Appendix C. Site Condition Report

AtkinsRéalis

Site Condition Report

SGN Gas to Grid ProjectCo1 Limited

December 2024

BLACKBURN MEADOWS BIOMETHANE TO GRID PLANT

AtkinsRéalis - Baseline / Référence

Notice

This document and its contents have been prepared and are intended solely as information for SGN Gas to Grid ProjectCo1 Limited Gas to Grid ProjectCo1 Limited and use in relation to providing supporting information for the Blackburn Biomethane to Grid Plant environmental permit application.

AtkinsRéalis UK Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

Document history

Document title: Site Condition Report

Document reference: 5223650-Blackburn Meadows

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft for client review	C Hidson	M Boobyer	C.Hughes	S. White	September 2024
2.0	Inclusion of GI data: final version	C Hidson	M Boobyer	C.Hughes	S. White	December 2024

Contents

Tables

1. Site details

Name of the applicant	SGN Gas to Grid ProjectCo1 Limited
Activity address	Blackburn Meadows Wastewater Treatment Works (WwTW), Alsing Road, Sheffield, Yorkshire, S9 1HF.
Ordnance Survey National Grid Reference	SK 40070 91692
Document reference and dates for Site Condition Report at permit application and surrender	Site Condition Report (SCR) (reference 522360_Blackburn Meadows_v1), The SCR forms Appendix C of the Supporting Information Document November 2024 (to support permit application).
Document references for site plans (including location and boundaries)	The following drawings are provided within Appendix D: site location, installation boundary, drainage, shared services drawing, emission and transfer points and materials storage/use/production. An exploratory hole location plan will be included within the ground investigation factual report, which will be provided in Appendix B of this Site Condition Report, once available.

2. Condition of the land at permit issue

Environmental setting	**Location and current land use** The proposed Biomethane to Grid (BtG) plant, herein referred to as 'the site', is located within a wider area owned by Yorkshire Water Services Limited (YWS) at Blackburn Meadows Waste Water Treatment Works (WwTW), in Tinsley, Sheffield. The nearest postcode is S9 1HF. The site is accessed through the WwTW from Alsing Road on the western extent of the WwTW and consists of a roughly square plot of land which is located within the south-eastern section of the WwTW. The approximate Ordnance Survey National Grid Reference (NGR) for the site is SK 40070 91692. A landscaping berm is present in the northern half of the site and it is understood that this berm will be removed prior to the construction of the BtG plant [1]. No plant is currently located within the site. **Surrounding land use** The land use in the area surrounding the site is summarised below: ▪ North-west: adjacent Blackburn Meadows WwTW; ▪ North-east: adjacent Blackburn Meadows WwTW; ▪ South-east: adjacent undeveloped vacant land. A canal cycleway footpath and the River Don are located approximately 25 m south-east; and ▪ South-west: adjacent undeveloped vacant land with the canal cycleway footpath beyond.

- Blackburn Meadows Power Station is located approximately 140 m west of the site.
- The closest residential properties are located 350 m to the south-east of the site while the nearest commercial buildings are 150 m and 200 m to the south-east and west of the site.

Topography

The site lies at an approximate elevation of 30 m Above Ordnance Survey (mAOD) [2].

Geology

Made Ground: The British Geological Survey (BGS) 1;10,000 published geology map records that the site is underlain by Made Ground [3]. Made Ground is present on-site associated with the construction of the wider WwTW site.

A ground investigation was conducted by Solmek Ltd [4] in September 2024 (see baseline soil and groundwater reference data section below for further details). The ground investigation encountered Made Ground in all of the exploratory holes with the thickness of the Made Ground ranging between 3.0 m and 6.0 m. The maximum thickness of Made Ground (6.0 m) was encountered in exploratory hole CP01 between the depths of 0.0 and 6.0 m below ground level (bgl).

Made Ground was recorded generally as cohesive in nature as soft to firm consistency brown to grey clay with varying quantities of sand and gravel. Gravel of brick, concrete, chert, tile, quartz, shale, slate, coal, slag, sandstone, tarmacadam, plastic, limestone and glass were encountered within the Made Ground. Rope, metal, plastic and wood were also recorded. Cobbles and boulders of concrete and brick were also noted.

Made Ground bands of brown to grey or black sand with varying quantities of gravel, clay and anthropogenic inclusions were encountered in exploratory holes BH06, TP01 and TP02.

Superficial deposits: The BGS GeoIndex [2] records that the superficial geology underlying the site comprises Alluvium of gravel, sand, silt and clay.

The Solmek Ltd [4] ground investigation recorded Alluvium in three (BH06 and CP01 to CP02) of five exploratory holes ranging between depths of 4.80 m bgl and 9.80 m bgl (base not proven). The Alluvium comprised brown-orange to yellow-grey slightly clayey to clayey, sandy gravel or light brown sandy clay or light brown grey to yellow very sandy slightly gravelly clay.

Bedrock geology: The BGS GeoIndex [2] records that the bedrock geology underlying the site comprises mudstone and siltstone of the Pennine Lower Coal Measures.

The Pennine Lower Coal Measures Formation was not encountered in any exploratory hole during the Solmek Ltd [4] ground investigation.

Hydrogeology

Groundwater levels: The Solmek Ltd [4] ground investigation recorded groundwater strikes within the Made Ground deposits at depths of 5.0 m bgl (CP02) and 3.0 m bgl (TP02). Within the Alluvium groundwater strikes were recorded at 6.50 m bgl (CP01), 9.0 m bgl (CP01) and 8.0 m bgl (CP02). Groundwater was not encountered in TP01.

Groundwater monitoring was undertaken as part of the Solmek Ltd [4] ground investigation on three occasions. Groundwater levels were recorded between 4.50 m and 5.60 m bgl in CP01 and between 4.00 m and 4.95 m bgl in CP02. No groundwater was recorded in CP02 during the first monitoring round. The

