg			24	12	2	2	0									12		
Aro >C5-C7	mg/kg				<0.01	7	0	7			<0.01	<0.01	<0.01				<0.01		<0.01
Aro >C7-C8	mg/kg				<0.01	7	0	7			<0.01	<0.01	<0.01				<0.01		<0.01
Aro >C8-C10	mg/kg	47		8	<1	7	1	6			8	<1	<1				<2		<2
Aro >C10-C12	mg/kg	300		7	<1	7	2	5			7	<1	<1				<1		<1
Aro >C12-C16	mg/kg	1800	169	24	<1	7	6	1			24	1	2				2		<1

Project name	Plot 9B First Street
Project code	4770
Client name	Vita Meadows Ltd
Address	
NGR	
Land use	Residential without home-grown produce
SOM	1%
GAC version	2021_00

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detec	Lab sample ID	24/06510/3	24/06510/4
									Client sample ID	WS106	WS106
									Depth to top	0.5	1.8
									Depth to bottom		
									Date sampled	28/06/24	28/06/24
Metals and Inorganics											
Antimony	mg/kg			150	<5	13	5	8	43	14	<5
Arsenic	mg/kg	40		19	1	13	13	0	17	2	11
Barium	mg/kg	1300		328	51	13	13	0	328	259	73
Beryllium	mg/kg	1.7		1.4	<0.5	13	9	4	1.2	0.7	1
Boron (water soluble)	mg/kg	11000			<1.0	13	0	13	<1.0	<1.0	<1.0
Cadmium	mg/kg	149		2.4	<0.5	13	6	7	1.5	2.4	<0.5
Chromium	mg/kg	910	21	31	10	13	13	0	17	12	15
Chromium (trivalent)	mg/kg	910		31	10	13	13	0	17	12	15
Chromium (hexavalent)	mg/kg	21			<1	13	0	13	<1	<1	<1
Copper	mg/kg	7100		151	10	13	13	0	97	15	72
Lead	mg/kg	310		1990	10	13	13	0	559	96	91
Mercury	mg/kg	56	0.2	0.95	<0.17	13	3	10	0.95	<0.17	<0.17
Molybdenum	mg/kg			2	<1	13	5	8	2	<1	2
Nickel	mg/kg	180		38	9	13	13	0	24	38	18
Selenium	mg/kg	430		4	<1	13	1	12	<1	4	<1
Vanadium	mg/kg	1200		29	9	13	13	0	27	12	22
Zinc	mg/kg	40000		316	27	13	13	0	316	64	113
Cyanide (total)	mg/kg		24		<1	13	0	13	<1	<1	<1
Asbestos											
Asbestos in soil		Detect				7	1	6	NAD	NAD	
Asbestos Matrix (microscope)		Detect				7	1	6	-	-	
Asbestos in soil % composition (hand picking and weighing)	% w/w	0.001				0	0	0			
Petroleum Hydrocarbons											
Ali >C5-C6	mg/kg	42			<0.01	7	0	7		<0.01	<0.01
Ali >C6-C8	mg/kg	100			<0.01	7	0	7		<0.01	<0.01
Ali >C8-C10	mg/kg	27			<1	7	0	7		<1	<1
Ali >C10-C12	mg/kg	130	48		<1	7	0	7		<1	<1
Ali >C12-C16	mg/kg	1100	24	1	<1	7	2	5		1	<1
Ali >C16-C21	mg/kg			8	<1	7	4	3		3	1
Ali >C21-C35	mg/kg			99	<1	7	6	1		19	5
Ali >C16-C35 calculated	mg/kg	65000	8	107	<1	7	6	1		22	6
Ali >C35-C44	mg/kg	65000	8	39	<1	5	1	4			<1
Total Aliphatics	mg/kg			24	12	2	2	0		24	
Aro >C5-C7	mg/kg				<0.01	7	0	7		<0.01	<0.01
Aro >C7-C8	mg/kg				<0.01	7	0	7		<0.01	<0.01
Aro >C8-C10	mg/kg	47		8	<1	7	1	6		<2	<2
Aro >C10-C12	mg/kg	300		7	<1	7	2	5		1	<1
Aro >C12-C16	mg/kg	1800	169	24	<1	7	6	1		7	2

									Lab sample ID	24/06510/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	24/06510/6
									Client sample ID	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	WS105
									Depth to top	0.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	3.7
									Depth to bottom						5				
									Date sampled	24/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects											
Aro >C16-C21	mg/kg	1900		109	<1	7	6	1		109	1	3					4		<1
Aro >C21-C35	mg/kg	1900		512	<1	7	6	1		512	5	7					18		<1
Aro >C35-C44	mg/kg	1900		34	<1	5	1	4		34	<1	<1							<1
Total Aromatics	mg/kg			200	24	2	2	0									24		
TPH (Ali & Aro)	mg/kg			224	36	2	2	0									36		
BTEX - Benzene	mg/kg	0.9			<0.01	7	0	7		<0.01	<0.01	<0.01					<0.01		<0.01
BTEX - Toluene	mg/kg	900	869		<0.01	7	0	7		<0.01	<0.01	<0.01					<0.01		<0.01
BTEX - Ethyl Benzene	mg/kg	80			<0.01	7	0	7		<0.01	<0.01	<0.01					<0.01		<0.01
BTEX - o Xylene	mg/kg	90			<0.01	7	0	7		<0.01	<0.01	<0.01					<0.01		<0.01
BTEX - m & p Xylene	mg/kg	80			<0.01	7	0	7		<0.01	<0.01	<0.01					<0.01		<0.01
BTEX Total (from VOC)	mg/kg				<0.001	2	0	2									<0.001		
TPH (Ali & Aro >C5-C44)	mg/kg			839	<2	5	4	1		839	12	19							<2
Total Aliphatics >C5-C44	mg/kg			146	<1	5	4	1		146	5	7							<1
Total Aromatics >C5-C44	mg/kg			693	<2	5	4	1		693	7	12							<2
EPH Total Ali & Aro (>C10-C16)	mg/kg			9	2	2	2	0									2		
EPH Total Ali & Aro (>C16-C35)	mg/kg			215	33	2	2	0									33		
EPH Total Ali & Aro (>C8-C10)	mg/kg				<1	2	0	2									<1		
VPH total (>C5-C8)	mg/kg				<0.01	2	0	2									<0.01		
Fuel oxygenates																			
MTBE	mg/kg	100			<0.01	7	0	7		<0.01	<0.01	<0.01					<0.01		<0.01
TAME	mg/kg				<0.1	2	0	2									<0.1		
Polycyclic aromatic hydrocarbons																			
Acenaphthene	mg/kg	6600	57	8.07	<0.01	13	8	5		8.07	0.54	0.01	<0.01	<0.01	0.09	0.32	0.27	<0.01	<0.01
Acenaphthylene	mg/kg	6600	86	0.56	<0.01	13	6	7		0.56	0.12	<0.01	<0.01	<0.01	<0.01	0.05	0.03	<0.01	<0.01
Anthracene	mg/kg	31000	1.17	9.83	<0.02	13	8	5		9.83	0.99	0.02	<0.02	<0.02	0.14	0.52	0.72	<0.02	<0.02
Benzo(a)anthracene	mg/kg	11		20.1	<0.04	13	9	4		20.1	3.28	0.08	<0.04	0.1	0.44	1.64	3.2	<0.04	<0.04
Benzo(a)pyrene	mg/kg	5.3		19	<0.04	13	9	4		19	4.1	0.1	<0.04	0.15	0.44	1.67	3.16	<0.04	<0.04
Benzo(b)fluoranthene	mg/kg	4		22.5	<0.05	13	9	4		22.5	4.53	0.11	<0.05	0.16	0.54	2.03	3.52	<0.05	<0.05
Benzo(ghi)perylene	mg/kg	355		11.6	<0.05	13	9	4		11.6	2.95	0.07	<0.05	0.1	0.24	1.08	1.71	<0.05	<0.05
Benzo(k)fluoranthene	mg/kg	106		8.19	<0.07	13	7	6		8.19	1.5	<0.07	<0.07	<0.07	0.17	0.66	1.23	<0.07	<0.07
Chrysene	mg/kg	30		22.7	<0.06	13	9	4		22.7	3.38	0.11	<0.06	0.11	0.46	1.81	3	<0.06	<0.06
Dibenzo(ah)anthracene	mg/kg	0.31		2.68	<0.04	13	7	6		2.68	0.57	<0.04	<0.04	<0.04	0.05	0.24	0.35	<0.04	<0.04
Fluoranthene	mg/kg	1500		47.7	<0.08	13	9	4		47.7	6.43	0.18	<0.08	0.19	1.16	3.71	7.07	<0.08	<0.08
Fluorene	mg/kg	2800	31	6.42	<0.01	13	7	6		6.42	0.44	<0.01	<0.01	<0.01	0.05	0.23	0.2	<0.01	<0.01
Indeno(123-cd)pyrene	mg/kg	45		11.6	<0.03	13	9	4		11.6	2.85	0.06	<0.03	0.1	0.24	1.01	1.82	<0.03	<0.03
Naphthalene	mg/kg	23		3.21	<0.03	13	6	7		3.21	0.33	<0.03	<0.03	<0.03	<0.03	0.11	0.05	<0.03	<0.03
Phenanthrene	mg/kg	1300	36	37.6	<0.03	13	10	3		37.6	3.54	0.09	0.06	0.04	0.35	2.36	2	<0.03	<0.03
Pyrene	mg/kg	3700		41.6	<0.07	13	9	4		41.6	5.87	0.17	<0.07	0.19	1.02	3.3	5.71	<0.07	<0.07
Total PAH-16MS	mg/kg			273	<0.08	13	9	4		273	41.4	1	<0.08	1.14	5.39	20.7	34	<0.08	<0.08
Polycyclic aromatic hydrocarbons (SVOC)																			
Acenaphthene	mg/kg	6600	57	0.302	0.113	2	2	0									0.113		
Acenaphthylene	mg/kg	6600	86		<0.1	2	0	2									<0.1		
Anthracene	mg/kg	31000	1.17	0.493	0.251	2	2	0									0.251		
Benzo(a)anthracene	mg/kg	11		1.87	0.767	2	2	0									0.767		
Benzo(a)pyrene	mg/kg	5.3		2.02	0.856	2	2	0									0.856		
Benzo(b)fluoranthene	mg/kg	4		2.25	0.834	2	2	0									0.834		
Benzo(ghi)perylene	mg/kg	355		1.33	0.544	2	2	0									0.544		
Benzo(k)fluoranthene	mg/kg	106		0.578	0.368	2	2	0									0.368		
Chrysene	mg/kg	30		1.79	0.698	2	2	0									0.698		
Dibenzo(ah)anthracene	mg/kg	0.31		0.235	<0.1	2	1	1									<0.1		
Fluoranthene	mg/kg	1500		4.1	1.72	2	2	0									1.72		

								Lab sample ID	24/06510/12		24/06510/3	24/06510/4
								Client sample ID	WS105		WS106	WS106
								Depth to top	0.5		0.5	1.8
								Depth to bottom				
								Date sampled	27/06/24		28/06/24	28/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detec				
Aro >C16-C21	mg/kg	1900		109	<1	7	6	1			34	4
Aro >C21-C35	mg/kg	1900		512	<1	7	6	1			159	9
Aro >C35-C44	mg/kg	1900		34	<1	5	1	4				<1
Total Aromatics	mg/kg			200	24	2	2	0			200	
TPH (Ali & Aro)	mg/kg			224	36	2	2	0			224	
BTEX - Benzene	mg/kg	0.9			<0.01	7	0	7			<0.01	<0.01
BTEX - Toluene	mg/kg	900	869		<0.01	7	0	7			<0.01	<0.01
BTEX - Ethyl Benzene	mg/kg	80			<0.01	7	0	7			<0.01	<0.01
BTEX - o Xylene	mg/kg	90			<0.01	7	0	7			<0.01	<0.01
BTEX - m & p Xylene	mg/kg	80			<0.01	7	0	7			<0.01	<0.01
BTEX Total (from VOC)	mg/kg				<0.001	2	0	2			<0.001	
TPH (Ali & Aro >C5-C44)	mg/kg			839	<2	5	4	1				22
Total Aliphatics >C5-C44	mg/kg			146	<1	5	4	1				7
Total Aromatics >C5-C44	mg/kg			693	<2	5	4	1				15
EPH Total Ali & Aro (>C10-C16)	mg/kg			9	2	2	2	0			9	
EPH Total Ali & Aro (>C16-C35)	mg/kg			215	33	2	2	0			215	
EPH Total Ali & Aro (>C8-C10)	mg/kg				<1	2	0	2			<1	
VPH total (>C5-C8)	mg/kg				<0.01	2	0	2			<0.01	
Fuel oxygenates												
MTBE	mg/kg	100			<0.01	7	0	7			<0.01	<0.01
TAME	mg/kg				<0.1	2	0	2			<0.1	
Polycyclic aromatic hydrocarbons												
Acenaphthene	mg/kg	6600	57	8.07	<0.01	13	8	5	0.46		0.37	<0.01
Acenaphthylene	mg/kg	6600	86	0.56	<0.01	13	6	7	0.1		0.04	<0.01
Anthracene	mg/kg	31000	1.17	9.83	<0.02	13	8	5	0.85		0.68	<0.02
Benzo(a)anthracene	mg/kg	11		20.1	<0.04	13	9	4	3.32		1.7	<0.04
Benzo(a)pyrene	mg/kg	5.3		19	<0.04	13	9	4	3.86		1.67	<0.04
Benzo(b)fluoranthene	mg/kg	4		22.5	<0.05	13	9	4	4.36		1.86	<0.05
Benzo(ghi)perylene	mg/kg	355		11.6	<0.05	13	9	4	2.73		1.13	<0.05
Benzo(k)fluoranthene	mg/kg	106		8.19	<0.07	13	7	6	1.39		0.59	<0.07
Chrysene	mg/kg	30		22.7	<0.06	13	9	4	3.44		1.71	<0.06
Dibenzo(ah)anthracene	mg/kg	0.31		2.68	<0.04	13	7	6	0.55		0.24	<0.04
Fluoranthene	mg/kg	1500		47.7	<0.08	13	9	4	6.87		3.99	<0.08
Fluorene	mg/kg	2800	31	6.42	<0.01	13	7	6	0.32		0.28	<0.01
Indeno(123-cd)pyrene	mg/kg	45		11.6	<0.03	13	9	4	2.67		1.05	<0.03
Naphthalene	mg/kg	23		3.21	<0.03	13	6	7	0.12		0.07	<0.03
Phenanthrene	mg/kg	1300	36	37.6	<0.03	13	10	3	3.28		2.72	<0.03
Pyrene	mg/kg	3700		41.6	<0.07	13	9	4	6.18		3.53	<0.07
Total PAH-16MS	mg/kg			273	<0.08	13	9	4	40.5		21.6	<0.08
Polycyclic aromatic hydrocarbons (SVOC)												
Acenaphthene	mg/kg	6600	57	0.302	0.113	2	2	0			0.302	
Acenaphthylene	mg/kg	6600	86		<0.1	2	0	2			<0.1	
Anthracene	mg/kg	31000	1.17	0.493	0.251	2	2	0			0.493	
Benzo(a)anthracene	mg/kg	11		1.87	0.767	2	2	0			1.87	
Benzo(a)pyrene	mg/kg	5.3		2.02	0.856	2	2	0			2.02	
Benzo(b)fluoranthene	mg/kg	4		2.25	0.834	2	2	0			2.25	
Benzo(ghi)perylene	mg/kg	355		1.33	0.544	2	2	0			1.33	
Benzo(k)fluoranthene	mg/kg	106		0.578	0.368	2	2	0			0.578	
Chrysene	mg/kg	30		1.79	0.698	2	2	0			1.79	
Dibenzo(ah)anthracene	mg/kg	0.31		0.235	<0.1	2	1	1			0.235	
Fluoranthene	mg/kg	1500		4.1	1.72	2	2	0			4.1	