	groundwater level in BH06 was recorded as 3.92 m bgl during the first monitoring round. In monitoring rounds two and three the monitoring well of BH06 was submerged under water and therefore could not be monitored. **Aquifer designation:** Environment Agency data, summarised in the Groundsure report [5], classifies the Alluvium and Pennine Lower Coal Measures as secondary A aquifers which are defined as 'permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers'. **Groundwater Source Protection Zones:** The Groundsure report records that the site is not located within a groundwater Source Protection Zone (SPZ) or within 250 m of a SPZ [5]. **Abstraction licenses:** The Groundsure report [3] records that there are no licensed active groundwater abstractions located within 250 m of the site. **Hydrology** **Hydrological features:** The nearest surface water feature is the River Don which is located approximately 25 m south-east of the site. The River Don is classified as both a statutory main river and Water Framework Directive (WFD) watercourse, named 'Don from River Don Works to River Rother'. At the end of the WFD 2019 cycle the 'Don from River Don Works to River Rother' watercourse was classified as having a failing chemical status and poor ecological status [3]. The Sheffield & South Yorkshire Navigation (Sheffield and Tinsley Canal) is located approximately 220 m south-west of the site. **Discharge consents:** The Groundsure report [3] records that there is one licensed discharge consent to controlled waters within 250 m of the site. The discharge consent is located approximately 105 m south-east of the site for the release of sewage into the River Don. The address is listed as Tinsley combined storm overflow, with the status of the license listed as transferred and effective from 19 March 1957. **Abstraction licences:** The Groundsure report [3] records that there are no licensed active surface water abstractions located within 250 m of the site. **Flood risk:** The Environment Agency Flood Risk Map for Planning [6] records that the site is predominantly located within flood zone 2. A flood zone 2 (medium probability of flooding) is defined as "in any year, land has between a 1% and 0.1% chance of flooding from rivers and between a 0.5% and 0.1% chance of flooding from the sea". The north-eastern, south-eastern and south-western extents of the site are located within flood zone 3. A flood zone 3 (high probability of flooding) is defined as "in any year, land has a 1% or more chance of flooding from rivers, or a 0.5% or more chance of flooding from the sea". **Sensitive land uses** There are no statutory ecologically sensitive land uses within 250 m of the site [5].
Pollution history	**Site history** A summary of the historical development of the site is provided in Table 2-1 with reference to Ordnance Survey historical maps dated between 1850 and 1995, provided as part of the Groundsure report [3].

Table 2-1 - Summary of historical land use

Date and Scale	On-site Development	Off-site Development (within 250m)
1850, 1:10,560	The site is shown as undeveloped land.	The surrounding area predominantly comprises undeveloped land that is labelled as liable to floods. The River Don is located approximately 25 m south-east of the site.
1890-1892, 1:2,500 1893, 1:10,560	No significant changes.	The Sheffield Sewage Works is located approximately 250 m north-west of the site. The Sheffield & Mexborough Branch Railway is located approximately 100 m south of the site.
1902 1:10,560 1905 1:2,500	No significant changes.	No significant changes.
1921 1:10,560	The Sheffield Corporation Sewage works has expanded on to the site with the site shown to comprise filter beds.	The Sheffield Sewage Works is now labelled as the Sheffield Corporation Sewage Works and has expanded to the east and south-east. Multiple filter beds and settling tanks are present. Simplex Motor Works is located approximately 200 m south-east of the site.
1934-1935, 1:2,500 1935, 1:10,560	Settling tanks and bio-aeration units have been constructed on the western section of the site.	Further settling tanks and bio-aeration units have been constructed in the Sheffield Corporation Sewage Works, located adjacent to the west and north of the site. Sludge pits are also located approximately 180 m north-west of the site. The Sheffield & Mexborough Branch Railway, located approximately 100 m south of the site, is now labelled as the London & North Eastern Railway. Simplex Motor Works, located approximately 200 m south-east of the site, is now labelled as Fitzwilliam Steel Works.
1938, 1:10,560 1948, 1:10,560	No significant changes.	No significant changes.

1951, 1:10,560 1953-1954, 1:2,500	Settling tanks are shown on the site.	No significant changes.
1965-1968 1:1,250 1967-1968, 1:10,560	No significant changes.	No significant changes.
1983-1987, 1;1,250 1984-1987, 1:10,000	No significant changes	Four tanks, part of the sewage works, are located between 20 m and 100 m to the east and north-east of the site. The sludge beds, located within the area of the sewage works to the east of the River Don, are labelled as disused.
1990-1995, 1:10,000 1991-1993, 1:1,250 1991-1993, 1:1,250 1992, 1:10,000	No significant changes	No significant changes

YWS has advised that material excavated from the wider WwTW was re-used on site under a Materials Management Plan to form the current landscaping berm in 2019 [1].

Inspection of Google Earth Pro [7] historical aerial photos indicates that the site has been in its current form since at least August 2022. A summary of the use of the site as shown on Google Earth is presented below:

- May 2005, the site was occupied by a field / open land [1];
- September 2008, the site was being used for storage of material;
- December 2009 several large mounds of material (potentially windrows) can be seen across the site;
- April 2015, photographs indicate that material at the site surface appeared to have been reworked, with grass starting to return in June 2016; and

- Construction of the landscaping berm was underway in June 2018 and had been completed by April 2020, when the area surrounding the berm was still not vegetated.

Pollution incidents

The Groundsure report [3] records that there is one pollution incident within 250 m of the site which is summarised in Table 2-2.

Table 2-2 - Summary of pollution incidents

Pollutant	Distance / Direction	Impact	Date of Incident
Final effluent	180 m north-west	Water: Category 3 (minor) Land: Category 4 (no impact) Air: Category 4 (no impact)	20/09/2001

Control of Major Hazards (COMAH)

The Groundsure report **[3]** records that there are no COMAH sites within 250 m of the site.

Licensed industrial activities (Part A(1))

The Groundsure report [3] records that there are nine superseded licensed industrial activities (Part A (1)) within the wider YWS site. There are no further licensed industrial activities (Part A (1)) within 250 m of the site.

The licensed industrial activities (Part A(1)) are summarised in Table 2-3.

Table 2-3 - Summary of licensed industrial activities (Part A(1))

Distance / Direction	Operator	Description	Status
Wider YWS site	Yorkshire Water Services Ltd	• 3 x Incineration of non-hazardous waste • 3 x Waste Disposal; Non-Hazardous Waste >50T/D By Physico-Chemical Treatment • 3 x Associated Processes	Superseded

Licensed pollutant release (Part A(2)/B)

The Groundsure report [3] records that there are no licensed pollutant release (Part A(2)/B) permits within 250 m of the site.

Radioactive substance authorisations

The Groundsure report [3] records that there are no radioactive substance authorisations within 250 m of the site.

List 1 dangerous substances

The Groundsure report [3] records that there are no list 1 dangerous substances within 250 m of the site.

List 2 dangerous substances

The Groundsure report [3] records that there are no list 2 dangerous substances within 250 m of the site.

Landfill sites

The Groundsure report [3] records that there are two active / recent landfills within 250 m of the site.

There are no Local Authority historical landfills or Environment Agency historical landfills within 250 m of the site.

The active or recent landfills are summarised in Table 2-4.

Table 2-4 - Summary of landfills

Landfill Type	Distance / Direction	Operator / Address	Description of Waste	Licence Issue Date	Licence Status
Recent or active	43 m south-east	Operator: Yorkshire Water Services Ltd. Blackburn Meadows WWW, Alsing Road	Waste landfilling; > 10 T/D with capacity > 25,000 T excluding inert waste.	Not provided	Effective
Recent or active	44 m south-east	Operator: Yorkshire Water Services Ltd, Blackburn Meadows WWW, Alsing Road	Household, commercial and industrial waste landfill	Not provided	Closure

Licensed waste sites

The Groundsure report records that there are four licensed waste sites located within 250 m of the site. A summary of the licensed waste sites is provided in Table 2-5.

Table 2-5 - Summary of licensed waste sites

Distance / Direction	Site Name / Address	Type of Site	Licence Issue Date	Licence Status
Wider YWS site	Blackburn Meadows Waste Water Treatment Works Sludge Conditioning Site, Alsing Road.	Biological Treatment Facility	13/03/2009	To PPC
57 m south-east	Holmes Farm Closed Landfill, Blackburn Meadows Storm Treatment Works, Alsing Road	Household, commercial and industrial waste landfill.	09/02/1983	Closure
155 m south-east	Airbag Disposal, Unit 9, Vantage Business Park, Sheffield Road.	Special Waste Transfer Station.	15/03/2018	Modified
230 m south-west	B R T North Tinsley Link, land off Meadowhall and Sheffield Road.	Use of waste in construction.	17/04/2014	Surrendered

Mineral extraction and mining

The Coal Authority [8] records that the site is within a Coal Mining Reporting Area. The site is not located within a Development High Risk Area, however Development High Risk Areas are located adjacent to the north and south of the site. The site is not located within a Past Shallow Coal Mine Workings area. The Groundsure report [3] records that there are no British Pits within 250 m of the site.

Radon

The Groundsure report [3] records that the site is located in an area where between 1% and 3% of properties exceed the radon action level. No radon protection measures are required.

Unexploded Ordnance (UXO) risk

The Zetica online unexploded bomb (UXB) risk maps [9] indicate that there is a medium risk of encountering UXB at the site. A pre-desk study assessment undertaken by Zetica [10] concluded that there were no readily available records to indicate the site was bombed and a detailed desk study undertaken by a UXO specialist, whilst always prudent, is not considered to be essential in this instance.

Recent industrial land uses

The Groundsure report [3] records that recent industrial land uses within 250 m of the site include: chimneys, electricity substations, a wharf, distribution and haulage (Plascompo Ltd), a tank, metal manufacturers, fabricators and stockholders (ICD Europe).

Petrol stations

The Groundsure report [3] records that there are no current or historical petrol stations located within 250 m of the site.

Summary of pollution potential

It is considered that there is potential for contamination to be present on-site associated with the construction and operation of the existing WwTW and for off-site sources of contamination to have impacted the site associated with construction, operation and demolition of surrounding historical and existing potentially contaminative land uses (summarised above).

Evidence of historical contamination

AECOM, Blackburn Meadows WwTW. BED Scheme. Ground Investigation Report. June 2012 [11]**.**

A ground investigation was undertaken in relation to the proposed development of the area to the north of the site, however, some of the exploratory holes fell within the current site boundary. The land contamination assessment undertaken by AECOM for the land to the north of the site concluded there were no risks to human health in relation to the current, future and adjacent site uses and risks to controlled waters were not considered to be significant.

Sweco, Remediation Strategy, Development Route A: Re-use on the Site of Origin. Blackburn Meadows Sewage Treatment Works, Cake Import Facility, March 2019

A remediation strategy report was prepared by Sweco [12] at the instruction of YWS for a proposed regional sludge Cake Input Facility (CIF) which includes land within the proposed BtG site boundary. Construction of the CIF was proposed to generate 2,020 m^3 (4,040 tonnes) of Made Ground arisings. The remediation strategy detailed the remediation and verification measures to allow construction of a landscaping berm, including the quality controls, to be put into place to manage the reuse of site-won materials in accordance with the current waste regulatory framework.

The remediation strategy included details of previous ground investigations as summarised below. It should be noted that none of the below reports have been provided to AtkinsRéalis so no further detail can be provided. Where stockpiles are referenced below no further detail is available on the location of the stockpiles.

Socotec UK Limited (Socotec), Ground Investigation, April and May 2018

Socotec were instructed by Morgan Sindall Sweco Joint Venture (MS2JV) to retrieve soil samples for laboratory chemical analysis, from two stockpiles of general Made Ground (Stockpile A – two samples and Stockpile B1 – three samples) excavated during the initial CIF construction works completed prior to April 2018. In addition, ten in-situ samples of general Made Ground were taken and scheduled for chemical analysis from an area set to remain clear and unexcavated for future cake import plant proposals.

The purpose of the investigation was to:

- Enable pre-construction assessment on the likely classification of excavation materials in Stockpile A and B1 for re-use suitability; and;
- Establish background condition in the vicinity of the area set to remain clear and unexcavated for future CIF proposals.

The results of the laboratory analysis identified potential asbestos containing materials (ACMs) and free fibres in one of the two composite samples taken from Stockpile B1 and within three of the ten in-situ samples from the area set to remain clear and unexcavated.

Lucion Environmental (Lucion) Asbestos in Soils Site Investigation, Ref: 280902, August 2018

In October 2018, a specialist asbestos management contractor (Lucion) was commissioned to assist with the management of the potential localised ACM identified within temporary Stockpile B1 in the April 2018 investigation.

Lucion Asbestos Watching Brief October 2018

Considering the earlier findings and potential for ACM to be present in on-site Made Ground soils, a watching brief was undertaken in October 2018 in accordance with the Control of Asbestos Regulations (CAR) 2012 and obligations to the protection of human health). The watching brief was completed during re-location of soils in Stockpile B1 (required to facilitate further excavation works) and excavation / relocation of additional stockpiles B2, C1, C2 and D. It is understood that no ACMs were observed.

The Sweco remediation strategy [12], although only prepared for the construction of the landscaping bund, provided the following relevant information on the ground conditions of the site:

Geology

- Made Ground was recorded to a maximum depth of 4.6 m below ground level (bgl). Generally described as a grey to brown gravelly clay with high cobble and medium boulder content. Gravel and cobbles are of brick, concrete and sandstone with cobble and boulder sized fragments of wood and metal.
- The Made Ground is underlain in turn by Alluvium generally comprising a brown sandy gravelly clay to a maximum depth of 6.45 m bgl.
- Alluvium overlies River Terrace Deposits of gravel with a medium cobble content of sandstone and siltstone to a maximum depth of 9.0 m bgl.
- Underlying bedrock comprises mudstones and sandstones of the Middle Pennine Coal Measures to a maximum proven depth of 23.9 m bgl.

Sweco, Verification Report, Development Route A: Re-use on the Site of Origin. Blackburn Meadows Sewage Treatment Works, Cake Import Facility: Landscaping Berm, October 2019 [13]**.**

A verification report was produced by Sweco [13] in 2019 in relation to the landscaping berm constructed as part of the wider CIF development. The verification report did not provide details of any other areas of the site other than the landscaping berm.