									Lab sample ID	24/06510/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	24/06510/6
									Client sample ID	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	WS105
									Depth to top	0.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	3.7
									Depth to bottom						5				
									Date sampled	24/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects													
Fluorene	mg/kg	2800	31	0.253	0.134	2	2	0									0.134				
Hexachlorobutadiene	mg/kg				<0.1	5	0	5		<0.1							<0.1		<0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	45		1.16	0.48	2	2	0									0.48				
Naphthalene	mg/kg	23			<0.1	2	0	2									<0.1				
Phenanthrene	mg/kg	1300	36	2.14	1.11	2	2	0									1.11				
Pyrene	mg/kg	3700		4.06	1.56	2	2	0									1.56				
Volatile Organic Compounds (VOC)																					
1,1,1,2-Tetrachloroethane	mg/kg	1.5			<0.001	3	0	3		<0.001									<0.001		
1,1,1-Trichloroethane	mg/kg	9			<0.001	5	0	5		<0.001							<0.001		<0.001		
1,1,2,2-Tetrachloroethane	mg/kg	3.9			<0.001	5	0	5		<0.001							<0.001		<0.001		
1,1,2-Trichloroethane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,1-Dichloroethane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,1-Dichloroethene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,1-Dichloropropene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,2,3-Trichlorobenzene	mg/kg				<0.003	5	0	5		<0.003							<0.003		<0.003		
1,2,3-Trichloropropane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,2,4-Trichlorobenzene	mg/kg				<0.1	5	0	5		<0.1							<0.1		<0.1		
1,2,4-Trichlorobenzene	mg/kg				<0.003	5	0	5		<0.003							<0.003		<0.003		
1,2,4-Trimethylbenzene	mg/kg	5.6			<0.001	5	0	5		<0.001							<0.001		<0.001		
1,2-Dibromo-3-chloropropane	mg/kg				<0.002	5	0	5		<0.002							<0.002		<0.002		
1,2-Dibromoethane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,2-Dichlorobenzene	mg/kg				<0.1	5	0	5		<0.1							<0.1		<0.1		
1,2-Dichloroethane	mg/kg	0.009			<0.002	5	0	5		<0.002							<0.002		<0.002		
1,2-Dichloropropane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,3,5-Trimethylbenzene	mg/kg	5.6			<0.001	5	0	5		<0.001							<0.001		<0.001		
1,3-Dichlorobenzene	mg/kg				<0.1	5	0	5		<0.1							<0.1		<0.1		
1,3-Dichlorobenzene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,3-Dichloropropane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
1,4-Dichlorobenzene	mg/kg				<0.1	5	0	5		<0.1							<0.1		<0.1		
1,4-Dichlorobenzene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
2,2-Dichloropropane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
2-Chlorotoluene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
4-Chlorotoluene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
4-Isopropyltoluene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Benzene	mg/kg	0.9			<0.001	5	0	5		<0.001							<0.001		<0.001		
Bromobenzene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Bromochloromethane	mg/kg				<0.005	5	0	5		<0.005							<0.005		<0.005		
Bromodichloromethane	mg/kg				<0.01	5	0	5		<0.01							<0.01		<0.01		
Bromoform	mg/kg				<0.003	5	0	5		<0.003							<0.003		<0.003		
Bromomethane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Carbon Disulphide	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Carbon Tetrachloride	mg/kg	0.026			<0.001	5	0	5		<0.001							<0.001		<0.001		
Chlorobenzene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Chloroethane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Chloroform	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Chloromethane	mg/kg				<0.01	5	0	5		<0.01							<0.01		<0.01		
cis 1,2-Dichloroethene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
cis 1,3-Dichloropropene	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		
Dibromochloromethane	mg/kg				<0.003	5	0	5		<0.003							<0.003		<0.003		
Dibromomethane	mg/kg				<0.001	5	0	5		<0.001							<0.001		<0.001		

								Lab sample ID	24/06510/12	24/06510/3	24/06510/4
								Client sample ID	WS105	WS106	WS106
								Depth to top	0.5	0.5	1.8
								Depth to bottom			
								Date sampled	27/06/24	28/06/24	28/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detec			
Fluorene	mg/kg	2800	31	0.253	0.134	2	2	0		0.253	
Hexachlorobutadiene	mg/kg				<0.1	5	0	5		<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	45		1.16	0.48	2	2	0		1.16	
Naphthalene	mg/kg	23			<0.1	2	0	2		<0.1	
Phenanthrene	mg/kg	1300	36	2.14	1.11	2	2	0		2.14	
Pyrene	mg/kg	3700		4.06	1.56	2	2	0		4.06	
Volatile Organic Compounds (VOC)											
1,1,1,2-Tetrachloroethane	mg/kg	1.5			<0.001	3	0	3			<0.001
1,1,1-Trichloroethane	mg/kg	9			<0.001	5	0	5		<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/kg	3.9			<0.001	5	0	5		<0.001	<0.001
1,1,2-Trichloroethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,1-Dichloroethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,1-Dichloroethene	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,1-Dichloropropene	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,2,3-Trichlorobenzene	mg/kg				<0.003	5	0	5		<0.003	<0.003
1,2,3-Trichloropropane	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,2,4-Trichlorobenzene	mg/kg				<0.1	5	0	5		<0.1	<0.1
1,2,4-Trichlorobenzene	mg/kg				<0.003	5	0	5		<0.003	<0.003
1,2,4-Trimethylbenzene	mg/kg	5.6			<0.001	5	0	5		<0.001	<0.001
1,2-Dibromo-3-chloropropane	mg/kg				<0.002	5	0	5		<0.002	<0.002
1,2-Dibromoethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,2-Dichlorobenzene	mg/kg				<0.1	5	0	5		<0.1	<0.1
1,2-Dichloroethane	mg/kg	0.009			<0.002	5	0	5		<0.002	<0.002
1,2-Dichloropropane	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,3,5-Trimethylbenzene	mg/kg	5.6			<0.001	5	0	5		<0.001	<0.001
1,3-Dichlorobenzene	mg/kg				<0.1	5	0	5		<0.1	<0.1
1,3-Dichlorobenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,3-Dichloropropane	mg/kg				<0.001	5	0	5		<0.001	<0.001
1,4-Dichlorobenzene	mg/kg				<0.1	5	0	5		<0.1	<0.1
1,4-Dichlorobenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
2,2-Dichloropropane	mg/kg				<0.001	5	0	5		<0.001	<0.001
2-Chlorotoluene	mg/kg				<0.001	5	0	5		<0.001	<0.001
4-Chlorotoluene	mg/kg				<0.001	5	0	5		<0.001	<0.001
4-Isopropyltoluene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Benzene	mg/kg	0.9			<0.001	5	0	5		<0.001	<0.001
Bromobenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Bromochloromethane	mg/kg				<0.005	5	0	5		<0.005	<0.005
Bromodichloromethane	mg/kg				<0.01	5	0	5		<0.01	<0.01
Bromoform	mg/kg				<0.003	5	0	5		<0.003	<0.003
Bromomethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
Carbon Disulphide	mg/kg				<0.001	5	0	5		<0.001	<0.001
Carbon Tetrachloride	mg/kg	0.026			<0.001	5	0	5		<0.001	<0.001
Chlorobenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Chloroethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
Chloroform	mg/kg				<0.001	5	0	5		<0.001	<0.001
Chloromethane	mg/kg				<0.01	5	0	5		<0.01	<0.01
cis 1,2-Dichloroethene	mg/kg				<0.001	5	0	5		<0.001	<0.001
cis 1,3-Dichloropropene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Dibromochloromethane	mg/kg				<0.003	5	0	5		<0.003	<0.003
Dibromomethane	mg/kg				<0.001	5	0	5		<0.001	<0.001

Lab sample ID									24/06510/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	24/06510/6
Client sample ID									RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	WS105
Depth to top									0.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	3.7
Depth to bottom														5				
Date sampled									24/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Dichlorodifluoromethane	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
Dichloromethane	mg/kg				<0.005	5	0	5		<0.005						<0.005		<0.005
Ethylbenzene	mg/kg	80			<0.001	5	0	5		<0.001						<0.001		<0.001
Hexachlorobutadiene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
Isopropylbenzene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
m & p Xylene	mg/kg	80			<0.001	5	0	5		<0.001						<0.001		<0.001
n-Butylbenzene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
n-Propylbenzene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
o-Xylene	mg/kg	90			<0.001	5	0	5		<0.001						<0.001		<0.001
sec-Butylbenzene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
Styrene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
tert-Butylbenzene	mg/kg				<0.002	5	0	5		<0.002						<0.002		<0.002
Tetrachloroethene	mg/kg	0.32			<0.001	5	0	5		<0.001						<0.001		<0.001
Toluene	mg/kg	900	869		<0.001	5	0	5		<0.001						<0.001		<0.001
trans 1,2-Dichloroethene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
trans 1,3-Dichloropropene	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
Trichloroethene	mg/kg	0.01			<0.001	5	0	5		<0.001						<0.001		<0.001
Trichlorofluoromethane	mg/kg				<0.001	5	0	5		<0.001						<0.001		<0.001
Vinyl Chloride	mg/kg	0.015			<0.001	5	0	5		<0.001						<0.001		<0.001
Semi-Volatile Organic Compounds (SVOC)																		
2,4,5-Trichlorophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2,4,6-Trichlorophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2,4-Dichlorophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2,4-Dimethylphenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2,4-Dinitrotoluene	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2,6-Dinitrotoluene	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2-Chloronaphthalene	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2-Chlorophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2-Methylnaphthalene	mg/kg			0.279	<0.1	5	1	4		0.279						<0.1		<0.1
2-Methylphenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
2-Nitrophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
4-Chloro-3-methylphenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
4-Methylphenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
4-Nitrophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Bis(2-chloroethoxy)methane	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Bis(2-chloroethyl)ether	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Bis(2-chloroisopropyl)ether	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Bis(2-ethylhexyl)phthalate	mg/kg			2.16	<0.5	5	2	3		2.16						<0.5		<0.5
Butylbenzyl phthalate	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Carbazole	mg/kg			0.246	<0.1	5	1	4		0.246						<0.1		<0.1
Dibenzofuran	mg/kg			0.27	<0.1	5	2	3		0.27						<0.1		<0.1
Diethyl phthalate	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Dimethyl phthalate	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Hexachlorobenzene	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Hexachloroethane	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Isophorone	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
n-Dibutylphthalate	mg/kg			0.261	<0.1	5	1	4		0.261						<0.1		<0.1
n-Dioctylphthalate	mg/kg				<0.5	5	0	5		<0.5						<0.5		<0.5
Nitrobenzene	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
n-Nitroso-n-dipropylamine	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
Pentachlorophenol	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1

								Lab sample ID	24/06510/12	24/06510/3	24/06510/4
								Client sample ID	WS105	WS106	WS106
								Depth to top	0.5	0.5	1.8
								Depth to bottom			
								Date sampled	27/06/24	28/06/24	28/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detec			
Dichlorodifluoromethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
Dichloromethane	mg/kg				<0.005	5	0	5		<0.005	<0.005
Ethylbenzene	mg/kg	80			<0.001	5	0	5		<0.001	<0.001
Hexachlorobutadiene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Isopropylbenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
m & p Xylene	mg/kg	80			<0.001	5	0	5		<0.001	<0.001
n-Butylbenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
n-Propylbenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
o-Xylene	mg/kg	90			<0.001	5	0	5		<0.001	<0.001
sec-Butylbenzene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Styrene	mg/kg				<0.001	5	0	5		<0.001	<0.001
tert-Butylbenzene	mg/kg				<0.002	5	0	5		<0.002	<0.002
Tetrachloroethene	mg/kg	0.32			<0.001	5	0	5		<0.001	<0.001
Toluene	mg/kg	900	869		<0.001	5	0	5		<0.001	<0.001
trans 1,2-Dichloroethene	mg/kg				<0.001	5	0	5		<0.001	<0.001
trans 1,3-Dichloropropene	mg/kg				<0.001	5	0	5		<0.001	<0.001
Trichloroethene	mg/kg	0.01			<0.001	5	0	5		<0.001	<0.001
Trichlorofluoromethane	mg/kg				<0.001	5	0	5		<0.001	<0.001
Vinyl Chloride	mg/kg	0.015			<0.001	5	0	5		<0.001	<0.001
Semi-Volatile Organic Compounds (SVOC)											
2,4,5-Trichlorophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
2,4,6-Trichlorophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
2,4-Dichlorophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
2,4-Dimethylphenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
2,4-Dinitrotoluene	mg/kg				<0.1	5	0	5		<0.1	<0.1
2,6-Dinitrotoluene	mg/kg				<0.1	5	0	5		<0.1	<0.1
2-Chloronaphthalene	mg/kg				<0.1	5	0	5		<0.1	<0.1
2-Chlorophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
2-Methylnaphthalene	mg/kg			0.279	<0.1	5	1	4		<0.1	<0.1
2-Methylphenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
2-Nitrophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
4-Chloro-3-methylphenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
4-Methylphenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
4-Nitrophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1
Bis(2-chloroethoxy)methane	mg/kg				<0.1	5	0	5		<0.1	<0.1
Bis(2-chloroethyl)ether	mg/kg				<0.1	5	0	5		<0.1	<0.1
Bis(2-chloroisopropyl)ether	mg/kg				<0.1	5	0	5		<0.1	<0.1
Bis(2-ethylhexyl)phthalate	mg/kg			2.16	<0.5	5	2	3		0.594	<0.5
Butylbenzyl phthalate	mg/kg				<0.1	5	0	5		<0.1	<0.1
Carbazole	mg/kg			0.246	<0.1	5	1	4		<0.1	<0.1
Dibenzofuran	mg/kg			0.27	<0.1	5	2	3		0.116	<0.1
Diethyl phthalate	mg/kg				<0.1	5	0	5		<0.1	<0.1
Dimethyl phthalate	mg/kg				<0.1	5	0	5		<0.1	<0.1
Hexachlorobenzene	mg/kg				<0.1	5	0	5		<0.1	<0.1
Hexachloroethane	mg/kg				<0.1	5	0	5		<0.1	<0.1
Isophorone	mg/kg				<0.1	5	0	5		<0.1	<0.1
n-Dibutylphthalate	mg/kg			0.261	<0.1	5	1	4		<0.1	<0.1
n-Dioctylphthalate	mg/kg				<0.5	5	0	5		<0.5	<0.5
Nitrobenzene	mg/kg				<0.1	5	0	5		<0.1	<0.1
n-Nitroso-n-dipropylamine	mg/kg				<0.1	5	0	5		<0.1	<0.1
Pentachlorophenol	mg/kg				<0.1	5	0	5		<0.1	<0.1

								Lab sample ID	24/06510/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	24/06510/6
								Client sample ID	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	WS105
								Depth to top	0.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	3.7
								Depth to bottom						5				
								Date sampled	24/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24	27/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Perylene	mg/kg			1.13	<0.1	5	3	2		1.13						0.255		<0.1
Phenols																		
Phenol	mg/kg	440			<0.1	5	0	5		<0.1						<0.1		<0.1
Phenols - Total by HPLC	mg/kg	440			<0.2	13	0	13	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Phenols - Total by HPLC	mg/kg	440			<0.2	13	0	13	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Other analytes																		
% Stones >10mm	% w/w			15.7	<0.1	13	10	3	15.7	<0.1	8	<0.1	2.4	<0.1	12.8	13.8	5.1	10.6
4-Bromophenyl phenyl ether	mg/kg				<0.1	5	0	5		<0.1						<0.1		<0.1
BTEX and MTBE Total	mg/kg				<0.01	2	0	2								<0.01		
Cresol & Chlorinated Phenol Total	mg/kg				<0.1	2	0	2								<0.1		
Electrical conductivity @ 20degC	µs/cm			197	111	2	2	0								197		
Ethers Total (from SVOC)	mg/kg				<0.1	2	0	2								<0.1		
Fraction of organic carbon	N/A			0.0779	0.0021	13	13	0	0.0438	0.0739	0.0052	0.0107	0.0054	0.0128	0.0779	0.0215	0.0305	0.0021
pH	pH			8.47	7.32	13	13	0	8.39	8.38	7.32	8.06	7.82	8.47	8.18	7.91	7.63	7.39
pH (leachable)	pH			7.33	7.33	1	1	0										7.33
Phenols Total (from SVOC)	mg/kg				<0.1	2	0	2								<0.1		
Redox Potential (water soluble)	mV			209	158	2	2	0								209		
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)	mg/kg			0.71	<0.1	2	1	1								<0.1		
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/I	mg/kg			0.71	<0.1	2	1	1								<0.1		
VOC Total (excl. BTEX)	mg/kg				<0.01	2	0	2								<0.01		

								Lab sample ID	24/06510/12	24/06510/3	24/06510/4
								Client sample ID	WS105	WS106	WS106
								Depth to top	0.5	0.5	1.8
								Depth to bottom			
								Date sampled	27/06/24	28/06/24	28/06/24
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detec			
Perylene	mg/kg			1.13	<0.1	5	3	2		0.558	<0.1
Phenols											
Phenol	mg/kg	440			<0.1	5	0	5		<0.1	<0.1
Phenols - Total by HPLC	mg/kg	440			<0.2	13	0	13	<0.2	<0.2	<0.2
Phenols - Total by HPLC	mg/kg	440			<0.2	13	0	13	<0.2	<0.2	<0.2
Other analytes											
% Stones >10mm	% w/w			15.7	<0.1	13	10	3	11.4	3.9	6.5
4-Bromophenyl phenyl ether	mg/kg				<0.1	5	0	5		<0.1	<0.1
BTEX and MTBE Total	mg/kg				<0.01	2	0	2		<0.01	
Cresol & Chlorinated Phenol Total	mg/kg				<0.1	2	0	2		<0.1	
Electrical conductivity @ 20degC	µs/cm			197	111	2	2	0		111	
Ethers Total (from SVOC)	mg/kg				<0.1	2	0	2		<0.1	
Fraction of organic carbon	N/A			0.0779	0.0021	13	13	0	0.045	0.0216	0.036
pH	pH			8.47	7.32	13	13	0	8.06	8.42	8.02
pH (leachable)	pH			7.33	7.33	1	1	0			
Phenols Total (from SVOC)	mg/kg				<0.1	2	0	2		<0.1	
Redox Potential (water soluble)	mV			209	158	2	2	0		158	
SVOC Total (excl. PAH/Phenols/Cresols and Chlorophenols)	mg/kg			0.71	<0.1	2	1	1		0.71	
SVOC Total (excl. PAH/Phenols/Cresols/Chlorophenols/Ethers/I	mg/kg			0.71	<0.1	2	1	1		0.71	
VOC Total (excl. BTEX)	mg/kg				<0.01	2	0	2		<0.01	

COMPLEX CHALLENGES ...
MADE SIMPLE

APPENDIX I – GQRA SCREENING GROUNDWATER

Project name	Plot 9B First Street
Project code	4770
Client name	Vita Meadows Ltd
Address	
NGR	
Output type	Interpretive Controlled Waters
Scenario	DWS or best equivalent / RPV, England, Wales and Northern Ireland
GAC version	Rev14