The report confirmed that, with respect to the re-use of excavated Made Ground materials for construction of the landscaping berm, the requirements of the Sweco March 2019 remediation strategy [12] were adhered to.

	The relevant findings of the verification report are that: ▪ The landscaping berm was formed of 2,040m3 of material excavated from the site and stored in stockpiles (stockpiles A, B1, B2, C1, C2 and D) and a topsoil layer was placed over the berm (157m3 of imported topsoil was used). ▪ The excavated materials within stockpiles A, B1, B2, C1, C2 and D comprised variable Made Ground, typically described as grey to brown, sandy, gravelly clay with cobbles. The gravel and cobbles included sandstone, limestone, granite, chert, brick and concrete with minor inclusions of metal, coal, glass and ceramics. ▪ Material in stockpiles A and B1 was tested in the Socotec 2018 investigation and was confirmed to not create an unacceptable risk to human health and environment following re-use in the bund. ▪ Nine samples were collected by Sweco from material in stockpiles B2, C1, C2 and D and screened against commercial generic assessment criteria; no samples exceeded the criteria. However, asbestos was identified in all nine samples. Quantification was reported to be below the laboratory limit of detection (<0.001%). Sweco concluded that the soils were suitable for re-use in the berm especially as in the bund they would be covered in topsoil which would eventually be vegetated. ▪ The potential risks to controlled waters from the berm material was assessed. A controlled waters generic quantitative risk assessment recorded exceedances of polycyclic aromatic hydrocarbons (PAHs) in soil leachate. Sweco carried out a controlled waters detailed quantitative risk assessment which subsequently concluded that there was unlikely to be an unacceptable risk to controlled waters from re-use of the material.
Baseline soil and groundwater reference data	A ground investigation was undertaken at the site by Solmek Ltd [4] in September 2024. The objective of the ground investigation was to collect ground condition data to support design of the BtG scheme and collect baseline information to support the permit application. It should be noted that, based on the site-specific assessment of substances to be used, stored and handled in relation to permitted activities at the site (see Section 3 below), no substances have been identified which represent a significant pollution risk. Therefore, the collection of baseline data is considered to be a precautionary approach. The ground investigation works completed within the installation boundary comprised the following: ▪ Drilling of two cable percussive boreholes (CP01 and CP02) to depths of 9.80 m bgl and 9.95 m bgl; ▪ Drilling of one percussive borehole (BH06) to a depth of 5.05 m bgl; ▪ Two machine excavated trial pits (TP01 and TP02) to depths of 3.00 m bgl and 3.20 m bgl; ▪ Installation of three gas / groundwater monitoring wells with two wells (BH06 and CP02) screened within the Made Ground and one well (CP01) screened within the Alluvium; ▪ Collection of soil samples for laboratory analysis; ▪ Completion of three groundwater monitoring / sampling visits on 18 September 2024, 2 October 2024 and 16 October 2024.

- Completion of three ground gas monitoring visits on 18 September 2024, 2 October 2024 and 16 October 2024.Three further ground gas monitoring visits will be undertaken.

The ground conditions and groundwater levels encountered are reported in the Environmental Setting section above.

Visual evidence of potential contamination was recorded as slag in the Made Ground of BH06 (1.0 – 4.8 m bgl), CP01 (3.0 – 5.0 m bgl), CP02 (0.0 – 0.6 m bgl), TP01 (0.0 – 3.0 m bgl) and TP02 (0.0 – 0.30 m bgl). An organic odour was noted within the Made Ground of CP01 (3.0 – 5.0 m bgl).

Head-space screening for volatile organic compounds (VOC) using a photoionization detector (PID) was undertaken on soil samples collected from BH06 and CP01 to CP03 during the ground investigation. PID concentrations ranged between 2 parts per million (ppm) and 9 ppm. A maximum concentration of 9 ppm was identified in the Made Ground of BH06 at a depth of 0.20 m bgl.

Seven soil samples were collected from the Made Ground (CP01 at 0.5-0.6 m bgl, CP01 at 0.70-1.20 m bgl, CP02 at 0.5-0.6 m bgl, CP02 at 0.6-1.0 m bgl, BH06 at 1.0-1.10 m bgl, BH06 TP01 at 0.6-0.7 m bgl, TP02 at 0.6-0.7 m bgl). Two soil samples were collected from the Alluvium (BH01 at 6.0-6.45 m and 6.50-6.95 m bgl). Based on the Appendix A Pollution Risk Assessment

The chemical testing undertaken was based on the substances identified within the Appendix A Pollution Risk Assessment. Based on the pollution risk assessment it is proposed to use the following determinands of laboratory analysis to represent markers for the relevant hazardous substances/relevant substances for the proposed permitted operations:

- Ethylene glycol;
- Unsaponificated oil and grease;
- Methyl mercaptan;
- pH;
- Soil Organic Matter (SOM);
- Speciated Total Petroleum Hydrocarbons (TPH CWG C5-C40);
- Copper, chromium, nickel, lead, zinc, tin, arsenic, iron, cadmium, mercury, selenium, vanadium, molybdenum and aluminium; and
- Nitrite and ammoniacal nitrogen.

Screening for asbestos identified chrysotile fibres within two soil samples. Asbestos was identified in BH06 at 1.0 – 1.10 m bgl (0.002% asbestos in soil quantification) and in CP02 at 0.5-0.6 (<0.001% asbestos in soil quantification).

Groundwater samples were collected from CP01 on three occasions and CP02 on two occasions. Groundwater testing was undertaken on these samples for the following determinants:

- Ethylene glycol;
- Unsaponificated oil and grease;
- Methyl mercaptan;

- pH;
- Electrical conductivity;
- Copper, chromium, nickel, lead, zinc, tin, arsenic, iron, cadmium, mercury, selenium, vanadium, molybdenum and aluminium;
- TPH CWG C5-C35;
- Nitrite and ammoniacal nitrogen.

Minimum and maximum concentrations of each contaminant / parameter recorded within the soil and groundwater are provided in Appendix C.

This data will form the baseline against which soil and groundwater concentrations at the point of permit surrender will be compared, to demonstrate that there has been no pollution of the ground / groundwater underlying the site as a result of the permitted operations and that the site is in a satisfactory state at permit surrender.

3. Permitted activities

Permitted activities

Proposed development activities

Biogas is produced at the YWS WwTW by anaerobic digestion and is currently used as a fuel by YWS. Once the BtG plant is operational, the raw biogas will instead be routed to the BtG plant and cleaned (upgraded) to produce biomethane. Compliant biomethane gas will be sent for final conditioning prior to entry to the local gas transmission network. The final stages of conditioning involve the addition of propane (as / if required) to increase the calorific value of the gas and the addition of odorant. Any non-compliant biomethane will be routed to the new biomethane flare for disposal.

The Site Condition Report will address operations in relation to the following equipment at the site.

- 1 biogas inlet isolation valve
- 1 blower and heat exchange package;
- 1 chiller unit;
- 4 pre-treatment filter vessels;
- 2 biogas compressors
- 1 membrane separation unit (MSU) and control room;
- 1 grid entry unit kiosk (GEU);
- 3 above ground propane storage tanks;
- biomethane flare;
- Low Voltage (LV) switchroom;
- gas bottle stores;
- COSHH stores container;
- Stores container;
- all ancillary piping, instrumentation, power and control cabling; and

- separate systems for condensate returns and site runoff water, with tie-ins to the existing YWS drainage system.

Identification of the substances used at the installation

As part of the proposed operations the following substances are to be handled within the site.

- biogas;
- ethylene glycol;
- activated carbon;
- tertiarybutylmercaptan and dimethylsulphide (odorant);
- mineral oil;
- cleaning solvents (WD40);
- liquified propane gas; and
- nitrogen, hydrogen / helium and inert calibration gases.

The locations of use and storage are shown on the Substances Location Plan, provided as Figure D-7 in Appendix D. Further details are provided in Table A-1 in Appendix A of this document.

Small quantities of nitrogen, hydrogen / helium and inert calibration gases will be stored in a locked bottle store and used for calibration of plant. These substances have not been considered further in Table A-1, as given their small volume and gaseous nature, they are not considered to present a potential ground / groundwater pollution risk at the installation.

Minimal quantities of cleaning solvents (WD 40) will be stored in small containers in a locked COSHH store and used for maintenance. This substance has not been considered further in Table A-1, as given the minimal volume and the fact it will be used / stored / handled with appropriate pollution prevention measures in place, it is not considered to present a potential ground / groundwater pollution risk at the installation.

The biogas upgrading plant will not require the storage or handling of fuel (other than the handling of biogas/ biomethane).

The following wastes will be generated at the site:

- condensate;
- spent activated carbon;
- waste oil; and
- waste ethylene glycol.

Carbon dioxide that is separated from biogas during upgrading will be vented via the membrane separation unit exhaust stack. Non-compliant biomethane will be disposed of at the biomethane flare. Spent membranes will be removed from the MSU (as an indicative estimate these would be replaced every 5 to 10 years). These substances have not been included in Table A-1, as they are not considered to present a potential ground / groundwater pollution risk at the installation.

The process will produce biomethane, which will be conditioned and injected into the local gas transmission grid.

The emission and discharge points are shown on the Location of Emission and Transfer Points drawing provided as Figure D-5 in Appendix D.

There are no anticipated emissions to ground, surface water or groundwater during normal operation. In abnormal operation (for example, an accident or incident) measures will be in place to prevent such emissions.

Identification of those substances which are relevant hazardous substances or which represent a theoretical pollution risk

The substances listed above have been further considered to determine whether each substance is considered to be a relevant hazardous substance and / or whether it represents a theoretical pollution risk. Those substances that were identified as relevant hazardous substances and / or a theoretical pollution risk have been further considered to determine whether circumstances will exist on-site which may result in the release of the substance in sufficient quantities to represent a pollution risk. Details of this assessment, including details of storage, use and quantities of the substances, as well as any relevant containment measures, practices or procedures, for each substance are provided in Table A-1 in Appendix A.

In addition to the details regarding relevant containment measures, practices or procedures, for each substance provided in Appendix A, the following general practices, procedures and measures will be implemented. In accordance with Best Available Techniques (BAT), procedures will be adopted in relation to the storage, handling and use of chemicals, waste, oil, and potentially hazardous substances at the site.

Further details are provided in the main permit application documentation.

Subsurface structures

Subsurface structures will comprise the following:

- potable water connection to YWS ring main; and
- condensate and surface water transfer to the wider YWS WwTW drainage system.

Biogas condensate will be generated from the BtG plant and collected via a separate sealed drainage system and transferred into the YWS drainage system to be returned to the YWS WwTW inlet for treatment. An isolation valve will be in place at the condensate system transfer point and a non-return valve will be in place after the transfer points. The condensate collection pots are subsurface and are therefore unlikely to be damaged during operation of the plant, minimising the potential for accidental release of condensate. The condition of pipework and condensate collection pots will be monitored through periodic inspection. The system will be designed and installed using approved materials and installed in locations suitable for the lifecycle of the installation.

Further detail regarding the surface water drainage system is provided in the Drainage section below.

Surfacing

The site will comprise a mix of hardstanding, gravel and soft landscaping. The proposed plant at the site will be located on impermeable hardstanding bases.

Storage

The ethylene glycol, mineral oil, waste oil and cleaning solvents (WD 40) will be stored in suitable containers with bunding, such as a spill pallet (of appropriate capacity) within the locked COSHH stores container.

The odorant (tertiarybutylmercaptan and dimethylsulphide) will be stored at the point of use in the GEU in a double bunded container with bund capacity of 1.5 times the container. Regular olfactory checks will be conducted and the odorant tank level will be monitored. An odorant spill kit, spill specific personal protective equipment (PPE) and a masking agent will be held on-site.

Granular activated carbon (GAC) will be stored at the point of use in the carbon filter units (4 x 8,200kg activated carbon vessels, 32,800 kg on site at any one time). When the medium is saturated, the spent GAC will be removed by vacuum extraction and replaced with new carbon (noting there are four activated carbon filters, two for hydrogen sulphide and two for siloxane removal, these operate as two pairs, each in a lead / lag formation) and the spent carbon will be removed from site for off-site regeneration / disposal.

The biogas compressors and MSU will be located in dedicated enclosures which should contain any accidental minor spills / leaks.

The inherent design of the plant will be such that the opportunity for fugitive emissions will be virtually eliminated. The likelihood for occurrence of leaks will be minimised by the plant management and maintenance regime that will be in place.

Plant will be regularly inspected frequently (working week operational visual inspections and monthly intrusive checks) and procedures to cover spills, leaks or damaged plant will be incorporated into the site Environmental Management System.

Transport and Handling of Materials

Biogas will be supplied directly from the existing YWS biogas system to the new BtG plant via dedicated pipework.

Propane will be managed under a ‘tank, equipment and commodity supply’ agreement with a specialist leading propane supplier. All bulk deliveries of propane will be arranged with the prior agreement of the Site Manager and pre-booked. Such deliveries will be carried out under supervision. Propane is an extremely flammable gas at ambient temperatures and containment systems for liquid spillages are not appropriate because any losses during offloading will lead to immediate generation of a propane gas cloud. Control measures are therefore tailored to address the key risk which is explosion and / or fire.