Notes

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Lab sample ID									24/06510/1	24/06955/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5
Client sample ID									RBH101	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105
Depth to top									0.5	9.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5
Depth to bottom															5			
Date sampled									24/06/2024	16/07/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024
Inorganics																		
DOC (w)	µg/l			2300	2300	1	1	0		2300								
Hardness Total	mg/l Ca CO3					1				553								
pH (w)	pH					1				6.88								
Redox Potential (water soluble)	mV					2											209	
Sulphate (w)	µg/l	250000		321000	321000	1	1	0		321000								
Metals																		
Arsenic (dissolved)	µg/l	10		<1	<1	1	0	1		<1								
Barium (dissolved)	µg/l			182	182	1	1	0		182								
Beryllium (dissolved)	µg/l			<1	<1	1	0	1		<1								
Boron (dissolved)	µg/l			209	209	1	1	0		209								
Cadmium (dissolved)	µg/l	5		<0.2	<0.2	1	0	1		<0.2								
Chromium (dissolved)	µg/l	50		1	1	1	1	0		1								
Chromium (hexavalent) (w)	µg/l			<10	<10	1	0	1		<10								
Chromium (trivalent) (w)	µg/l			<10	<10	1	0	1		<10								
Copper (dissolved)	µg/l	2000		<4	<4	1	0	1		<4								
Cyanide (total) (w)	µg/l	50		<5	<5	1	0	1		<5								
Lead (dissolved)	µg/l	10		<1	<1	1	0	1		<1								
Mercury (dissolved)	µg/l	1		<0.1	<0.1	1	0	1		<0.1								
Molybdenum (dissolved)	µg/l			1.3	1.3	1	1	0		1.3								
Nickel (dissolved)	µg/l	20		4	4	1	1	0		4								
Selenium (dissolved)	µg/l	10		3	3	1	1	0		3								
Vanadium (dissolved)	µg/l			<1	<1	1	0	1		<1								
Zinc (dissolved)	µg/l	3000		4	4	1	1	0		4								
SUM - chromium (trivalent plus hexavalent)	µg/l	50		<10	<10	1	0	1		*<10*								
Metals and Inorganics (leachable)																		
Antimony (leachable)	µg/l			<1	<1	1	0	1										
Arsenic (leachable)	µg/l	10		<1	<1	1	0	1										
Barium (leachable)	µg/l			36	36	1	1	0										
Beryllium (leachable)	µg/l			<1	<1	1	0	1										
Boron (leachable)	µg/l			53	53	1	1	0										
Cadmium (leachable)	µg/l	5		<1	<1	1	0	1										
Chromium (hexavalent) (leachable)	µg/l			<50	<50	1	0	1										
Chromium (leachable)	µg/l	50		5	5	1	1	0										
Chromium (trivalent) (10:1 leachable)	µg/l			<50	<50	1	0	1										
Copper (leachable)	µg/l	2000		<4	<4	1	0	1										
Lead (leachable)	µg/l	10		<1	<1	1	0	1										
Mercury (leachable)	µg/l	1		<0.1	<0.1	1	0	1										
Molybdenum (leachable)	µg/l			<1	<1	1	0	1										

Project name	Plot 9B First Street
Project code	4770
Client name	Vita Meadows Ltd
Address	
NGR	
Output type	Interpretive Controlled Waters
Scenario	DWS or best equivalent / RPV, England, Wales and Northern Ireland
GAC version	Rev14

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
Lab sample ID									24/06510/6	24/06510/12	24/06510/3	24/06510/4
Client sample ID									WS105	WS105	WS106	WS106
Depth to top									3.7	0.5	0.5	1.8
Depth to bottom												
Date sampled									27/06/2024	27/06/2024	28/06/2024	28/06/2024
Inorganics												
DOC (w)	µg/l			2300	2300	1	1	0				
Hardness Total	mg/l Ca CO3					1						
pH (w)	pH					1						
Redox Potential (water soluble)	mV					2					158	
Sulphate (w)	µg/l	250000		321000	321000	1	1	0				
Metals												
Arsenic (dissolved)	µg/l	10		<1	<1	1	0	1				
Barium (dissolved)	µg/l			182	182	1	1	0				
Beryllium (dissolved)	µg/l			<1	<1	1	0	1				
Boron (dissolved)	µg/l			209	209	1	1	0				
Cadmium (dissolved)	µg/l	5		<0.2	<0.2	1	0	1				
Chromium (dissolved)	µg/l	50		1	1	1	1	0				
Chromium (hexavalent) (w)	µg/l			<10	<10	1	0	1				
Chromium (trivalent) (w)	µg/l			<10	<10	1	0	1				
Copper (dissolved)	µg/l	2000		<4	<4	1	0	1				
Cyanide (total) (w)	µg/l	50		<5	<5	1	0	1				
Lead (dissolved)	µg/l	10		<1	<1	1	0	1				
Mercury (dissolved)	µg/l	1		<0.1	<0.1	1	0	1				
Molybdenum (dissolved)	µg/l			1.3	1.3	1	1	0				
Nickel (dissolved)	µg/l	20		4	4	1	1	0				
Selenium (dissolved)	µg/l	10		3	3	1	1	0				
Vanadium (dissolved)	µg/l			<1	<1	1	0	1				
Zinc (dissolved)	µg/l	3000		4	4	1	1	0				
SUM - chromium (trivalent plus hexavalent)	µg/l	50		<10	<10	1	0	1				
Metals and Inorganics (leachable)												
Antimony (leachable)	µg/l			<1	<1	1	0	1	<1			
Arsenic (leachable)	µg/l	10		<1	<1	1	0	1	<1			
Barium (leachable)	µg/l			36	36	1	1	0	36			
Beryllium (leachable)	µg/l			<1	<1	1	0	1	<1			
Boron (leachable)	µg/l			53	53	1	1	0	53			
Cadmium (leachable)	µg/l	5		<1	<1	1	0	1	<1			
Chromium (hexavalent) (leachable)	µg/l			<50	<50	1	0	1	<50			
Chromium (leachable)	µg/l	50		5	5	1	1	0	5			
Chromium (trivalent) (10:1 leachable)	µg/l			<50	<50	1	0	1	<50			
Copper (leachable)	µg/l	2000		<4	<4	1	0	1	<4			
Lead (leachable)	µg/l	10		<1	<1	1	0	1	<1			
Mercury (leachable)	µg/l	1		<0.1	<0.1	1	0	1	<0.1			
Molybdenum (leachable)	µg/l			<1	<1	1	0	1	<1			

Lab sample ID									24/06510/1	24/06955/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5
Client sample ID									RBH101	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105
Depth to top									0.5	9.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5
Depth to bottom															5			
Date sampled									24/06/2024	16/07/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Nickel (leachable)	µg/l	20		<2	<2	1	0	1										
pH (leachable)	pH					1												
Selenium (leachable)	µg/l	10		<1	<1	1	0	1										
Sulphate (leachable)	µg/l	250000		172670	172670	1	1	0										
Vanadium (leachable)	µg/l			<1	<1	1	0	1										
Zinc (leachable)	µg/l	3000		4	4	1	1	0										
SUM - chromium (trivalent plus hexavalent, leachable)	µg/l	50		<50	<50	1	0	1										
Volatile organic compounds																		
1,1,1,2-Tetrachloroethane	µg/l			<1	<1	1	0	1		<1								
1,1,1-Trichloroethane	µg/l			<1	<1	1	0	1		<1								
1,1,2,2-Tetrachloroethane	µg/l			<1	<1	1	0	1		<1								
1,1,2-Trichloroethane	µg/l			<1	<1	1	0	1		<1								
1,1-Dichloroethane	µg/l			<1	<1	1	0	1		<1								
1,1-Dichloroethene	µg/l			<1	<1	1	0	1		<1								
1,1-Dichloropropene	µg/l			<1	<1	1	0	1		<1								
1,2,3-Trichlorobenzene	µg/l			<3	<3	1	0	1		<3								
1,2,3-Trichloropropane	µg/l			<1	<1	1	0	1		<1								
1,2,4-Trichlorobenzene	µg/l			<1	<1	1	0	1		<1								
1,2,4-Trichlorobenzene	µg/l			<3	<3	1	0	1		<3								
1,2,4-Trimethylbenzene	µg/l			<1	<1	1	0	1		<1								
1,2-Dibromo-3-chloropropane	µg/l			<2	<2	1	0	1		<2								
1,2-Dibromoethane	µg/l			<1	<1	1	0	1		<1								
1,2-Dichlorobenzene	µg/l			<1	<1	1	0	1		<1								
1,2-Dichlorobenzene	µg/l			<1	<1	1	0	1		<1								
1,2-Dichloroethane	µg/l	3		<2	<2	1	0	1		<2								
1,2-Dichloropropane	µg/l			<1	<1	1	0	1		<1								
1,3,5-Trimethylbenzene	µg/l			<1	<1	1	0	1		<1								
1,3-Dichlorobenzene	µg/l			<1	<1	1	0	1		<1								
1,3-Dichlorobenzene	µg/l			<1	<1	1	0	1		<1								
1,3-Dichloropropane	µg/l			<1	<1	1	0	1		<1								
1,4-Dichlorobenzene	µg/l			<1	<1	1	0	1		<1								
1,4-Dichlorobenzene	µg/l			<1	<1	1	0	1		<1								
2,2-Dichloropropane	µg/l			<1	<1	1	0	1		<1								
2-Chlorotoluene	µg/l			<1	<1	1	0	1		<1								
4-Chlorotoluene	µg/l			<1	<1	1	0	1		<1								
4-Isopropyltoluene	µg/l			<1	<1	1	0	1		<1								
Bromobenzene	µg/l			<1	<1	1	0	1		<1								
Bromochloromethane	µg/l			<5	<5	1	0	1		<5								
Bromodichloromethane	µg/l	100		<10	<10	1	0	1		<10								
Bromoform	µg/l	100		<3	<3	1	0	1		<3								
Bromomethane	µg/l			<1	<1	1	0	1		<1								
Carbon Disulphide	µg/l			<1	<1	1	0	1		<1								
Carbon Tetrachloride	µg/l	3		<1	<1	1	0	1		<1								
Chlorobenzene	µg/l			<1	<1	1	0	1		<1								
Chloroethane	µg/l			<1	<1	1	0	1		<1								
Chloroform	µg/l	100		2	2	1	1	0		2								
Chloromethane	µg/l			<10	<10	1	0	1		<10								
cis 1,2-Dichloroethene	µg/l	50*		<1	<1	1	0	1		<1								
cis 1,3-Dichloropropene	µg/l			<1	<1	1	0	1		<1								
Dibromochloromethane	µg/l	100		<3	<3	1	0	1		<3								
Dibromomethane	µg/l			<1	<1	1	0	1		<1								

Lab sample ID	24/06510/6	24/06510/12	24/06510/3	24/06510/4
Client sample ID	WS105	WS105	WS106	WS106
Depth to top	3.7	0.5	0.5	1.8
Depth to bottom				
Date sampled	27/06/2024	27/06/2024	28/06/2024	28/06/2024

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
Nickel (leachable)	µg/l	20		<2	<2	1	0	1	<2			
pH (leachable)	pH					1			7.33			
Selenium (leachable)	µg/l	10		<1	<1	1	0	1	<1			
Sulphate (leachable)	µg/l	250000		172670	172670	1	1	0	172670			
Vanadium (leachable)	µg/l			<1	<1	1	0	1	<1			
Zinc (leachable)	µg/l	3000		4	4	1	1	0	4			
SUM - chromium (trivalent plus hexavalent, leachable)	µg/l	50		<50	<50	1	0	1	*<50*			
Volatile organic compounds												
1,1,1,2-Tetrachloroethane	µg/l			<1	<1	1	0	1				
1,1,1-Trichloroethane	µg/l			<1	<1	1	0	1				
1,1,2,2-Tetrachloroethane	µg/l			<1	<1	1	0	1				
1,1,2-Trichloroethane	µg/l			<1	<1	1	0	1				
1,1-Dichloroethane	µg/l			<1	<1	1	0	1				
1,1-Dichloroethene	µg/l			<1	<1	1	0	1				
1,1-Dichloropropene	µg/l			<1	<1	1	0	1				
1,2,3-Trichlorobenzene	µg/l			<3	<3	1	0	1				
1,2,3-Trichloropropane	µg/l			<1	<1	1	0	1				
1,2,4-Trichlorobenzene	µg/l			<1	<1	1	0	1				
1,2,4-Trichlorobenzene	µg/l			<3	<3	1	0	1				
1,2,4-Trimethylbenzene	µg/l			<1	<1	1	0	1				
1,2-Dibromo-3-chloropropane	µg/l			<2	<2	1	0	1				
1,2-Dibromoethane	µg/l			<1	<1	1	0	1				
1,2-Dichlorobenzene	µg/l			<1	<1	1	0	1				
1,2-Dichlorobenzene	µg/l			<1	<1	1	0	1				
1,2-Dichloroethane	µg/l	3		<2	<2	1	0	1				
1,2-Dichloropropane	µg/l			<1	<1	1	0	1				
1,3,5-Trimethylbenzene	µg/l			<1	<1	1	0	1				
1,3-Dichlorobenzene	µg/l			<1	<1	1	0	1				
1,3-Dichlorobenzene	µg/l			<1	<1	1	0	1				
1,3-Dichloropropane	µg/l			<1	<1	1	0	1				
1,4-Dichlorobenzene	µg/l			<1	<1	1	0	1				
1,4-Dichlorobenzene	µg/l			<1	<1	1	0	1				
2,2-Dichloropropane	µg/l			<1	<1	1	0	1				
2-Chlorotoluene	µg/l			<1	<1	1	0	1				
4-Chlorotoluene	µg/l			<1	<1	1	0	1				
4-Isopropyltoluene	µg/l			<1	<1	1	0	1				
Bromobenzene	µg/l			<1	<1	1	0	1				
Bromochloromethane	µg/l			<5	<5	1	0	1				
Bromodichloromethane	µg/l	100		<10	<10	1	0	1				
Bromoform	µg/l	100		<3	<3	1	0	1				
Bromomethane	µg/l			<1	<1	1	0	1				
Carbon Disulphide	µg/l			<1	<1	1	0	1				
Carbon Tetrachloride	µg/l	3		<1	<1	1	0	1				
Chlorobenzene	µg/l			<1	<1	1	0	1				
Chloroethane	µg/l			<1	<1	1	0	1				
Chloroform	µg/l	100		2	2	1	1	0				
Chloromethane	µg/l			<10	<10	1	0	1				
cis 1,2-Dichloroethene	µg/l	50*		<1	<1	1	0	1				
cis 1,3-Dichloropropene	µg/l			<1	<1	1	0	1				
Dibromochloromethane	µg/l	100		<3	<3	1	0	1				
Dibromomethane	µg/l			<1	<1	1	0	1				

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Lab sample ID									24/06510/1	24/06955/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5
Client sample ID									RBH101	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105
Depth to top									0.5	9.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5
Depth to bottom															5			
Date sampled									24/06/2024	16/07/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024
Dichlorodifluoromethane	µg/l			<1	<1	1	0	1		<1								
Dichloromethane	µg/l	20*		<5	<5	1	0	1		<5								
Hexachlorobutadiene	µg/l	0.1		<1	<1	1	0	1		<1								
Hexachlorobutadiene	µg/l	0.1		<1	<1	1	0	1		<1								
Isopropylbenzene	µg/l			<1	<1	1	0	1		<1								
n-butylbenzene	µg/l			<1	<1	1	0	1		<1								
n-propylbenzene	µg/l			<1	<1	1	0	1		<1								
sec-Butylbenzene	µg/l			<1	<1	1	0	1		<1								
Styrene	µg/l			<1	<1	1	0	1		<1								
tert-Butylbenzene	µg/l			<2	<2	1	0	1		<2								
Tetrachloroethene	µg/l	10		<1	<1	1	0	1		<1								
trans 1,2-Dichloroethene	µg/l	50*		<1	<1	1	0	1		<1								
trans 1,3-Dichloropropene	µg/l			<1	<1	1	0	1		<1								
Trichloroethene	µg/l	10		<1	<1	1	0	1		<1								
Trichlorofluoromethane	µg/l			<1	<1	1	0	1		<1								
Vinyl Chloride	µg/l	0.5		<1	<1	1	0	1		<1								
SUM - TCE and PCE	µg/l	10		<1	<1	1	0	1		*<1*								
SUM - 1,2 Dichloroethene (cis and trans)	µg/l	50*		<1	<1	1	0	1		*<1*								
SUM - trihalomethanes	µg/l	100		2	2	1	1	0		*2*								
SUM - tetrachloroethane (1,1,1,2 plus 1,1,2,2)	µg/l			<1	<1	1	0	1		*<1*								
Volatile organic compounds (leachable)																		
1,2,4-Trimethylbenzene (leachable)	µg/l			<1	<1	1	0	1										
Carbon Disulphide (leachable)	µg/l			<1	<1	1	0	1										
Hexachlorobutadiene (leachable)	µg/l	0.1		<1	<1	1	0	1										
Isopropylbenzene (leachable)	µg/l			<1	<1	1	0	1										
n-propylbenzene (leachable)	µg/l			<1	<1	1	0	1										
Styrene (leachable)	µg/l			<1	<1	1	0	1										
Polycyclic aromatic hydrocarbons (16)																		
Acenaphthene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Acenaphthylene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Anthracene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Benzo(a)anthracene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Benzo(a)pyrene (w)	µg/l	0.01		<0.01	<0.01	1	0	1		<0.01								
Benzo(b)fluoranthene (w)	µg/l	0.1		<0.01	<0.01	1	0	1		<0.01								
Benzo(ghi)perylene (w)	µg/l	0.1		<0.01	<0.01	1	0	1		<0.01								
Benzo(k)fluoranthene (w)	µg/l	0.1		<0.01	<0.01	1	0	1		<0.01								
Chrysene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Dibenzo(ah)anthracene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Fluoranthene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Fluorene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Indeno(123-cd)pyrene (w)	µg/l	0.1		<0.01	<0.01	1	0	1		<0.01								
Naphthalene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Perylene	µg/l			<1	<1	1	0	1		<1								
Phenanthrene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Pyrene (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
Total PAH 16MS (w)	µg/l			<0.01	<0.01	1	0	1		<0.01								
SUM - polycyclic aromatic hydrocarbons (sum of four)	µg/l	0.1		<0.01	<0.01	1	0	1		*<0.01*								
Polycyclic aromatic hydrocarbons (16) (leachable)																		
Acenaphthene (leachable)	µg/l			<0.02	<0.02	1	0	1										
Acenaphthylene (leachable)	µg/l			<0.02	<0.02	1	0	1										
Anthracene (leachable)	µg/l			<0.02	<0.02	1	0	1										