Deliveries of odorant will be carried out by trained suppliers. In terms of overall hazard, the odorant is broadly similar to propane, and with the added potential for release of significant odour. Therefore, the control measures focus on the key risks of explosion and / or fire and the prevention of odorous fugitive releases but as the odorant is a liquid, control measures also consider prevention of release to land, groundwater and surface water.

Other raw materials will be delivered to the site by road, using authorised carriers. Material unloading, storage, handling and use of raw materials will be undertaken in accordance with local site procedures. Offloading activities will be supervised at all times (in accordance with site procedures).

Spill kits will be provided in close proximity to relevant plant and drip trays will be used when topping up / removing substances within plant. Staff will be appropriately trained in the use of these pollution prevention measures.

Drainage

Site runoff water will be collected in a segregated sealed SGN drainage system. An oil interceptor will be installed in the drainage system for site runoff from roadways etc. The interceptor will feed to an attenuation tank. The oil interceptor will be regularly inspected / maintained. The water will then be transferred into the YWS drainage system to be returned to the YWS WwTW inlet for treatment. An isolation valve will be in place at the drainage system transfer point and a non-return valve will be in place after the transfer points. If an accidental spill were to enter the drainage system, the system would be isolated and the contents pumped into waste IBCs for disposal via the waste management contactor. The non-return valve will prevent feedback from the YWS drainage system to the BtG plant drainage systems. The condition of pipework will be monitored through periodic inspection. The system will be designed and installed using approved materials and installed in locations suitable for the lifecycle of the installation.

Clean water from roof drainage will be collected via a separate system and discharged to ground via soakaways within areas of soft landscaping in the SGN compound.

Spill kits will be in place on the site, and operatives will receive regular training in their use.

The drainage system will meet the requirements of CIRIA 736 **[14]** (or equivalent approved standard) with sealed construction joints.

The site drainage is shown on the Indicative Drainage Plan provided as Figure D-6 in Appendix D.

Environment and Management Controls

The installation will be attended throughout the working week for frequent operational checks by SGN technicians. These operational checks will consist of visual inspection of plant and equipment and any sampling or analysis required as part of the day-to-day operation of the site. Monthly visits will also be carried out of a more intrusive nature, including detailed visual inspection of plant and equipment, sampling and changing of calibration gas bottles when required. A level

	of remote monitoring of the plant can be carried out via monitoring system pressures/temperatures. Methods will be in place to ensure spill risks are appropriately managed during the receipt, transfer, use and disposal of potentially polluting substances. Furthermore, the site will operate with emergency plans in place and the risks to land/water during the operation of the site will be minimised. Site management procedures include procedures to minimise environmental impact during accidents and include preventative and control measures to prevent accidents. Relevant staff will be trained to mitigate the environmental impact of emergencies as well as to prevent accidents occurring. **Summary** Based on the relatively small quantities of liquids to be used / stored / generated and the proposed pollution prevention measures, there is considered to be limited potential for leaks / spills to impact underlying ground / groundwater. Therefore, none of the substances to be used or handled at the site as part of the permitted activities are considered to represent a significant site-specific potential pollution risk.
Non-permitted activities undertaken	Not Applicable
Document references	Drawings showing substances to be used / stored / produced, emissions / discharge points and site drainage are provided in Appendix D.

4. Changes to the activity

Not applicable for permit application.

5. Measures taken to protect land

Not applicable for permit application.

6. Pollution incidents that may have had an impact on land, and their remediation

Not applicable for permit application.

7. Soil gas and water quality monitoring (where undertaken)

Not applicable for permit application.

8. Decommissioning and removal of pollution risk

Not applicable for permit application

9. Reference data and remediation (where relevant)

Not applicable for permit application.

10. Statement of site condition

Not applicable for permit application.

11. Supporting information

Supporting information

The following references were used in the production of this Site Condition Report:

[1] AtkinsRéalis, “Blackburn Meadows Biomethane to Grid Plant Technical Note, November 2023.”.

[2] British Geological Survey, “GeoIndex (onshore),” 2023. [Online]. Available: https://www.bgs.ac.uk/map-viewers/geoindex-onshore/.

[3] Groundsure, “Enviro+GeoInsight Blackburn Meadows WwTw, GSIP-2021-12294-8116,” 2021.

[4] Solmek Ltd, “Phase 2: Site Investigation. Yorkshire Water Blackburn Meadows, Sheffield SGN. Report Ref M24-112. November 2024”.

[5] DEFRA, “MAGIC Map Application,” 2023. [Online]. Available: https://magic.defra.gov.uk/.

[6] Environment Agency, “Flood Map for Planning,” Environment Agency, 2021. [Online]. Available: https://flood-map-for-planning.service.gov.uk/confirm-location?easting=365389&northing=180854&placeOrPostcode=BS36%201NF. [Accessed 2023].

[7] Google Earth Pro, 2020.

[8] The Coal Authority, “Interactive Map,” 2023. [Online]. Available: https://mapapps2.bgs.ac.uk/coalauthority/home.html. [Accessed 2024].

[9] Zetica, “Zetica Unexploded Ordnance Risk Maps,” 2024. [Online]. Available: https://zeticauxo.com/downloads-and-resources/risk-maps/.

[10] Zetica, “Blackburn Meadows Wastewater Treatment Works, South Yorkshire, Pre-Desk Study Assesssment,” 2021.

[11] Aecom, “Blackburn Meadows WwTW. Bed Scheme. Ground Investigation Report.,” June 2012.

[12] Sweco, “Remediation Strategy, Development Route A: Re-use on the Site of Origin. Blackburn Meadows Sewage Treatment Works, Cake Import Facility, March 2019.”.

[13] Sweco, “Sweco, Verification Report, Development Route A: Re use on the Site of Origin. Blackburn Meadows Sewage Treatment Works, Cake Import Facility: Landscaping Berm,” October 2019.

[14] CIRIA C736, “Containment systems for the preventation of pollution. Secondary, tertiary and other measures for industrial and commercial premises,” 2014.

APPENDICES

Appendix A. Pollution risk evaluation

Table A-1 - Determining relevant hazardous substances / substances which may represent a pollution risk

Substance	State S – Solid L – Liquid G – Gas	Use	Fate	Hazardous Properties (CLP risk phrases)	Annual Quantity	Storage and Transport Arrangements	Comments
Raw Materials							
Biogas	G	To be upgraded to biomethane.	Non-compliant biomethane released in flare. Compliant biomethane conditioned and injected into local gas grid.	Pressurised gas (may explode if heated) H280, asphyxiant H330.	7,008,000 Nm^3/yr (based on average biogas inlet flow rate and 24 h operation for 365 days per year)	Not stored on site. Present in equipment and transported through pipework. Condition of pipework monitored via gas flow readings and periodic inspection. All pipework design approved and appraised to relevant standards, using approved materials, with suitable protection as part of design.	Not likely to impact soil or groundwater on site as gaseous in nature.
Propane	L/G	To boost the calorific value of the biomethane if does not meet required energy content standard to	Added to biomethane	Extremely flammable gas (H220), contains gas under pressure, may explode if heated (H280). Liquid can cause burns similar to frostbite. Acts as a simple asphyxiant. At	280 tonnes	3 x 4 tonnes above ground storage vessel. Remote monitoring in place. High and low level alarms. Overfilling safety cut out.	Would evaporate if leaked from tank so not likely to impact soil or groundwater.

Substance	State S – Solid L – Liquid G – Gas	Use	Fate	Hazardous Properties (CLP risk phrases)	Annual Quantity	Storage and Transport Arrangements	Comments
		be injected into local grid.		very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.			
Ethylene glycol (coolant)	L	In pre-treatment heat exchanger, biogas compressors, chillers and MSU.	Waste disposed of via authorised waste contractor	Harmful if swallowed (H302), may cause damage to organs through prolonged or repeated exposure (H373).	<300 litres	Stored in 200 litre bunded container in locked COSHH store. Drip trays used when topping up use in plant. Spill kits near locations of use.	Not stored on site, expected to be disposed of offsite as soon as reasonably practical following maintenance. No practical alternatives available. Not likely to significantly impact soil or groundwater as used in relatively small quantities and used / stored / handled with appropriate pollution prevention measures in place.
Tertiary butyl-mercaptan and dimethylsulphide (odorant)	L	Used to odorise the biomethane in GEU.	Added to biomethane.	Highly flammable liquid and vapour (H225), may cause an allergic skin reaction (H317), toxic to aquatic life with long lasting effects (H411).	70 kg (indicative, volume to be finalised following detailed design).	Stored in the GEU in a 70 kg double bunded container with a bund capacity of 150%. Spill kits near locations of use. Drip trays used when topping up storage container.	No practical alternatives available. An odorant spill kit, spill specific PPE and a masking agent will be held on-site. Regular olfactory assessments will be conducted and odorant tank level will be monitored.

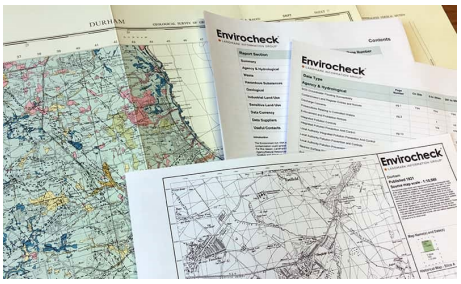
Substance	State S – Solid L – Liquid G – Gas	Use	Fate	Hazardous Properties (CLP risk phrases)	Annual Quantity	Storage and Transport Arrangements	Comments
Mineral oil	L	Lubricating moving parts in pre-treatment blowers & heat exchanger and biogas compressors.	Removed during oil changes for disposal. Waste disposed of via authorised waste contractor.	Health hazard (H300–H399) (harmful if swallowed, harmful in contact with skin, causes serious eye damage, causes skin irritation and may cause respiratory irritation). Hazardous to the environment (H400–H499) (very toxic to aquatic life; toxic to aquatic life with long lasting effects)	<500 litres	Stored in locked COSHH store in a 400 litre bunded container. Drip trays used when topping up use in plant. Spill kits near locations of use.	No practical alternatives available. Not likely to significantly impact soil or groundwater as used in relatively small quantities and used / stored / handled with appropriate pollution prevention measures in place.
Activated carbon	S	Removal of hydrogen sulphide and non-methane VOCs from biogas in pre-treatment filter vessels.	Waste disposed of / recycled offsite via authorised waste contractor.	No hazardous properties.	32,800 kg on site at any one time	In 4 x 8,200 kg activated carbon vessels for hydrogen sulphide and siloxane removal. Carbon delivered to site and then removed from filter units when in need of replacement.	Not likely to impact soil or groundwater as contained within sealed vessels and removed by vacuum extraction, so limited opportunity for exposure to ground / groundwater.
Waste Substances							

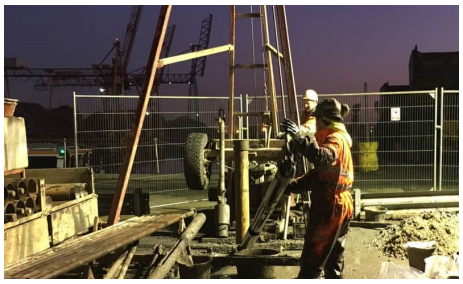
Substance	State S – Solid L – Liquid G – Gas	Use	Fate	Hazardous Properties (CLP risk phrases)	Annual Quantity	Storage and Transport Arrangements	Comments
Waste oil	L	Mostly from compressors	Disposed of via authorised waste contractor	Health hazard (H300–H399) (harmful if swallowed, harmful in contact with skin, causes serious eye damage, causes skin irritation and may cause respiratory irritation) Hazardous to the environment (H400–H499) (very toxic to aquatic life; toxic to aquatic life with long lasting effects)	400 litres	Stored in a 1000 litre bunded container in COSHH store. Drip trays used when removing from plant. Spill kits near locations of use	No practical alternatives available. Not likely to significantly impact soil or groundwater as used in relatively small quantities and used / stored / handled with appropriate pollution prevention measures in place.
Spent activated carbon	S	From pre-treatment filter vessels hydrogen sulphide.	Transported off-site to be regenerated / disposed of by authorised waste contractor.	Siloxanes and hydrogen sulphide adsorbed by the granular activated carbon contain hazardous properties:	32,800 kg (waste generated per 230 days)	4 x 8,200 kg activated carbon vessels for hydrogen sulphide removal.	Regular monitoring will be undertaken with spent activated carbon replacement scheduled as required. Not likely to impact soil or groundwater as contained within sealed vessels so limited opportunity for exposure to ground / groundwater.