Lab sample ID	24/06510/6	24/06510/12	24/06510/3	24/06510/4
Client sample ID	WS105	WS105	WS106	WS106
Depth to top	3.7	0.5	0.5	1.8
Depth to bottom				
Date sampled	27/06/2024	27/06/2024	28/06/2024	28/06/2024

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
Dichlorodifluoromethane	µg/l			<1	<1	1	0	1				
Dichloromethane	µg/l	20*		<5	<5	1	0	1				
Hexachlorobutadiene	µg/l	0.1		<1	<1	1	0	1				
Hexachlorobutadiene	µg/l	0.1		<1	<1	1	0	1				
Isopropylbenzene	µg/l			<1	<1	1	0	1				
n-butylbenzene	µg/l			<1	<1	1	0	1				
n-propylbenzene	µg/l			<1	<1	1	0	1				
sec-Butylbenzene	µg/l			<1	<1	1	0	1				
Styrene	µg/l			<1	<1	1	0	1				
tert-Butylbenzene	µg/l			<2	<2	1	0	1				
Tetrachloroethene	µg/l	10		<1	<1	1	0	1				
trans 1,2-Dichloroethene	µg/l	50*		<1	<1	1	0	1				
trans 1,3-Dichloropropene	µg/l			<1	<1	1	0	1				
Trichloroethene	µg/l	10		<1	<1	1	0	1				
Trichlorofluoromethane	µg/l			<1	<1	1	0	1				
Vinyl Chloride	µg/l	0.5		<1	<1	1	0	1				
SUM - TCE and PCE	µg/l	10		<1	<1	1	0	1				
SUM - 1,2 Dichloroethene (cis and trans)	µg/l	50*		<1	<1	1	0	1				
SUM - trihalomethanes	µg/l	100		2	2	1	1	0				
SUM - tetrachloroethane (1,1,1,2 plus 1,1,2,2)	µg/l			<1	<1	1	0	1				
Volatile organic compounds (leachable)												
1,2,4-Trimethylbenzene (leachable)	µg/l			<1	<1	1	0	1	<1			
Carbon Disulphide (leachable)	µg/l			<1	<1	1	0	1	<1			
Hexachlorobutadiene (leachable)	µg/l	0.1		<1	<1	1	0	1	<1			
Isopropylbenzene (leachable)	µg/l			<1	<1	1	0	1	<1			
n-propylbenzene (leachable)	µg/l			<1	<1	1	0	1	<1			
Styrene (leachable)	µg/l			<1	<1	1	0	1	<1			
Polycyclic aromatic hydrocarbons (16)												
Acenaphthene (w)	µg/l			<0.01	<0.01	1	0	1				
Acenaphthylene (w)	µg/l			<0.01	<0.01	1	0	1				
Anthracene (w)	µg/l			<0.01	<0.01	1	0	1				
Benzo(a)anthracene (w)	µg/l			<0.01	<0.01	1	0	1				
Benzo(a)pyrene (w)	µg/l	0.01		<0.01	<0.01	1	0	1				
Benzo(b)fluoranthene (w)	µg/l	0.1		<0.01	<0.01	1	0	1				
Benzo(ghi)perylene (w)	µg/l	0.1		<0.01	<0.01	1	0	1				
Benzo(k)fluoranthene (w)	µg/l	0.1		<0.01	<0.01	1	0	1				
Chrysene (w)	µg/l			<0.01	<0.01	1	0	1				
Dibenzo(ah)anthracene (w)	µg/l			<0.01	<0.01	1	0	1				
Fluoranthene (w)	µg/l			<0.01	<0.01	1	0	1				
Fluorene (w)	µg/l			<0.01	<0.01	1	0	1				
Indeno(123-cd)pyrene (w)	µg/l	0.1		<0.01	<0.01	1	0	1				
Naphthalene (w)	µg/l			<0.01	<0.01	1	0	1				
Perylene	µg/l			<1	<1	1	0	1				
Phenanthrene (w)	µg/l			<0.01	<0.01	1	0	1				
Pyrene (w)	µg/l			<0.01	<0.01	1	0	1				
Total PAH 16MS (w)	µg/l			<0.01	<0.01	1	0	1				
SUM - polycyclic aromatic hydrocarbons (sum of four)	µg/l	0.1		<0.01	<0.01	1	0	1				
Polycyclic aromatic hydrocarbons (16) (leachable)												
Acenaphthene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Acenaphthylene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Anthracene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			

Lab sample ID									24/06510/1	24/06955/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	
Client sample ID									RBH101	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	
Depth to top									0.5	9.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	
Depth to bottom															5				
Date sampled									24/06/2024	16/07/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects											
Benzo(a)anthracene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Benzo(a)pyrene (leachable)	µg/l	0.01		<0.02	<0.02	1	0	1											
Benzo(b)fluoranthene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1											
Benzo(ghi)perylene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1											
Benzo(k)fluoranthene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1											
Chrysene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Dibenzo(ah)anthracene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Fluoranthene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Fluorene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Indeno(123-cd)pyrene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1											
Naphthalene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Phenanthrene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Pyrene (leachable)	µg/l			<0.02	<0.02	1	0	1											
Total PAH 16MS (leachable)	µg/l			<0.02	<0.02	1	0	1											
SUM - polycyclic aromatic hydrocarbons (sum of four, leachable	µg/l	0.1		<0.02	<0.02	1	0	1											
Semi-volatile organic compounds																			
2,4-Dinitrotoluene	µg/l			<1	<1	1	0	1		<1									
2,6-Dinitrotoluene	µg/l			<1	<1	1	0	1		<1									
2-Chloronaphthalene	µg/l			<1	<1	1	0	1		<1									
2-Methylnaphthalene	µg/l			<1	<1	1	0	1		<1									
4-Bromophenyl phenyl ether	µg/l			<1	<1	1	0	1		<1									
Bis(2-chloroethoxy)methane	µg/l			<1	<1	1	0	1		<1									
Bis(2-chloroethyl)ether	µg/l			<1	<1	1	0	1		<1									
Bis(2-chloroisopropyl)ether	µg/l			<1	<1	1	0	1		<1									
Bis(2-ethylhexyl)phthalate	µg/l	8*		<10	<10	1	0	1		<10									
Butylbenzyl phthalate	µg/l			<1	<1	1	0	1		<1									
Carbazole	µg/l			<1	<1	1	0	1		<1									
Dibenzofuran	µg/l			<1	<1	1	0	1		<1									
Diethyl phthalate	µg/l			<1	<1	1	0	1		<1									
Dimethyl phthalate	µg/l			<1	<1	1	0	1		<1									
Hexachlorobenzene	µg/l			<1	<1	1	0	1		<1									
Hexachloroethane	µg/l			<1	<1	1	0	1		<1									
Isophorone	µg/l			<1	<1	1	0	1		<1									
n-Dibutylphthalate	µg/l			<1	<1	1	0	1		<1									
n-Dioctylphthalate	µg/l			<10	<10	1	0	1		<10									
Nitrobenzene	µg/l			<1	<1	1	0	1		<1									
n-Nitroso-n-dipropylamine	µg/l			<1	<1	1	0	1		<1									
Petroleum hydrocarbons																			
Ali >C5-C6 (w)	µg/l	15000*		<1	<1	1	0	1		<1									
Ali >C6-C8 (w)	µg/l	15000*		<1	<1	1	0	1		<1									
Ali >C8-C10 (w)	µg/l	300*		<5	<5	1	0	1		<5									
Ali >C10-C12 (w)	µg/l	300*		<5	<5	1	0	1		<5									
Ali >C12-C16 (w)	µg/l	300*		<5	<5	1	0	1		<5									
Ali >C16-C21 (w)	µg/l			<5	<5	1	0	1		<5									
Ali >C21-C35 (w)	µg/l			<5	<5	1	0	1		<5									
Ali >C35-C44 (w)	µg/l			<5	<5	1	0	1		<5									
Total Aliphatics (w)	µg/l			<5	<5	1	0	1		<5									
Aro >C5-C7 (w)	µg/l	1		<1	<1	1	0	1		<1									
Aro >C7-C8 (w)	µg/l	700*		<1	<1	1	0	1		<1									
Aro >C8-C10 (w)	µg/l			<5	<5	1	0	1		<5									
Aro >C10-C12 (w)	µg/l	90*		<5	<5	1	0	1		<5									

Lab sample ID	24/06510/6	24/06510/12	24/06510/3	24/06510/4
Client sample ID	WS105	WS105	WS106	WS106
Depth to top	3.7	0.5	0.5	1.8
Depth to bottom				
Date sampled	27/06/2024	27/06/2024	28/06/2024	28/06/2024

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
Benzo(a)anthracene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Benzo(a)pyrene (leachable)	µg/l	0.01		<0.02	<0.02	1	0	1	<0.02			
Benzo(b)fluoranthene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1	<0.02			
Benzo(ghi)perylene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1	<0.02			
Benzo(k)fluoranthene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1	<0.02			
Chrysene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Dibenzo(ah)anthracene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Fluoranthene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Fluorene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Indeno(123-cd)pyrene (leachable)	µg/l	0.1		<0.02	<0.02	1	0	1	<0.02			
Naphthalene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Phenanthrene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Pyrene (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
Total PAH 16MS (leachable)	µg/l			<0.02	<0.02	1	0	1	<0.02			
SUM - polycyclic aromatic hydrocarbons (sum of four, leachable	µg/l	0.1		<0.02	<0.02	1	0	1	*<0.02*			
Semi-volatile organic compounds												
2,4-Dinitrotoluene	µg/l			<1	<1	1	0	1				
2,6-Dinitrotoluene	µg/l			<1	<1	1	0	1				
2-Chloronaphthalene	µg/l			<1	<1	1	0	1				
2-Methylnaphthalene	µg/l			<1	<1	1	0	1				
4-Bromophenyl phenyl ether	µg/l			<1	<1	1	0	1				
Bis(2-chloroethoxy)methane	µg/l			<1	<1	1	0	1				
Bis(2-chloroethyl)ether	µg/l			<1	<1	1	0	1				
Bis(2-chloroisopropyl)ether	µg/l			<1	<1	1	0	1				
Bis(2-ethylhexyl)phthalate	µg/l	8*		<10	<10	1	0	1				
Butylbenzyl phthalate	µg/l			<1	<1	1	0	1				
Carbazole	µg/l			<1	<1	1	0	1				
Dibenzofuran	µg/l			<1	<1	1	0	1				
Diethyl phthalate	µg/l			<1	<1	1	0	1				
Dimethyl phthalate	µg/l			<1	<1	1	0	1				
Hexachlorobenzene	µg/l			<1	<1	1	0	1				
Hexachloroethane	µg/l			<1	<1	1	0	1				
Isophorone	µg/l			<1	<1	1	0	1				
n-Dibutylphthalate	µg/l			<1	<1	1	0	1				
n-Dioctylphthalate	µg/l			<10	<10	1	0	1				
Nitrobenzene	µg/l			<1	<1	1	0	1				
n-Nitroso-n-dipropylamine	µg/l			<1	<1	1	0	1				
Petroleum hydrocarbons												
Ali >C5-C6 (w)	µg/l	15000*		<1	<1	1	0	1				
Ali >C6-C8 (w)	µg/l	15000*		<1	<1	1	0	1				
Ali >C8-C10 (w)	µg/l	300*		<5	<5	1	0	1				
Ali >C10-C12 (w)	µg/l	300*		<5	<5	1	0	1				
Ali >C12-C16 (w)	µg/l	300*		<5	<5	1	0	1				
Ali >C16-C21 (w)	µg/l			<5	<5	1	0	1				
Ali >C21-C35 (w)	µg/l			<5	<5	1	0	1				
Ali >C35-C44 (w)	µg/l			<5	<5	1	0	1				
Total Aliphatics (w)	µg/l			<5	<5	1	0	1				
Aro >C5-C7 (w)	µg/l	1		<1	<1	1	0	1				
Aro >C7-C8 (w)	µg/l	700*		<1	<1	1	0	1				
Aro >C8-C10 (w)	µg/l			<5	<5	1	0	1				
Aro >C10-C12 (w)	µg/l	90*		<5	<5	1	0	1				

Lab sample ID									24/06510/1	24/06955/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5
Client sample ID									RBH101	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105
Depth to top									0.5	9.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5
Depth to bottom															5			
Date sampled									24/06/2024	16/07/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects										
Aro >C12-C16 (w)	µg/l	90*		<5	<5	1	0	1		<5								
Aro >C16-C21 (w)	µg/l	90*		<5	<5	1	0	1		<5								
Aro >C21-C35 (w)	µg/l	90*		<10	<10	1	0	1		<10								
Aro >C35-C44 (w)	µg/l			<5	<5	1	0	1		<5								
Total Aromatics (w)	µg/l			<10	<10	1	0	1		<10								
TPH (Ali & Aro >C5-C44) (w)	µg/l			<10	<10	1	0	1		<10								
Benzene	µg/l	1		<1	<1	1	0	1		<1								
BTEX - Benzene (w)	µg/l	1		<1	<1	1	0	1		<1								
Toluene	µg/l	700*		<1	<1	1	0	1		<1								
BTEX - Toluene (w)	µg/l	700*		<1	<1	1	0	1		<1								
Ethylbenzene	µg/l	300*		<1	<1	1	0	1		<1								
BTEX - Ethyl Benzene (w)	µg/l	300*		<1	<1	1	0	1		<1								
m & p Xylene	µg/l			<1	<1	1	0	1		<1								
BTEX - m & p Xylene (w)	µg/l			<1	<1	1	0	1		<1								
o-Xylene	µg/l			<1	<1	1	0	1		<1								
BTEX - o Xylene (w)	µg/l			<1	<1	1	0	1		<1								
SUM - xylenes (BTEX o plus m&p)	µg/l	500*		<1	<1	1	0	1		*<1*								
SUM - xylenes (o plus m&p)	µg/l	500*		<1	<1	1	0	1		*<1*								
Fuel Oxygenates																		
MTBE (w)	µg/l	15*		<1	<1	1	0	1		<1								
Fuel oxygenates (leachable)																		
MTBE (leachable)	µg/l	15*		<2	<2	1	0	1										
PCBs																		
PCB BZ 101 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 105 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 114 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 118 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 123 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 126 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 138 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 153 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 156 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 157 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 167 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 169 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 180 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 189 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 28 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 52 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 77 (leachable)	µg/l			<0.002	<0.002	1	0	1										
PCB BZ 81 (leachable)	µg/l			<0.002	<0.002	1	0	1										
Total Speciated PCB-EC7 & WHO12 (leachable)	µg/l			<0.002	<0.002	1	0	1										
Phenols																		
2,4,5-Trichlorophenol	µg/l			<1	<1	1	0	1		<1								
2,4,6-Trichlorophenol (w)	µg/l			<1	<1	1	0	1		<1								
2,4-Dichlorophenol	µg/l			<1	<1	1	0	1		<1								
2,4-Dimethylphenol	µg/l			<1	<1	1	0	1		<1								
2-Chlorophenol	µg/l			<1	<1	1	0	1		<1								
2-Methylphenol	µg/l			<1	<1	1	0	1		<1								
2-Nitrophenol	µg/l			<1	<1	1	0	1		<1								
3+4-Methylphenol	µg/l			<1	<1	1	0	1		<1								

Lab sample ID	24/06510/6	24/06510/12	24/06510/3	24/06510/4
Client sample ID	WS105	WS105	WS106	WS106
Depth to top	3.7	0.5	0.5	1.8
Depth to bottom				
Date sampled	27/06/2024	27/06/2024	28/06/2024	28/06/2024

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
Aro >C12-C16 (w)	µg/l	90*		<5	<5	1	0	1				
Aro >C16-C21 (w)	µg/l	90*		<5	<5	1	0	1				
Aro >C21-C35 (w)	µg/l	90*		<10	<10	1	0	1				
Aro >C35-C44 (w)	µg/l			<5	<5	1	0	1				
Total Aromatics (w)	µg/l			<10	<10	1	0	1				
TPH (Ali & Aro >C5-C44) (w)	µg/l			<10	<10	1	0	1				
Benzene	µg/l	1		<1	<1	1	0	1				
BTEX - Benzene (w)	µg/l	1		<1	<1	1	0	1				
Toluene	µg/l	700*		<1	<1	1	0	1				
BTEX - Toluene (w)	µg/l	700*		<1	<1	1	0	1				
Ethylbenzene	µg/l	300*		<1	<1	1	0	1				
BTEX - Ethyl Benzene (w)	µg/l	300*		<1	<1	1	0	1				
m & p Xylene	µg/l			<1	<1	1	0	1				
BTEX - m & p Xylene (w)	µg/l			<1	<1	1	0	1				
o-Xylene	µg/l			<1	<1	1	0	1				
BTEX - o Xylene (w)	µg/l			<1	<1	1	0	1				
SUM - xylenes (BTEX o plus m&p)	µg/l	500*		<1	<1	1	0	1				
SUM - xylenes (o plus m&p)	µg/l	500*		<1	<1	1	0	1				
Fuel Oxygenates												
MTBE (w)	µg/l	15*		<1	<1	1	0	1				
Fuel oxygenates (leachable)												
MTBE (leachable)	µg/l	15*		<2	<2	1	0	1	<2			
PCBs												
PCB BZ 101 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 105 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 114 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 118 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 123 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 126 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 138 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 153 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 156 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 157 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 167 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 169 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 180 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 189 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 28 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 52 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 77 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
PCB BZ 81 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
Total Speciated PCB-EC7 & WHO12 (leachable)	µg/l			<0.002	<0.002	1	0	1	<0.002			
Phenols												
2,4,5-Trichlorophenol	µg/l			<1	<1	1	0	1				
2,4,6-Trichlorophenol (w)	µg/l			<1	<1	1	0	1				
2,4-Dichlorophenol	µg/l			<1	<1	1	0	1				
2,4-Dimethylphenol	µg/l			<1	<1	1	0	1				
2-Chlorophenol	µg/l			<1	<1	1	0	1				
2-Methylphenol	µg/l			<1	<1	1	0	1				
2-Nitrophenol	µg/l			<1	<1	1	0	1				
3+4-Methylphenol	µg/l			<1	<1	1	0	1				

Lab sample ID									24/06510/1	24/06955/1	24/06510/11	24/06510/13	24/06510/14	24/06510/9	24/06510/10	24/06510/7	24/06510/8	24/06510/5	
Client sample ID									RBH101	RBH101	WS102	WS102	WS102	WS103	WS103	WS104	WS104	WS105	
Depth to top									0.5	9.5	0.5	3.4	3.8	1	4.8	0.7	1.5	1.5	
Depth to bottom															5				
Date sampled									24/06/2024	16/07/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	27/06/2024	
Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-detects											
4-Chloro-3-methylphenol	µg/l			<1	<1	1	0	1		<1									
4-Nitrophenol	µg/l			<1	<1	1	0	1		<1									
Pentachlorophenol (SVOC)	µg/l	0.1		<1	<1	1	0	1		<1									
Phenol	µg/l			<1	<1	1	0	1		<1									
Phenols - Total by HPLC (w)	µg/l			<10	<10	1	0	1		<10									
Petroleum hydrocarbons (leachable)																			
Ali >C5-C6 (leachable)	µg/l	15000*		<1	<1	1	0	1											
Ali >C6-C8 (leachable)	µg/l	15000*		<1	<1	1	0	1											
Ali >C8-C10 (leachable)	µg/l	300*		<10	<10	1	0	1											
Ali >C10-C12 (leachable)	µg/l	300*		<10	<10	1	0	1											
Ali >C12-C16 (leachable)	µg/l	300*		<10	<10	1	0	1											
Ali >C16-C21 (leachable)	µg/l			<10	<10	1	0	1											
Ali >C21-C35 (leachable)	µg/l			24	24	1	1	0											
Ali >C35-C44 (leachable)	µg/l			<10	<10	1	0	1											
Total Aliphatics (leachable)	µg/l			24	24	1	1	0											
Aro >C5-C7 (leachable)	µg/l	1		<1	<1	1	0	1											
Aro >C7-C8 (leachable)	µg/l	700*		<1	<1	1	0	1											
Aro >C8-C10 (leachable)	µg/l			<10	<10	1	0	1											
Aro >C10-C12 (leachable)	µg/l	90*		<10	<10	1	0	1											
Aro >C12-C16 (leachable)	µg/l	90*		<10	<10	1	0	1											
Aro >C16-C21 (leachable)	µg/l	90*		<10	<10	1	0	1											
Aro >C21-C35 (leachable)	µg/l	90*		<20	<20	1	0	1											
Aro >C35-C44 (leachable)	µg/l			<10	<10	1	0	1											
Total Aromatics (leachable) GCxGC	µg/l			<20	<20	1	0	1											
TPH (Ali & Aro >C5-C44) (leachable)	µg/l			24	24	1	1	0											
BTEX - Benzene (leachable)	µg/l	1		<1	<1	1	0	1											
BTEX - Toluene (leachable)	µg/l	700*		<1	<1	1	0	1											
BTEX - Ethyl Benzene (leachable)	µg/l	300*		<1	<1	1	0	1											
BTEX - m & p Xylene (leachable)	µg/l			<1	<1	1	0	1											
BTEX - o Xylene (leachable)	µg/l			<1	<1	1	0	1											
SUM - xylenes (BTEX o plus m&p, leachable)	µg/l	500*		<1	<1	1	0	1											
Other analytes																			
Antimony (dissolved)	µg/l			<1	<1	1	0	1		<1									
BOD (settled, 5 day)	µg/l			<1000	<1000	1	0	1		<1000									
COD (settled)	µg/l			10000	10000	1	1	0		10000									
DOC (leachable)	µg/l			3600	3600	1	1	0											
Methods																			
Leachate Prep BS EN 12457-1 (2:1) (3 no)						1													

Lab sample ID	24/06510/6	24/06510/12	24/06510/3	24/06510/4
Client sample ID	WS105	WS105	WS106	WS106
Depth to top	3.7	0.5	0.5	1.8
Depth to bottom				
Date sampled	27/06/2024	27/06/2024	28/06/2024	28/06/2024

Analyte	Unit	GAC	T1	Max	Min	Count	# Detects	# Non-dete				
4-Chloro-3-methylphenol	µg/l			<1	<1	1	0	1				
4-Nitrophenol	µg/l			<1	<1	1	0	1				
Pentachlorophenol (SVOC)	µg/l	0.1		<1	<1	1	0	1				
Phenol	µg/l			<1	<1	1	0	1				
Phenols - Total by HPLC (w)	µg/l			<10	<10	1	0	1				
Petroleum hydrocarbons (leachable)												
Ali >C5-C6 (leachable)	µg/l	15000*		<1	<1	1	0	1	<1			
Ali >C6-C8 (leachable)	µg/l	15000*		<1	<1	1	0	1	<1			
Ali >C8-C10 (leachable)	µg/l	300*		<10	<10	1	0	1	<10			
Ali >C10-C12 (leachable)	µg/l	300*		<10	<10	1	0	1	<10			
Ali >C12-C16 (leachable)	µg/l	300*		<10	<10	1	0	1	<10			
Ali >C16-C21 (leachable)	µg/l			<10	<10	1	0	1	<10			
Ali >C21-C35 (leachable)	µg/l			24	24	1	1	0	24			
Ali >C35-C44 (leachable)	µg/l			<10	<10	1	0	1	<10			
Total Aliphatics (leachable)	µg/l			24	24	1	1	0	24			
Aro >C5-C7 (leachable)	µg/l	1		<1	<1	1	0	1	<1			
Aro >C7-C8 (leachable)	µg/l	700*		<1	<1	1	0	1	<1			
Aro >C8-C10 (leachable)	µg/l			<10	<10	1	0	1	<10			
Aro >C10-C12 (leachable)	µg/l	90*		<10	<10	1	0	1	<10			
Aro >C12-C16 (leachable)	µg/l	90*		<10	<10	1	0	1	<10			
Aro >C16-C21 (leachable)	µg/l	90*		<10	<10	1	0	1	<10			
Aro >C21-C35 (leachable)	µg/l	90*		<20	<20	1	0	1	<20			
Aro >C35-C44 (leachable)	µg/l			<10	<10	1	0	1	<10			
Total Aromatics (leachable) GCxGC	µg/l			<20	<20	1	0	1	<20			
TPH (Ali & Aro >C5-C44) (leachable)	µg/l			24	24	1	1	0	24			
BTEX - Benzene (leachable)	µg/l	1		<1	<1	1	0	1	<1			
BTEX - Toluene (leachable)	µg/l	700*		<1	<1	1	0	1	<1			
BTEX - Ethyl Benzene (leachable)	µg/l	300*		<1	<1	1	0	1	<1			
BTEX - m & p Xylene (leachable)	µg/l			<1	<1	1	0	1	<1			
BTEX - o Xylene (leachable)	µg/l			<1	<1	1	0	1	<1			
SUM - xylenes (BTEX o plus m&p, leachable)	µg/l	500*		<1	<1	1	0	1	*<1*			
Other analytes												
Antimony (dissolved)	µg/l			<1	<1	1	0	1				
BOD (settled, 5 day)	µg/l			<1000	<1000	1	0	1				
COD (settled)	µg/l			10000	10000	1	1	0				
DOC (leachable)	µg/l			3600	3600	1	1	0	3600			
Methods												
Leachate Prep BS EN 12457-1 (2:1) (3 no)						1			*			

COMPLEX CHALLENGES ...
MADE SIMPLE

APPENDIX J – WASTE ASSESSMENT

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!". Please ente
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property. If any

Hasworste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		RBH101	WS106	WS106	WS105	WS105	WS104	WS104	WS103	WS103	WS102
Depth (m)		0.50	0.50	1.80	1.50	3.70	0.70	1.50	1.00	4.80	0.50
Envirolab reference											
% Moisture	%	11.7	14.2	14.3	8.1	10.0	11.5	14.8	12.5	13.6	8.8
pH (soil)		8.39	8.42	8.02	7.63	7.39	8.18	7.91	7.82	8.47	8.38
pH (leachate)											
Arsenic	mg/kg	13	2	11	5	4	19	3	4	2	12
Cadmium	mg/kg	1.1	2.4	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	1.5
Copper	mg/kg	89	15	72	12	10	151	15	18	23	61
CrVI or Chromium	mg/kg										
Lead	mg/kg	412	96	91	12	10	1,990	59	31	39	352
Mercury	mg/kg	0.25	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Nickel	mg/kg	24	38	18	9	11	25	9	16	32	29
Selenium	mg/kg	0	4	0	0	0	0	0	0	0	0
Zinc	mg/kg	26	12	22	13	9	27	13	21	28	29
Barium	mg/kg	204.00	259.00	73.00	51.00	145.00	222.00	62.00	56.00	72.00	238.00
Beryllium	mg/kg	1.0	0.7	1.0	<0.5	<0.5	1.4	<0.5	0.6	1.1	1.2
Vanadium	mg/kg	26	12	22	13	9	27	13	21	28	29
Cobalt	mg/kg										
Manganese	mg/kg										
Molybdenum	mg/kg	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Antimony	mg/kg	24	14	0	0	0	150	0	0	0	7
Aluminium	mg/kg										
Bismuth	mg/kg										
CrIII	mg/kg	16	12	15	11	10	14	12	22	31	18
Iron	mg/kg										
Strontium	mg/kg										
Tellurium	mg/kg										
Thallium	mg/kg										
Titanium	mg/kg										
Tungsten	mg/kg										
Ammoniacal N	mg/kg										
ws Boron	mg/kg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAH (Input Total PAH **OR** individual PAH results)											
Acenaphthene	mg/kg	8.07	0.37	0.00	0.00	0.00	0.32	0.27	0.00	0.09	0.54
Acenaphthylene	mg/kg	0.56	0.04	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.12
Anthracene	mg/kg	9.83	0.68	0.00	0.00	0.00	0.52	0.72	0.00	0.14	0.99
Benzo(a)anthracene	mg/kg	20.10	1.70	0.00	0.00	0.00	1.64	3.20	0.10	0.44	3.28
Benzo(a)pyrene	mg/kg	19.00	1.67	0.00	0.00	0.00	1.67	3.16	0.15	0.44	4.10
Benzo(b)fluoranthene	mg/kg	22.50	1.86	0.00	0.00	0.00	2.03	3.52	0.16	0.54	4.53
Benzo(ghi)perylene	mg/kg	11.60	1.13	0.00	0.00	0.00	1.08	1.71	0.10	0.24	2.95
Benzo(k)fluoranthene	mg/kg	8.19	0.59	0.00	0.00	0.00	0.66	1.23	0.00	0.17	1.50
Chrysene	mg/kg	22.70	1.71	0.00	0.00	0.00	1.81	3.00	0.11	0.46	3.38
Dibenzo(ah)anthracene	mg/kg	2.68	0.24	0.00	0.00	0.00	0.24	0.35	0.00	0.05	0.57
Fluoranthene	mg/kg	47.70	3.99	0.00	0.00	0.00	3.71	7.07	0.19	1.16	6.43
Fluorene	mg/kg	6.42	0.28	0.00	0.00	0.00	0.23	0.20	0.00	0.05	0.44
Indeno(123cd)pyrene	mg/kg	11.60	1.05	0.00	0.00	0.00	1.01	1.82	0.10	0.24	2.85
Naphthalene	mg/kg	3.21	0.07	0.00	0.00	0.00	0.11	0.05	0.00	0.00	0.33
Phenanthrene	mg/kg	37.60	2.72	0.00	0.00	0.00	2.36	2.00	0.04	0.35	3.54
Pyrene	mg/kg	41.60	3.53	0.00	0.00	0.00	3.30	5.71	0.19	1.02	5.87
Coronene	mg/kg										
Total PAHs (16 or 17)	mg/kg										
TPH											
Petrol	mg/kg										
Diesel	mg/kg										
Lube Oil	mg/kg										
Crude Oil	mg/kg										
White Spirit / Kerosene	mg/kg										
Creosote	mg/kg										
Unknown TPH with ID	mg/kg	0.0	224.0	21.0	0.0	0.0	0.0	36.0	0.0	0.0	767.0
Unknown TPHCWG	mg/kg										
Total Sulphide	mg/kg										
Complex Cyanide	mg/kg										
Free (or Total) Cyanide	mg/kg										
Thiocyanate	mg/kg										
Elemental/Free Sulphur	mg/kg										
Phenols Input Total Phenols HPLC **OR** individual Phenol results.											
Phenol	mg/kg										
Cresols	mg/kg										
Xylenols	mg/kg										
Resourcinol	mg/kg										
Phenols Total by HPLC	mg/kg										
BTEX Input Total BTEX **OR** individual BTEX results.											
Benzene	mg/kg		0.01	0.01		0.01		0.01			0.01
Toluene	mg/kg		0.01	0.01		0.01		0.01			0.01
Ethylbenzene	mg/kg		0.01	0.01		0.01		0.01			0.01
Xylenes	mg/kg		0.01	0.01		0.01		0.01			0.01
Total BTEX	mg/kg										
PCBs (POPs)											
PCBs Total (eg EC7/WHO12)	mg/kg										
PBBs (POPs)											
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg										

Please enter available data in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Please ente
If any

Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		RBH101	WS106	WS106	WS105	WS105	WS104	WS104	WS103	WS103	WS102
Depth (m)		0.50	0.50	1.80	1.50	3.70	0.70	1.50	1.00	4.80	0.50
Envirolab reference											
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.											
2,3,7,8-TeCDD	mg/kg										
1,2,3,7,8-PeCDD	mg/kg										
1,2,3,4,7,8-HxCDD	mg/kg										
1,2,3,6,7,8-HxCDD	mg/kg										
1,2,3,7,8,9-HxCDD	mg/kg										
1,2,3,4,6,7,8-HpCDD	mg/kg										
OCDD	mg/kg										
2,3,7,8-TeCDF	mg/kg										
1,2,3,7,8-PeCDF	mg/kg										
2,3,4,7,8-PeCDF	mg/kg										
1,2,3,4,7,8-HxCDF	mg/kg										
1,2,3,6,7,8-HxCDF	mg/kg										
2,3,4,6,7,8-HxCDF	mg/kg										
1,2,3,7,8,9-HxCDF	mg/kg										
1,2,3,4,6,7,8-HpCDF	mg/kg										
1,2,3,4,7,8,9-HpCDF	mg/kg										
OCDF	mg/kg										
Total Dioxins and Furans	mg/kg										
Some Pesticides (POPs unless otherwise stated)											
Aldrin	mg/kg										
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*	mg/kg										
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*	mg/kg										
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*	mg/kg										
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*	mg/kg										
Dieldrin	mg/kg										
Endrin	mg/kg										
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*	mg/kg										
Heptachlor	mg/kg										
Hexachlorobenzene	mg/kg										
o,p'-DDT *(leave empty if total DDT results used)*	mg/kg										
p,p'-DDT ***OR*** *Total DDT*	mg/kg										
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*	mg/kg										
Chlordecone (kepone)	mg/kg										
Pentachlorobenzene	mg/kg										
Mirex	mg/kg										
Toxaphene (camphechlor)	mg/kg										
Tin											
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	mg/kg										
Organotin											
Dibutyltin; DiBT	mg/kg										
Tributyltin; TriBT	mg/kg										
Triphenyltin; TriPT	mg/kg										
Tetrabutyltin; TeBT	mg/kg										
Tin excluding Organotin											
Tin excl Organotin	mg/kg										

Haswaste, developed by Dr. Iain Haslock.

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Please ente
If any

4770 - Plot 9B First Street

	Thresholds		RBH101	WS106	WS106	WS105	WS105	WS104	WS104	WS103	WS103	WS102
TP/WS/BH			RBH101	WS106	WS106	WS105	WS105	WS104	WS104	WS103	WS103	WS102
Depth (m)			0.50	0.50	1.80	1.50	3.70	0.70	1.50	1.00	4.80	0.50
Envirolab reference												
Asbestos in Soil												
Asbestos detected in Soil (enter Y or N)	Y		N	N		N		N		N		Y
			If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7									
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%										0.00100
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
			If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.									If Asbestos in Soil abo
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y		N	N		N		N		N		N
			If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.									If visual identifiable Theref
			Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.									
			All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.									All visual a
Hazardous Property	Thresholds	Cut Off Value	**If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.**									
Corrosive HP8	≥5%	<1%	0.01953	0.02245	0.00750	0.00529	0.01353	0.02187	0.00562	0.00536	0.00645	0.02315
Irritant HP4	≥10%	<1%	0.01448	0.00351	0.01157	0.00398	0.00293	0.02157	0.00375	0.00551	0.00678	0.01244
Irritant HP4	≥20%	<1%	0.02245	0.00895	0.01074	#VALUE!	#VALUE!	0.02098	#VALUE!	0.00487	0.00840	0.01314
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00409	0.00183	0.00336	#VALUE!	#VALUE!	0.00425	#VALUE!	0.00327	0.00431	0.00471
Specifc Target Organ Toxicity HP5	≥1%		0.00428	0.00659	0.00336	#VALUE!	#VALUE!	0.00447	#VALUE!	0.00327	0.00558	0.00534
Specifc Target Organ Toxicity HP5	≥10%		0.03638	0.01922	0.00780	0.00110	0.00090	0.17612	0.00503	0.00271	0.00337	0.06995
Aspiration Toxicity HP5	≥10%		0.00000	0.01922	0.00180	0.00000	0.00000	0.00000	0.00307	0.00000	0.00000	0.06995
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00154	0.00023	0.00124	0.00061	0.00048	0.00226	0.00034	0.00046	0.00023	0.00144
Acute Toxicity HP6	≥5%	<0.1%	0.01842	0.02298	0.00665	#VALUE!	#VALUE!	0.02021	#VALUE!	0.00514	0.00665	0.02220
Acute Toxicity HP6	≥25%	<1%	0.06413	0.02034	#VALUE!	#VALUE!	#VALUE!	0.21653	#VALUE!	#VALUE!	#VALUE!	0.05029
Acute Toxicity HP6	≥0.25%	<0.1%	0.00002	0.00000	0.00000	0.00000	0.00000	0.00004	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00264	0.00165	#VALUE!	#VALUE!	#VALUE!	0.01605	#VALUE!	#VALUE!	#VALUE!	0.00090
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00052	0.00048	#VALUE!	#VALUE!	#VALUE!	0.00072	#VALUE!	#VALUE!	#VALUE!	0.00064
Acute Toxicity HP6	≥3.5%	<0.1%	0.00000	0.00048	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.07164	0.04033	0.02750	0.01083	0.01841	0.21959	0.01528	0.01549	0.02173	0.07015
Carcinogenic HP7	≥0.1%		0.03638	0.00824	0.00780	#VALUE!	#VALUE!	0.17612	#VALUE!	0.00283	0.00558	0.03210
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00409	0.00183	0.00336	0.00213	0.00144	0.01593	0.00197	0.00327	0.00431	0.00471
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		0.00	192.19	18.00	0.00	0.00	0.00	30.67	0.00	0.00	699.50
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	0.63967	0.00000	#DIV/0!	#DIV/0!	#DIV/0!	7.47867	#DIV/0!	#DIV/0!	0.48751
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		8.39	8.42	8.02	7.63	7.39	8.18	7.91	7.82	8.47	8.38
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		8.39	8.42	8.02	7.63	7.39	8.18	7.91	7.82	8.47	8.38
Toxic for Reproduction HP10	≥0.3%		0.03638	0.00824	0.00780	0.00167	0.00200	0.17612	0.00503	0.00283	0.00558	0.03210
Toxic for Reproduction HP10	≥3%		0.00409	0.01922	0.00336	0.00213	0.00144	0.00425	0.00307	0.00327	0.00431	0.06995
Mutagenic HP11	≥0.1%		0.00168	0.00021	0.00000	0.00000	0.00000	0.00015	0.00027	0.00001	0.00004	0.00037
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		0.00	192.19	18.00	0.00	0.00	0.00	30.67	0.00	0.00	699.50
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	0.63967	0.00000	#DIV/0!	#DIV/0!	#DIV/0!	7.47867	#DIV/0!	#DIV/0!	0.48751
Mutagenic HP11	≥1%		0.00428	0.00659	0.00336	0.00213	0.00200	0.00447	0.00197	0.00327	0.00558	0.00534
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00428	0.00659	0.00312	#VALUE!	#VALUE!	0.00447	#VALUE!	0.00283	0.00558	0.00534
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.07711	0.02024	#VALUE!	#VALUE!	#VALUE!	0.20279	#VALUE!	#VALUE!	#VALUE!	0.05213

Table 3 of the CLP, CL Inventory, ATPs, IARC, Concawe, MSDSs, REACH + Pesticide Properties databases. Worst case REACH + MSDS's used for "*" STOT + Acute Toxicity.

Haswaste, developed by Dr. Iain Haslock.

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If any calculation cells below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Please ente
If any

4770 - Plot 9B First Street

TP/WS/BH			RBH101	WS106	WS106	WS105	WS105	WS104	WS104	WS103	WS103	WS102
Depth (m)			0.50	0.50	1.80	1.50	3.70	0.70	1.50	1.00	4.80	0.50
Envirolab reference												
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.08160	0.04157	#VALUE!	#VALUE!	#VALUE!	0.20761	#VALUE!	#VALUE!	#VALUE!	0.12729
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	7.75578	2.23754	#VALUE!	#VALUE!	#VALUE!	20.32743	#VALUE!	#VALUE!	#VALUE!	5.96411
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please contact Envirolab.

envirolab

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Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		WS105	WS102	WS102	HDP114	TP102	TP105	WS107	WS107	HDP117	HDP121
Depth (m)		0.50	3.40	3.80	1.00	0.25	0.50	2.00	4.00	0.60	0.50
Envirolab reference											
% Moisture	%	12.0	8.0	11.1	8.1	17.0	9.6	9.9	12.0	15.0	15.0
pH (soil)		8.06	7.32	8.06	7.90	8.30	8.30	7.70	8.30	9.80	8.70
pH (leachate)											
Arsenic	mg/kg	17	3	1	5	15	14	4	7	18	12
Cadmium	mg/kg	1.5	<0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Copper	mg/kg	97	12	21	24	17	59	7	10	55	35
CrVI or Chromium	mg/kg										
Lead	mg/kg	559	20	14	50	120	340	14	18	180	92
Mercury	mg/kg	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nickel	mg/kg	24	13	29	13	17	23	10	9	24	17
Selenium	mg/kg	0	0	0							
Zinc	mg/kg	27	10	28	34	120	330	28	20	170	87
Barium	mg/kg	328.00	91.00	76.00							
Beryllium	mg/kg	1.2	<0.5	1.0							
Vanadium	mg/kg	27	10	28							
Cobalt	mg/kg										
Manganese	mg/kg										
Molybdenum	mg/kg	2.00	0.00	0.00							
Antimony	mg/kg	43	0	0							
Aluminium	mg/kg										
Bismuth	mg/kg										
CrIII	mg/kg	17	10	27	12	17	24	11	8	21	13
Iron	mg/kg										
Strontium	mg/kg										
Tellurium	mg/kg										
Thallium	mg/kg										
Titanium	mg/kg										
Tungsten	mg/kg										
Ammoniacal N	mg/kg										
ws Boron	mg/kg	0.0	0.0	0.0	0.0	0.0				0.0	0.0
PAH (Input Total PAH **OR** individual PAH results)											
Acenaphthene	mg/kg	0.46	0.01	0.00	0.00	0.00	6.50	0.00	0.00	1.10	0.80
Acenaphthylene	mg/kg	0.10	0.00	0.00	0.00	1.00	2.40	0.00	0.00	1.80	0.70
Anthracene	mg/kg	0.85	0.02	0.00	0.00	1.20	12.00	0.00	0.00	3.50	1.80
Benzo(a)anthracene	mg/kg	3.32	0.08	0.00	0.00	2.10	19.00	0.00	0.00	7.50	4.30
Benzo(a)pyrene	mg/kg	3.86	0.10	0.00	0.00	1.90	16.00	0.00	0.00	6.90	4.10
Benzo(b)fluoranthene	mg/kg	4.36	0.11	0.00	0.00	2.10	14.00	0.00	0.00	5.60	4.00
Benzo(ghi)perylene	mg/kg	2.73	0.07	0.00	0.00	1.30	12.00	0.00	0.00	3.60	2.50
Benzo(k)fluoranthene	mg/kg	1.39	0.00	0.00	0.00	1.50	16.00	0.00	0.00	5.10	2.40
Chrysene	mg/kg	3.44	0.11	0.00	0.00	0.00	23.00	0.00	0.00	6.80	4.00
Dibenzo(ah)anthracene	mg/kg	0.55	0.00	0.00	0.00	0.00	5.00	0.00	0.00	1.60	1.20
Fluoranthene	mg/kg	6.87	0.18	0.00	0.00	6.30	39.00	0.00	0.00	14.00	8.80
Fluorene	mg/kg	0.32	0.00	0.00	0.00	0.00	7.30	0.00	0.00	1.80	0.80
Indeno(123cd)pyrene	mg/kg	2.67	0.06	0.00	0.00	1.20	11.00	0.00	0.00	3.00	2.30
Naphthalene	mg/kg	0.12	0.00	0.00	0.00	1.20	8.60	0.00	0.00	2.70	3.00
Phenanthrene	mg/kg	3.28	0.09	0.06	0.00	5.80	42.00	0.00	0.00	11.00	5.40
Pyrene	mg/kg	6.18	0.17	0.00	0.00	6.00	37.00	0.00	0.00	15.00	8.60
Coronene	mg/kg										
Total PAHs (16 or 17)	mg/kg										
TPH											
Petrol	mg/kg										
Diesel	mg/kg										
Lube Oil	mg/kg										
Crude Oil	mg/kg										
White Spirit / Kerosene	mg/kg										
Creosote	mg/kg										
Unknown TPH with ID	mg/kg	0.0	12.0	18.0				42.0		685.0	304.0
Unknown TPHCWG	mg/kg										
Total Sulphide	mg/kg										
Complex Cyanide	mg/kg										
Free (or Total) Cyanide	mg/kg										
Thiocyanate	mg/kg										
Elemental/Free Sulphur	mg/kg										
Phenols Input Total Phenols HPLC **OR** individual Phenol results.											
Phenol	mg/kg										
Cresols	mg/kg										
Xylenols	mg/kg										
Resourcinol	mg/kg										
Phenols Total by HPLC	mg/kg										
BTEX Input Total BTEX **OR** individual BTEX results.											
Benzene	mg/kg		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Toluene	mg/kg		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Ethylbenzene	mg/kg		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenes	mg/kg		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total BTEX	mg/kg										
PCBs (POPs)											
PCBs Total (eg EC7/WHO12)	mg/kg										
PBBs (POPs)											
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg										

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4770 - Plot 9B First Street

TP/WS/BH	WS105	WS102	WS102	HDP114	TP102	TP105	WS107	WS107	HDP117	HDP121
Depth (m)	0.50	3.40	3.80	1.00	0.25	0.50	2.00	4.00	0.60	0.50
Envirolab reference										
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.										
2,3,7,8-TeCDD	mg/kg									
1,2,3,7,8-PeCDD	mg/kg									
1,2,3,4,7,8-HxCDD	mg/kg									
1,2,3,6,7,8-HxCDD	mg/kg									
1,2,3,7,8,9-HxCDD	mg/kg									
1,2,3,4,6,7,8-HpCDD	mg/kg									
OCDD	mg/kg									
2,3,7,8-TeCDF	mg/kg									
1,2,3,7,8-PeCDF	mg/kg									
2,3,4,7,8-PeCDF	mg/kg									
1,2,3,4,7,8-HxCDF	mg/kg									
1,2,3,6,7,8-HxCDF	mg/kg									
2,3,4,6,7,8-HxCDF	mg/kg									
1,2,3,7,8,9-HxCDF	mg/kg									
1,2,3,4,6,7,8-HpCDF	mg/kg									
1,2,3,4,7,8,9-HpCDF	mg/kg									
OCDF	mg/kg									
Total Dioxins and Furans	mg/kg									
Some Pesticides (POPs unless otherwise stated)										
Aldrin	mg/kg									
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*	mg/kg									
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*	mg/kg									
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*	mg/kg									
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*	mg/kg									
Dieldrin	mg/kg									
Endrin	mg/kg									
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*	mg/kg									
Heptachlor	mg/kg									
Hexachlorobenzene	mg/kg									
o,p'-DDT *(leave empty if total DDT results used)*	mg/kg									
p,p'-DDT ***OR*** *Total DDT*	mg/kg									
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*	mg/kg									
Chlordecone (kepone)	mg/kg									
Pentachlorobenzene	mg/kg									
Mirex	mg/kg									
Toxaphene (camphechlor)	mg/kg									
Tin										
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	mg/kg									
Organotin										
Dibutyltin; DiBT	mg/kg									
Tributyltin; TriBT	mg/kg									
Triphenyltin; TriPT	mg/kg									
Tetrabutyltin; TeBT	mg/kg									
Tin excluding Organotin										
Tin excl Organotin	mg/kg									

Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

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	Thresholds										
TP/WS/BH			WS105	WS102	WS102	HDP114	TP102	TP105	WS107	WS107	HDP117	HDP121
Depth (m)			0.50	3.40	3.80	1.00	0.25	0.50	2.00	4.00	0.60	0.50
Envirolab reference												
Asbestos in Soil												
Asbestos detected in Soil (enter Y or N)	Y		N			N	N	N	N	N	N	N
			If Asbestos in Soil above is "**Y**", the soil is Hazardous Waste HP5 and HP7									
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%										
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
			ve is "**Y**", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.								If Asbestos in Soil above is "**Y**", but Asbestos	
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y		N			N	N	N	N	N	N	N
			pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. fore, if Asbestos in Soil above is "**Y**", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "**Y**", the soil is Hazardous Waste.								If visual identifiable pieces of asbestos are Therefore, if Asbestos in Soil	
			Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.									
			asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.								All visual asbestos pieces need t	

Hazardous Property	Thresholds	Cut Off Value	**If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.**									
Corrosive HP8	≥5%	<1%	0.03084	0.00874	0.00687	0.00061	0.00164	0.00167	0.00048	0.00081	0.00202	0.00135
Irritant HP4	≥10%	<1%	0.01585	0.00325	0.00666	0.00310	0.00324	0.00770	0.00119	0.00181	0.00730	0.00471
Irritant HP4	≥20%	<1%	0.01561	#VALUE!	0.00773	0.00491	0.00561	0.01926	0.00254	0.00260	0.01216	0.00775
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00423	#VALUE!	0.00443	0.00000	0.00048	0.00380	0.00000	0.00000	0.00094	0.00046
Specifc Target Organ Toxicity HP5	≥1%		0.00427	#VALUE!	0.00521	0.00241	0.00285	0.00420	0.00182	0.00160	0.00412	0.00292
Specifc Target Organ Toxicity HP5	≥10%		0.04919	0.00184	0.00160	0.00460	0.00996	0.03074	0.00378	0.00158	0.05823	0.02584
Aspiration Toxicity HP5	≥10%		0.00000	0.00111	0.00160	0.00000	0.00000	0.00000	0.00379	0.00000	0.05823	0.02584
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00206	0.00036	0.00012	0.00061	0.00164	0.00167	0.00048	0.00081	0.00202	0.00135
Acute Toxicity HP6	≥5%	<0.1%	0.02935	#VALUE!	0.00716	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<1%	0.07292	#VALUE!	0.01305	0.00950	0.01559	0.04928	0.00379	0.00418	0.02721	0.01562
Acute Toxicity HP6	≥0.25%	<0.1%	0.00008	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00467	#VALUE!	0.00005	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00070	#VALUE!	0.00046	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.09620	0.01551	0.01975	0.00950	0.01441	0.04096	0.00380	0.00418	0.02471	0.01410
Carcinogenic HP7	≥0.1%		0.04919	#VALUE!	0.00521	0.00460	0.00996	0.03074	0.00182	0.00160	0.01530	0.00782
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00454	0.00164	0.00443	0.00000	0.00010	0.00099	0.00000	0.00000	0.00026	0.00026
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		0.00	11.04	16.00	0.00	0.00	0.00	37.84	0.00	582.25	258.40
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	0.76667	0.00000	#DIV/0!	#DIV/0!	#DIV/0!	0.00000	#DIV/0!	0.85620	1.14638
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		8.06	7.32	8.06	7.90	8.30	8.30	7.70	8.30	9.80	8.70
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		8.06	7.32	8.06	7.90	8.30	8.30	7.70	8.30	9.80	8.70
Toxic for Reproduction HP10	≥0.3%		0.04919	0.00242	0.00521	0.00460	0.00996	0.03074	0.00182	0.00160	0.01530	0.00782
Toxic for Reproduction HP10	≥3%		0.00423	0.00164	0.00443	0.00000	0.00000	0.00000	0.00378	0.00000	0.05823	0.02584
Mutagenic HP11	≥0.1%		0.00034	0.00001	0.00005	0.00000	0.00016	0.00145	0.00000	0.00000	0.00059	0.00035
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		0.00	11.04	16.00	0.00	0.00	0.00	37.84	0.00	582.25	258.40
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	0.76667	0.00000	#DIV/0!	#DIV/0!	#DIV/0!	0.00000	#DIV/0!	0.85620	1.14638
Mutagenic HP11	≥1%		0.00427	0.00242	0.00521	0.00241	0.00285	0.00420	0.00182	0.00160	0.00412	0.00292
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00427	#VALUE!	0.00521	0.00241	0.00285	0.00420	0.00182	0.00160	0.00412	0.00292
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.07158	#VALUE!	0.01185	0.01401	0.03094	0.10319	0.00742	0.00719	0.05211	0.02909

Haswaste, developed by Dr. Iain Haslock.

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4770 - Plot 9B First Street

TP/WS/BH			WS105	WS102	WS102	HDP114	TP102	TP105	WS107	WS107	HDP117	HDP121
Depth (m)			0.50	3.40	3.80	1.00	0.25	0.50	2.00	4.00	0.60	0.50
Envirolab reference												
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.07630	#VALUE!	0.01829	0.01402	0.03094	0.10320	0.01121	0.00719	0.11034	0.05493
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	7.20556	#VALUE!	1.24931	1.40129	3.09383	10.31925	0.78018	0.71914	5.79352	3.16693
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please conta

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Please enter available data in the rows asso
If any calculation cells below state "0.

Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		TT1	TT1	TT1	TT1	TT1	TT2	TT2	TT2	TT2	TT2
Depth (m)		0-0.2	0.3-0.5	0.6-0.7	0.8-1	0.5-1	0-0.3	0.4-0.8	0.8-1	0.2-0.4	1-1.2
Envirolab reference											
% Moisture	%	16.0	14.0	12.0	9.8	14.0	9.6	25.0	12.0	11.0	13.0
pH (soil)		7.70	8.20	8.00	8.10	9.20	8.80	8.30	7.90	8.40	8.20
pH (leachate)											
Arsenic	mg/kg	2	16	5	9	25	18	4	4	15	3
Cadmium	mg/kg	0.6	0.7	0.0	0.0	0.0	1.5	0.0	0.0	1.8	0.0
Copper	mg/kg	49	33	13	46	92	73	18	8	71	3
CrVI or Chromium	mg/kg										
Lead	mg/kg	140	720	14	55	600	250	27	9	160	6
Mercury	mg/kg	0.50	0.50	0.00	0.00	0.90	0.50	0.00	0.00	0.40	0.00
Nickel	mg/kg	34	13	13	16	21	37	13	7	38	4
Selenium	mg/kg	0	0	0	0	0	0	0	0	0	0
Zinc	mg/kg	180	86	44	67	240	250	40	39	340	18
Barium	mg/kg										
Beryllium	mg/kg	2.0	0.6	0.4	0.7	1.2	1.6	0.5	0.2	1.0	0.2
Vanadium	mg/kg	45	18	15	20	32	34	19	14	25	14
Cobalt	mg/kg										
Manganese	mg/kg										
Molybdenum	mg/kg										
Antimony	mg/kg										
Aluminium	mg/kg										
Bismuth	mg/kg										
CrIII	mg/kg	26	13	12	13	20	19	15	8	18	8
Iron	mg/kg										
Strontium	mg/kg										
Tellurium	mg/kg										
Thallium	mg/kg										
Titanium	mg/kg										
Tungsten	mg/kg										
Ammoniacal N	mg/kg										
ws Boron	mg/kg	1.4	0.3	0.4	0.7	0.9	0.4	0.7	0.2	1.3	0.4
PAH (Input Total PAH **OR** individual PAH results)											
Acenaphthene	mg/kg	3.50	0.00	0.00	0.70	0.00	3.70	0.00	0.00	1.60	0.00
Acenaphthylene	mg/kg	0.53	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.43	0.00
Anthracene	mg/kg	7.20	0.18	0.21	0.82	0.22	4.50	0.00	0.00	2.40	0.00
Benzo(a)anthracene	mg/kg	22.00	0.72	0.70	2.10	1.50	13.00	0.00	0.00	9.70	0.00
Benzo(a)pyrene	mg/kg	11.00	0.32	0.28	1.00	0.86	13.00	0.00	0.00	10.00	0.00
Benzo(b)fluoranthene	mg/kg	22.00	0.82	0.58	2.20	1.40	15.00	0.00	0.00	9.80	0.00
Benzo(ghi)perylene	mg/kg	13.00	0.39	0.39	1.20	0.94	7.00	0.00	0.00	5.90	0.00
Benzo(k)fluoranthene	mg/kg	9.00	0.62	0.38	1.10	0.96	3.90	0.00	0.00	4.80	0.00
Chrysene	mg/kg	16.00	0.53	0.48	2.10	1.20	8.00	0.00	0.00	6.10	0.00
Dibenzo(ah)anthracene	mg/kg	2.60	0.00	0.00	0.26	0.23	1.70	0.00	0.00	1.30	0.00
Fluoranthene	mg/kg	42.00	0.86	1.00	4.50	1.80	24.00	0.00	0.00	14.00	0.00
Fluorene	mg/kg	2.60	0.00	0.00	0.38	0.00	2.60	0.00	0.00	1.40	0.00
Indeno(123cd)pyrene	mg/kg	11.00	0.32	0.28	1.00	0.86	6.00	0.00	0.00	5.20	0.00
Naphthalene	mg/kg	1.70	0.00	0.00	0.32	0.00	1.50	0.00	0.00	1.40	0.00
Phenanthrene	mg/kg	24.00	0.71	0.77	3.80	0.98	18.00	0.00	0.00	9.40	0.00
Pyrene	mg/kg	38.00	0.86	0.99	3.90	1.80	21.00	0.00	0.00	14.00	0.00
Coronene	mg/kg										
Total PAHs (16 or 17)	mg/kg										
TPH											
Petrol	mg/kg										
Diesel	mg/kg										
Lube Oil	mg/kg										
Crude Oil	mg/kg										
White Spirit / Kerosene	mg/kg										
Creosote	mg/kg										
Unknown TPH with ID	mg/kg	1,326.0	0.0	121.0	55.0						
Unknown TPHCWG	mg/kg										
Total Sulphide	mg/kg										
Complex Cyanide	mg/kg										
Free (or Total) Cyanide	mg/kg										
Thiocyanate	mg/kg										
Elemental/Free Sulphur	mg/kg										
Phenols Input Total Phenols HPLC **OR** individual Phenol results.											
Phenol	mg/kg										
Cresols	mg/kg										
Xylenols	mg/kg										
Resourcinol	mg/kg										
Phenols Total by HPLC	mg/kg										
BTEX Input Total BTEX **OR** individual BTEX results.											
Benzene	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toluene	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Xylenes	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total BTEX	mg/kg										
PCBs (POPs)											
PCBs Total (eg EC7/WHO12)	mg/kg										
PBBs (POPs)											
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg										

in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!". Please enter available data in the rows asso
below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property. If any calculation cells below state "0.

Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		TT1	TT1	TT1	TT1	TT1	TT2	TT2	TT2	TT2	TT2
Depth (m)		0-0.2	0.3-0.5	0.6-0.7	0.8-1	0.5-1	0-0.3	0.4-0.8	0.8-1	0.2-0.4	1-1.2
Envirolab reference											
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.											
2,3,7,8-TeCDD	mg/kg										
1,2,3,7,8-PeCDD	mg/kg										
1,2,3,4,7,8-HxCDD	mg/kg										
1,2,3,6,7,8-HxCDD	mg/kg										
1,2,3,7,8,9-HxCDD	mg/kg										
1,2,3,4,6,7,8-HpCDD	mg/kg										
OCDD	mg/kg										
2,3,7,8-TeCDF	mg/kg										
1,2,3,7,8-PeCDF	mg/kg										
2,3,4,7,8-PeCDF	mg/kg										
1,2,3,4,7,8-HxCDF	mg/kg										
1,2,3,6,7,8-HxCDF	mg/kg										
2,3,4,6,7,8-HxCDF	mg/kg										
1,2,3,7,8,9-HxCDF	mg/kg										
1,2,3,4,6,7,8-HpCDF	mg/kg										
1,2,3,4,7,8,9-HpCDF	mg/kg										
OCDF	mg/kg										
Total Dioxins and Furans	mg/kg										
Some Pesticides (POPs unless otherwise stated)											
Aldrin	mg/kg										
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*	mg/kg										
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*	mg/kg										
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*	mg/kg										
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*	mg/kg										
Dieldrin	mg/kg										
Endrin	mg/kg										
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*	mg/kg										
Heptachlor	mg/kg										
Hexachlorobenzene	mg/kg										
o,p'-DDT *(leave empty if total DDT results used)*	mg/kg										
p,p'-DDT ***OR*** *Total DDT*	mg/kg										
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*	mg/kg										
Chlordecone (kepone)	mg/kg										
Pentachlorobenzene	mg/kg										
Mirex	mg/kg										
Toxaphene (camphechlor)	mg/kg										
Tin											
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	mg/kg										
Organotin											
Dibutyltin; DiBT	mg/kg										
Tributyltin; TriBT	mg/kg										
Triphenyltin; TriPT	mg/kg										
Tetrabutyltin; TeBT	mg/kg										
Tin excluding Organotin											
Tin excl Organotin	mg/kg										

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in the rows associated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
s below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property.

Please enter available data in the rows asso
If any calculation cells below state "0.

4770 - Plot 9B First Street

TP/WS/BH	TT1	TT1	TT1	TT1	TT1	TT2	TT2	TT2	TT2	TT2
Depth (m)	0-0.2	0.3-0.5	0.6-0.7	0.8-1	0.5-1	0-0.3	0.4-0.8	0.8-1	0.2-0.4	1-1.2
Envirolab reference										
Asbestos in Soil	Thresholds									
Asbestos detected in Soil (enter Y or N)	Y	Y	N	N	N	N	Y	N	N	N	N
		If Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7								If
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%	0.07100					0.00100			
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%		0.05964	0.00000	0.00000	0.00000	0.00000	0.00090	0.00000	0.00000	0.00000
		% above is "<0.1%", the soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.								If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", th	
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y	N	N	N	N	N	N	N	N	N	N
		present, you cannot use Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05.								If visual identifiable pieces of asbestos are present, you cannot us	
		above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.								Therefore, if Asbestos in Soil above is "Y", the Asbes	
		Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.								Identifiable Piec	
		be removed leaving only fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.								All visual asbestos pieces need to be removed leaving or	

Hazardous Property	Thresholds	Cut Off Value	If cells below turn yellow and the text turns red, the samples should be classified as Hazardous Waste.									If cells below turn
Corrosive HP8	≥5%	<1%	0.00022	0.00182	0.00057	0.00112	0.00284	0.00215	0.00043	0.00044	0.00176	0.00032
Irritant HP4	≥10%	<1%	0.01160	0.00778	0.00421	0.00902	0.01668	0.01508	0.00449	0.00338	0.01286	0.00276
Irritant HP4	≥20%	<1%	0.01734	0.00586	0.00394	0.00873	0.01332	0.01917	0.00367	0.00205	0.01684	0.00099
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00673	0.00276	0.00235	0.00321	0.00490	0.00547	0.00254	0.00219	0.00396	0.00217
Specifc Target Organ Toxicity HP5	≥1%		0.05964	0.00276	0.00235	0.00321	0.00490	0.00676	0.00254	0.00219	0.00683	0.00217
Specifc Target Organ Toxicity HP5	≥10%		0.11138	0.06192	0.01065	0.00496	0.05160	0.02260	0.00203	0.00075	0.01424	0.00052
Aspiration Toxicity HP5	≥10%		0.11138	0.00000	0.01065	0.00496	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00026	0.00186	0.00057	0.00112	0.00292	0.00219	0.00043	0.00044	0.00180	0.00032
Acute Toxicity HP6	≥5%	<0.1%	0.00077	0.00024	0.00016	0.00029	0.00047	0.00066	0.00017	0.00009	0.00039	0.00008
Acute Toxicity HP6	≥25%	<1%	0.03469	0.07034	0.00734	0.01655	0.06933	0.04639	0.00806	0.00490	0.03458	0.00360
Acute Toxicity HP6	≥0.25%	<0.1%	0.00004	0.00004	0.00000	0.00000	0.00008	0.00005	0.00000	0.00000	0.00004	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00005	0.00006	0.00000	0.00000	0.00000	0.00014	0.00000	0.00000	0.00016	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00086	0.00035	0.00016	0.00029	0.00055	0.00084	0.00017	0.00009	0.00059	0.00008
Acute Toxicity HP6	≥3.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.02891	0.07014	0.00719	0.01578	0.06909	0.04228	0.00806	0.00490	0.03217	0.00360
Carcinogenic HP7	≥0.1%		0.01176	0.06192	0.00231	0.00496	0.05160	0.02260	0.00203	0.00121	0.01424	0.00063
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00673	0.00276	0.00235	0.00321	0.00490	0.00547	0.00254	0.00219	0.00396	0.00217
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		**1113.84**	0.00	106.48	49.61	0.00	0.00	0.00	0.00	0.00	0.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		**0.69683**	#DIV/0!	0.20364	1.64000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		7.70	8.20	8.00	8.10	9.20	8.80	8.30	7.90	8.40	8.20
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		7.70	8.20	8.00	8.10	9.20	8.80	8.30	7.90	8.40	8.20
Toxic for Reproduction HP10	≥0.3%		0.01176	0.06192	0.00231	0.00496	0.05160	0.02260	0.00203	0.00121	0.01424	0.00063
Toxic for Reproduction HP10	≥3%		0.11138	0.00276	0.01065	0.00496	0.00490	0.00547	0.00254	0.00219	0.00396	0.00217
Mutagenic HP11	≥0.1%		0.00092	0.00006	0.00002	0.00009	0.00007	0.00118	0.00000	0.00000	0.00089	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		**1113.84**	0.00	106.48	49.61	0.00	0.00	0.00	0.00	0.00	0.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		**0.69683**	#DIV/0!	0.20364	1.64000	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mutagenic HP11	≥1%		0.00673	0.00276	0.00235	0.00321	0.00490	0.00676	0.00254	0.00219	0.00683	0.00217
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00577	0.00226	0.00231	0.00292	0.00365	0.00676	0.00197	0.00121	0.00683	0.00063
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.05942	0.07907	0.01075	0.02344	0.09393	0.07977	0.00970	0.00743	0.07617	0.00371

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below state "0.00000", testing has NOT been undertaken that contributes to that Hazardous Property. If any calculation cells below state "0.

4770 - Plot 9B First Street

TP/WS/BH			TT1	TT1	TT1	TT1	TT1	TT2	TT2	TT2	TT2	TT2
Depth (m)			0-0.2	0.3-0.5	0.6-0.7	0.8-1	0.5-1	0-0.3	0.4-0.8	0.8-1	0.2-0.4	1-1.2
Envirolab reference												
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.17830	0.08207	0.02392	0.03190	0.09930	0.08590	0.01240	0.00972	0.08052	0.00596
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	7.13086	7.93665	1.20696	2.42838	9.44635	8.03811	0.99665	0.76625	7.66007	0.39341
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please conta

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ciated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!". Please enter available data in the rows associated with the t
)0000", testing has NOT been undertaken that contributes to that Hazardous Property. If any calculation cells below state "0.00000", testing h

4770 - Plot 9B First Street

TP/WS/BH		TT3	TT3	TT3	TT3	TT3	TT3	AOP6-7 B9	AOP6-7 C9	AOP6-7 E6	AOP6-7 E8
Depth (m)		0.1-0.4	0.1-0.2	0.4-0.7	0.9-1	0.8-1	1.2-1.3	0.50	0.50	0.75	0.50
Envirolab reference											
% Moisture	%	10.0	12.0	15.0	14.0	14.0	10.0				
pH (soil)		8.40	8.10	7.80	7.50	7.60	7.00				
pH (leachate)											
Arsenic	mg/kg	11	18	7	6	10	6				
Cadmium	mg/kg	0.0	0.0	1.2	0.5	0.0	0.0				
Copper	mg/kg	34	57	18	22	24	22				
CrVI or Chromium	mg/kg										
Lead	mg/kg	65	140	56	70	55	13				
Mercury	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00				
Nickel	mg/kg	16	35	31	13	13	16				
Selenium	mg/kg	0	0	0	0	0	0				
Zinc	mg/kg	67	150	680	110	43	38				
Barium	mg/kg										
Beryllium	mg/kg	0.9	1.9	0.6	0.6	0.7	0.6				
Vanadium	mg/kg	22	40	20	23	26	25				
Cobalt	mg/kg										
Manganese	mg/kg										
Molybdenum	mg/kg										
Antimony	mg/kg										
Aluminium	mg/kg										
Bismuth	mg/kg										
CrIII	mg/kg	14	21	16	18	19	19				
Iron	mg/kg										
Strontium	mg/kg										
Tellurium	mg/kg										
Thallium	mg/kg										
Titanium	mg/kg										
Tungsten	mg/kg										
Ammoniacal N	mg/kg										
ws Boron	mg/kg	1.0	1.3	0.9	0.4	1.3	0.3				
PAH (Input Total PAH **OR** individual PAH results)											
Acenaphthene	mg/kg	0.37	1.30	0.00	0.31	0.00	0.00				
Acenaphthylene	mg/kg	0.37	1.10	0.00	0.00	0.00	0.00				
Anthracene	mg/kg	0.87	3.00	0.00	0.56	0.00	0.00				
Benzo(a)anthracene	mg/kg	3.30	12.00	0.20	2.30	0.00	0.00				
Benzo(a)pyrene	mg/kg	3.20	13.00	0.00	2.30	0.00	0.00				
Benzo(b)fluoranthene	mg/kg	3.70	14.00	0.24	2.80	0.00	0.00				
Benzo(ghi)perylene	mg/kg	2.30	8.50	0.00	1.50	0.00	0.00				
Benzo(k)fluoranthene	mg/kg	1.70	7.90	0.08	0.85	0.00	0.00				
Chrysene	mg/kg	2.80	10.00	0.21	1.80	0.00	0.00				
Dibenzo(ah)anthracene	mg/kg	0.50	2.20	0.00	0.37	0.00	0.00				
Fluoranthene	mg/kg	5.60	21.00	0.42	4.30	0.00	0.00				
Fluorene	mg/kg	0.48	1.70	0.00	0.29	0.00	0.00				
Indeno(123cd)pyrene	mg/kg	1.90	7.60	0.00	1.30	0.00	0.00				
Naphthalene	mg/kg	1.10	7.70	0.00	0.20	0.00	0.00				
Phenanthrene	mg/kg	3.80	12.00	0.34	2.40	0.00	0.00				
Pyrene	mg/kg	5.40	20.00	0.38	41.00	0.00	0.00				
Coronene	mg/kg										
Total PAHs (16 or 17)	mg/kg										
TPH											
Petrol	mg/kg										
Diesel	mg/kg										
Lube Oil	mg/kg										
Crude Oil	mg/kg										
White Spirit / Kerosene	mg/kg										
Creosote	mg/kg										
Unknown TPH with ID	mg/kg										
Unknown TPHCWG	mg/kg										
Total Sulphide	mg/kg										
Complex Cyanide	mg/kg										
Free (or Total) Cyanide	mg/kg										
Thiocyanate	mg/kg										
Elemental/Free Sulphur	mg/kg										
Phenols Input Total Phenols HPLC **OR** individual Phenol results.											
Phenol	mg/kg										
Cresols	mg/kg										
Xylenols	mg/kg										
Resourcinol	mg/kg										
Phenols Total by HPLC	mg/kg										
BTEX Input Total BTEX **OR** individual BTEX results.											
Benzene	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00				
Toluene	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00				
Ethylbenzene	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00				
Xylenes	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00				
Total BTEX	mg/kg										
PCBs (POPs)											
PCBs Total (eg EC7/WHO12)	mg/kg										
PBBs (POPs)											
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg										

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4770 - Plot 9B First Street

TP/WS/BH	TT3	TT3	TT3	TT3	TT3	TT3	AOP6-7 B9	AOP6-7 C9	AOP6-7 E6	AOP6-7 E8
Depth (m)	0.1-0.4	0.1-0.2	0.4-0.7	0.9-1	0.8-1	1.2-1.3	0.50	0.50	0.75	0.50
Envirolab reference										
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.										
2,3,7,8-TeCDD mg/kg										
1,2,3,7,8-PeCDD mg/kg										
1,2,3,4,7,8-HxCDD mg/kg										
1,2,3,6,7,8-HxCDD mg/kg										
1,2,3,7,8,9-HxCDD mg/kg										
1,2,3,4,6,7,8-HpCDD mg/kg										
OCDD mg/kg										
2,3,7,8-TeCDF mg/kg										
1,2,3,7,8-PeCDF mg/kg										
2,3,4,7,8-PeCDF mg/kg										
1,2,3,4,7,8-HxCDF mg/kg										
1,2,3,6,7,8-HxCDF mg/kg										
2,3,4,6,7,8-HxCDF mg/kg										
1,2,3,7,8,9-HxCDF mg/kg										
1,2,3,4,6,7,8-HpCDF mg/kg										
1,2,3,4,7,8,9-HpCDF mg/kg										
OCDF mg/kg										
Total Dioxins and Furans mg/kg										
Some Pesticides (POPs unless otherwise stated)										
Aldrin mg/kg										
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)* mg/kg										
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)* mg/kg										
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane* mg/kg										
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)* mg/kg										
Dieldrin mg/kg										
Endrin mg/kg										
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH* mg/kg										
Heptachlor mg/kg										
Hexachlorobenzene mg/kg										
o,p'-DDT *(leave empty if total DDT results used)* mg/kg										
p,p'-DDT ***OR*** *Total DDT* mg/kg										
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)* mg/kg										
Chlordecone (kepone) mg/kg										
Pentachlorobenzene mg/kg										
Mirex mg/kg										
Toxaphene (camphechlor) mg/kg										
Tin										
Tin *(leave empty if Organotin and Tin excl Organotin results used)* mg/kg										
Organotin										
Dibutyltin; DiBT mg/kg										
Tributyltin; TriBT mg/kg										
Triphenyltin; TriPT mg/kg										
Tetrabutyltin; TeBT mg/kg										
Tin excluding Organotin										
Tin excl Organotin mg/kg										

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ciated with the test (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
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Please enter available data in the rows associated with the t
If any calculation cells below state "0.00000", testing h

4770 - Plot 9B First Street

	Thresholds										
TP/WS/BH			TT3	TT3	TT3	TT3	TT3	TT3	AOP6-7 B9	AOP6-7 C9	AOP6-7 E6	AOP6-7 E8
Depth (m)			0.1-0.4	0.1-0.2	0.4-0.7	0.9-1	0.8-1	1.2-1.3	0.50	0.50	0.75	0.50
Envirolab reference												
Asbestos in Soil												
Asbestos detected in Soil (enter Y or N)	Y		N	N	N	N	N	N	Y	Y	Y	Y
			Asbestos in Soil above is "Y", the soil is Hazardous Waste HP5 and HP7									If Asbestos in Soil above
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	%							0.00100	0.00100	0.00400	0.00100
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00100	0.00100	0.00400	0.00100
			e soil is Non Hazardous Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use Asbestos % results when visual identifiable pieces are present.						If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Asbestos % results			
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y		N	N	N	N	N	N	N	N	Y	N
			e Asbestos % results and the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. :tos % above is "<0.1%", but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.						If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results a Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%			
			s are Cement, Fragments, Board, Rope etc. ie anything ACM that is not Loose Fibres.									Identifiable Pieces are Cement, Fragme
			ly fibres (or micro pieces) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.									All visual asbestos pieces need to be removed leaving only fibres (or micro piece
Hazardous Property	Thresholds	Cut Off Value	ellow and the text turns red, the samples should be classified as Hazardous Waste.									If cells below turn yellow and the text tu
Corrosive HP8	≥5%	<1%	0.00131	0.00209	0.00079	0.00070	0.00109	0.00070	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥10%	<1%	0.00829	0.01402	0.00554	0.00636	0.00740	0.00694	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥20%	<1%	0.00772	0.01594	0.00734	0.00844	0.00486	0.00538	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00352	0.00627	0.00303	0.00352	0.00398	0.00401	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00352	0.00627	0.00532	0.00352	0.00398	0.00401	0.00100	0.00100	0.00400	0.00100
Specifc Target Organ Toxicity HP5	≥10%		0.00585	0.01232	0.00476	0.00602	0.00473	0.00117	0.00000	0.00000	0.00000	0.00000
Aspiration Toxicity HP5	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00131	0.00209	0.00079	0.00070	0.00109	0.00070	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥5%	<0.1%	0.00038	0.00076	0.00022	0.00024	0.00027	0.00023	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<1%	0.01672	0.03415	0.01500	0.01457	0.01330	0.01032	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00000	0.00000	0.00010	0.00004	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00038	0.00076	0.00033	0.00028	0.00027	0.00023	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.01574	0.03048	0.01484	0.01394	0.01330	0.01032	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.00585	0.01232	0.00532	0.00602	0.00473	0.00291	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00352	0.00627	0.00303	0.00352	0.00398	0.00401	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		8.40	8.10	7.80	7.50	7.60	7.00	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		8.40	8.10	7.80	7.50	7.60	7.00	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.00585	0.01232	0.00532	0.00602	0.00473	0.00291	0.00000	0.00000	0.00000	0.00000
Toxic for Reproduction HP10	≥3%		0.00352	0.00627	0.00303	0.00352	0.00398	0.00401	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11	≥0.1%		0.00029	0.00114	0.00010	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mutagenic HP11	≥1%		0.00352	0.00627	0.00532	0.00352	0.00398	0.00401	0.00000	0.00000	0.00000	0.00000
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00291	0.00622	0.00532	0.00226	0.00226	0.00291	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.02422	0.05462	0.08511	0.02823	0.01503	0.01129	0.00000	0.00000	0.00000	0.00000

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4770 - Plot 9B First Street

TP/WS/BH			TT3	TT3	TT3	TT3	TT3	TT3	AOP6-7 B9	AOP6-7 C9	AOP6-7 E6	AOP6-7 E8
Depth (m)			0.1-0.4	0.1-0.2	0.4-0.7	0.9-1	0.8-1	1.2-1.3	0.50	0.50	0.75	0.50
Envirolab reference												
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.02812	0.06165	0.08836	0.03199	0.01928	0.01553	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	2.46119	5.53218	8.54330	2.86080	1.54576	1.17160	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please conta

envirolab

est (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!". Please enter available data in the rows associated with the test (grey) cells.
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Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		AOP6-7 F9	AOP6-7 G6							
Depth (m)		0.50	1.00							
Envirolab reference										
% Moisture	%									
pH (soil)										
pH (leachate)										
Arsenic	mg/kg									
Cadmium	mg/kg									
Copper	mg/kg									
CrVI or Chromium	mg/kg									
Lead	mg/kg									
Mercury	mg/kg									
Nickel	mg/kg									
Selenium	mg/kg									
Zinc	mg/kg									
Barium	mg/kg									
Beryllium	mg/kg									
Vanadium	mg/kg									
Cobalt	mg/kg									
Manganese	mg/kg									
Molybdenum	mg/kg									
Antimony	mg/kg									
Aluminium	mg/kg									
Bismuth	mg/kg									
CrIII	mg/kg									
Iron	mg/kg									
Strontium	mg/kg									
Tellurium	mg/kg									
Thallium	mg/kg									
Titanium	mg/kg									
Tungsten	mg/kg									
Ammoniacal N	mg/kg									
ws Boron	mg/kg									
PAH (Input Total PAH **OR** individual PAH results)										
Acenaphthene	mg/kg									
Acenaphthylene	mg/kg									
Anthracene	mg/kg									
Benzo(a)anthracene	mg/kg									
Benzo(a)pyrene	mg/kg									
Benzo(b)fluoranthene	mg/kg									
Benzo(ghi)perylene	mg/kg									
Benzo(k)fluoranthene	mg/kg									
Chrysene	mg/kg									
Dibenzo(ah)anthracene	mg/kg									
Fluoranthene	mg/kg									
Fluorene	mg/kg									
Indeno(123cd)pyrene	mg/kg									
Naphthalene	mg/kg									
Phenanthrene	mg/kg									
Pyrene	mg/kg									
Coronene	mg/kg									
Total PAHs (16 or 17)	mg/kg									
TPH										
Petrol	mg/kg									
Diesel	mg/kg									
Lube Oil	mg/kg									
Crude Oil	mg/kg									
White Spirit / Kerosene	mg/kg									
Creosote	mg/kg									
Unknown TPH with ID	mg/kg									
Unknown TPHCWG	mg/kg									
Total Sulphide	mg/kg									
Complex Cyanide	mg/kg									
Free (or Total) Cyanide	mg/kg									
Thiocyanate	mg/kg									
Elemental/Free Sulphur	mg/kg									
Phenols Input Total Phenols HPLC **OR** individual Phenol results.										
Phenol	mg/kg									
Cresols	mg/kg									
Xylenols	mg/kg									
Resourcinol	mg/kg									
Phenols Total by HPLC	mg/kg									
BTEX Input Total BTEX **OR** individual BTEX results.										
Benzene	mg/kg									
Toluene	mg/kg									
Ethylbenzene	mg/kg									
Xylenes	mg/kg									
Total BTEX	mg/kg									
PCBs (POPs)										
PCBs Total (eg EC7/WHO12)	mg/kg									
PBBs (POPs)										
Hexabromobiphenyl (Total or PBB153; 2,2',4,4',5,5'- if only available)	mg/kg									

est (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
as NOT been undertaken that contributes to that Hazardous Property.

Please enter available data in the rows associated with the test (grey) cells.
If any calculation cells below state "0.00000", testing has NOT been u

Haswaste, developed by Dr. Iain Haslock.

4770 - Plot 9B First Street

TP/WS/BH		AOP6-7 F9	AOP6-7 G6							
Depth (m)		0.50	1.00							
Envirolab reference										
POPs Dioxins and Furans Input Total Dioxins and Furans **OR** individual Dioxin and Furan results.										
2,3,7,8-TeCDD	mg/kg									
1,2,3,7,8-PeCDD	mg/kg									
1,2,3,4,7,8-HxCDD	mg/kg									
1,2,3,6,7,8-HxCDD	mg/kg									
1,2,3,7,8,9-HxCDD	mg/kg									
1,2,3,4,6,7,8-HpCDD	mg/kg									
OCDD	mg/kg									
2,3,7,8-TeCDF	mg/kg									
1,2,3,7,8-PeCDF	mg/kg									
2,3,4,7,8-PeCDF	mg/kg									
1,2,3,4,7,8-HxCDF	mg/kg									
1,2,3,6,7,8-HxCDF	mg/kg									
2,3,4,6,7,8-HxCDF	mg/kg									
1,2,3,7,8,9-HxCDF	mg/kg									
1,2,3,4,6,7,8-HpCDF	mg/kg									
1,2,3,4,7,8,9-HpCDF	mg/kg									
OCDF	mg/kg									
Total Dioxins and Furans	mg/kg									
Some Pesticides (POPs unless otherwise stated)										
Aldrin	mg/kg									
α Hexachlorocyclohexane (alpha-HCH) *(leave empty if total HCH results used)*	mg/kg									
β Hexachlorocyclohexane (beta-HCH) *(leave empty if total HCH results used)*	mg/kg									
α Cis-Chlordane (alpha) ***OR*** *Total Chlordane*	mg/kg									
δ Hexachlorocyclohexane (delta-HCH) *(leave empty if total HCH results used)*	mg/kg									
Dieldrin	mg/kg									
Endrin	mg/kg									
χ Hexachlorocyclohexane (gamma-HCH) (lindane) ***OR*** *Total HCH*	mg/kg									
Heptachlor	mg/kg									
Hexachlorobenzene	mg/kg									
o,p'-DDT *(leave empty if total DDT results used)*	mg/kg									
p,p'-DDT ***OR*** *Total DDT*	mg/kg									
χ Trans-Chlordane (gamma) *(leave empty if total Chlordane results used)*	mg/kg									
Chlordecone (kepone)	mg/kg									
Pentachlorobenzene	mg/kg									
Mirex	mg/kg									
Toxaphene (camphechlor)	mg/kg									
Tin										
Tin *(leave empty if Organotin and Tin excl Organotin results used)*	mg/kg									
Organotin										
Dibutyltin; DiBT	mg/kg									
Tributyltin; TriBT	mg/kg									
Triphenyltin; TriPT	mg/kg									
Tetrabutyltin; TeBT	mg/kg									
Tin excluding Organotin										
Tin excl Organotin	mg/kg									

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est (grey) cells. Calculation cells initially display either "0.0000" or "#DIV/0!".
as NOT been undertaken that contributes to that Hazardous Property.

Please enter available data in the rows associated with the test (grey) cells.
If any calculation cells below state "0.00000", testing has NOT been u

4770 - Plot 9B First Street

TP/WS/BH		AOP6-7 F9	AOP6-7 G6							
Depth (m)		0.50	1.00							
Envirolab reference										
Asbestos in Soil	Thresholds									
Asbestos detected in Soil (enter Y or N)	Y	Y	Y							
		s "Y", the soil is Hazardous Waste HP5 and HP7								If Asbestos in Soil above is "Y", the soil is Hazar
Asbestos % Composition in Soil (Matrix Loose Fibres or Microscopic Identifiable Pieces only)	see "Carc HP7 % Asbestos in Soil (Fibres)" below	% 0.00100	0.00100							
Carcinogenic HP7 % Asbestos in Soil (fibres or micro pieces) *Please be advised, if the calculation cell is "0.00000" DOES NOT MEAN asbestos testing has been undertaken and the result is zero.*	≥0.1%	0.00100	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
		Waste. You can only use Asbestos % results where loose fibres or micro pieces are only present. You cannot use when visual identifiable pieces are present.					If Asbestos in Soil above is "Y", but Asbestos % above is "<0.1%", the soil is Non Hazardous Waste. You can only Asbestos % results when visual identifiable			
Asbestos Identifiable Pieces visible with the naked eye detected in the Soil (enter Y or N)	Y	N	N							
		d the whole soil sample is Hazardous Waste HP5 and HP7 Construction material containing Asbestos 17 06 05. ', but the Asbestos Identifiable Pieces visible with the naked eye is "Y", the soil is Hazardous Waste.					If visual identifiable pieces of asbestos are present, you cannot use Asbestos % results and the whole soil sampl Therefore, if Asbestos in Soil above is "Y", the Asbestos % above is "<0.1%", but the Asbestos Ider			
		nts, Board, Rope etc. ie anything ACM that is not Loose Fibres.						Identifiable Pieces are Cement, Fragments, Board, Rope etc. ie		
		s) with an Asbestos % Composition in Soil result of <0.1% for the soil to become non-hazardous waste.						All visual asbestos pieces need to be removed leaving only fibres (or micro pieces) with an Asbestos %		

Hazardous Property	Thresholds	Cut Off Value	ns red, the samples should be classified as Hazardous Waste.								If cells below turn yellow and the text turns red, the samples s	
Corrosive HP8	≥5%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥10%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Irritant HP4	≥20%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥20%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥1%		0.00100	0.00100	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Specifc Target Organ Toxicity HP5	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Aspiration Toxicity HP5	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥25%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.25%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥2.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥15%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥55%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.1%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥0.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥3.5%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Acute Toxicity HP6	≥22.5%	<1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7	≥0.1%		0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000	0.000000000
Carcinogenic HP7	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Carcinogenic HP7 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Carcinogenic HP7 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
pH Corrosive HP8 pH (soil or leachate)	H8 ≥11.5		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH Corrosive HP8 pH (soil or leachate)	H8 ≤2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toxic for Reproduction HP10	≥0.3%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Toxic for Reproduction HP10	≥3%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11	≥0.1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Mutagenic HP11 Unknown TPH with ID	≥1,000mg/kg		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mutagenic HP11 b(a)p marker test (Unknown TPH with ID only) Cell only applicable if TPH >1,000mg/kg	≥0.01%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Mutagenic HP11	≥1%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Produces Toxic Gases HP12 Sulphide	≥1,400mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Cyanide	≥1,200mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Produces Toxic Gases HP12 Thiocyanate	≥2,600mg/kg		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP13 Sensitising	≥10%		0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1%	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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4770 - Plot 9B First Street

TP/WS/BH			AOP6-7 F9	AOP6-7 G6							
Depth (m)			0.50	1.00							
Envirolab reference											
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ecotoxic HP14 amended v6	≥25%	<0.1% (except Be, V, Te, Tl, Petrol, Diesel, Crude Oil, Kerosene, White Spirit, Crosote, TPH, TPHCWG, Phenol, Cresols, Xylenols, T-Phenols, CompCN, Thiocyanate, Toluene, Ethylbenzene, Xylene + BTEX 1%).	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Persistent Organic Pollutant (PCB, PBB or POP Pesticides)	>0.005%		0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
Persistent Organic Pollutant (Total Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000
Persistent Organic Pollutant (Individual Dioxins+Furans)	>0.0000015%		0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000	0.0000000000

If other contaminants need adding to Haswaste, please conta

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