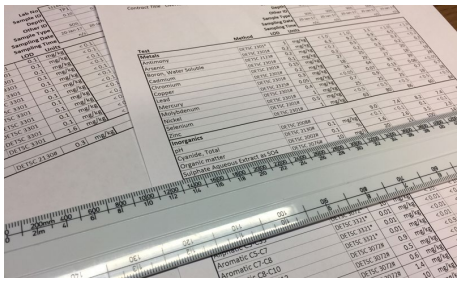
Substance	State S – Solid L – Liquid G – Gas	Use	Fate	Hazardous Properties (CLP risk phrases)	Annual Quantity	Storage and Transport Arrangements	Comments
Biogas condensate	L	Generated at pre-treatment heat exchangers and biogas compressors.	Transferred to existing YWS drainage system and then to WwTW inlet for treatment.	MSDS not available. Health hazard (H300–H399) (harmful if swallowed, harmful in contact with skin, causes serious eye damage, causes skin irritation and may cause respiratory irritation). Hazardous to the environment (H400–H499) (very toxic to aquatic life; toxic to aquatic life with long lasting effects)	742 m^3 (based on max. production rate of 84.7 l/hr, 24 hours/day, 365 days/year)	Collected via dedicated sealed drainage system before transfer to YWS drainage system. Isolation valve and non-return valve at / close to transfer point. Condensate collection pots subsurface so unlikely to be damaged. Condition of pipework and condensate collection pots monitored through periodic inspection. System designed and installed using approved materials and installed in locations suitable for lifecycle of the installation.	Not likely to significantly impact soil or groundwater as used / stored / handled with appropriate pollution prevention measures in place.
Waste ethylene glycol	L	From pre-treatment	Disposed of via	Harmful if swallowed (H302), may cause	200 litres	Intention not to store on site as removed as	Not likely to significantly impact soil or groundwater as

Substance	State S – Solid L – Liquid G – Gas	Use	Fate	Hazardous Properties (CLP risk phrases)	Annual Quantity	Storage and Transport Arrangements	Comments
		heat exchanger, biogas compressors, chillers and MSU.	authorised waste contractor.	damage to organs through prolonged or repeated exposure (H373).		soon as reasonably practical following maintenance. Drip trays used when removing from plant. Spill kits near locations of use.	used in relatively small quantities and used / stored / handled with appropriate pollution prevention measures in place.
Products							
Biomethane	G	Product of process.	Injected to local gas transmission grid, non-compliant biomethane gas is flared	Extremely flammable gas (H220), gases under pressure which may explode if heated (H280), may form explosive mixtures with air, may displace oxygen and cause rapid suffocation.	200 to 850 Sm^3/hr, depending on the input biogas flow rate (typically this would be approximately 210 Sm^3/h to 890 Sm^3/h following the addition of propane)	Transported through pipework and injected into local gas grid.	Not likely to impact soil or groundwater on site as gaseous in nature.

Appendix B. Factual ground investigation report







Phase 2: Site Investigation

Yorkshire Water Blackburn Meadows, Sheffield

SGN

M24-112

Solmek Ltd

12 Yarm Road
Stockton-on-Tees
TS18 3NA
Tel: 01642 607083

www.solmek.com

info@solmek.com

FACTUAL SITE INVESTIGATION REPORT

YORKSHIRE WATER BLACKBURN MEADOWS, SHEFFIELD

TABLE OF CONTENTS

APPENDICES

Revision	Date	Prepared by	Signed
Rev2	November 2024	A Crane *Engineering Geologist*	
		Checked by	
		L Richards *Regional Manager*	
		Approved by	
		R Woods *Managing Director*	

1 INTRODUCTION

1.1 Authorisation

The site investigation described in this report was carried out by Solmek to the instructions of SGN considering the technical notes authored by AtkinsRealis, on land located the Blackburn Meadows Yorkshire Water treatment facility in Sheffield. OS and aerial image site location plans are presented in Appendix A (Figures 1 and 2).

1.2 Scope of Works

These ground investigation works are to facilitate SGN's Biomethane Gas to Grid Blackburn Meadows scheme.

A geotechnical and environmental investigation was requested. This report details the environmental portion of the works only. The type and position of exploratory positions and the scope and nature of testing were all determined by SGN and carried out in accordance with AtkinsRealis GI Technical Note 5223650 where applicable.

The fieldwork and testing were generally carried out according to the recommendations of BS5930:2015+A1:2020 "Code of Practice for Ground Investigations" and where applicable BS EN 1997-2:2007 with soil descriptions to BS EN 14688-1:2013 where applicable. The information provided in this report is based on the investigation fieldwork and is subject to the comments and approval of the various regulatory authorities.

There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Solmek reserve the right to alter conclusions and recommendations should further information be available or provided. Any schematic representation or opinion of the possible configuration of ground conditions between exploratory holes is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

2 SITE DESCRIPTION

The site is located within the southeast corner of the Yorkshire Water Blackburn Meadows Sewerage Treatment Facility. There are no buildings on site with landscape berm running southwest to northeast through the site's centre (removed prior to the site investigation). The River Don runs from northeast to southwest immediately adjacent to the site in the east. Given the sites location there is a possibility of made ground.

3 FIELDWORK

The fieldwork commenced on 4th September 2024. The extent of the investigation was:

- Topographic survey of all exploratory positions.
- 3no cable percussive boreholes (CP01 to CP03 inclusive) to a maximum depth of 9.95mbgl.
- 1no small percussive borehole (BH06) to a maximum depth of 5.05m below ground level (bgl).
- Gas monitoring wells were installed in CP's 01, 02, 03 & BH06.
- 4no machine excavated trial pits (TP01 to TP04) were dug to a maximum depth of 3.20mbgl.
- In-situ testing in the exploratory positions as California Bearing Ratio (CBR), Standard Penetration Tests (SPTs).
- Retrieval of samples for geotechnical and chemical testing.

The boreholes were backfilled with gas/groundwater monitoring installations/bentonite upon completion. Trial pits were backfilled with clean arisings upon completion.

A plan showing the location of the boreholes and trial pits can be found in Appendix A (Figure 2).

4 GROUND CONDITIONS

A summary of the ground conditions encountered is given below. The exploratory hole logs are presented in Appendix B.

4.1 Made Ground

Made ground was variable across the site and was encountered to a maximum depth of 6.00mbgl (CP01 & CP03). Made ground was not fully penetrated within the trial pits.

Made ground across the site was noted to be generally cohesive in nature consisting of sandy, slightly gravelly clays, however granular deposits are noted to present locally (CP01, BH06, TP01, TP04). All made ground was noted to contained potentially deleterious materials such as rope, metal, brick, plastic, and slag-like material.

4.2 Natural Deposits

Natural deposits where proven to a maximum depth of 9.95m within CP02.

Natural deposits across the site ranged from natural clay deposits (CP02 and BH06) to natural sand and gravel deposits. (CP01 and CP03). Natural clay deposits on site are soft (water softened) to firm whereas the natural granular deposits on site are recorded to be medium dense to very dense.

4.3 Groundwater

A summary of groundwater strikes is provided in the table below.

TABLE 1: SUMMARY OF GROUNDWATER STRIKES

Exploratory Position	Depth Encountered (mbgl)	Depth after 20 minutes (mbgl)	Strata
TP02	3.00	3.00	Made Ground (Cohesive)
TP04	3.00	3.00	Made Ground (Granular)
CP01	6.50	5.50	Sand & Gravel
	9.00	5.70	Sand & Gravel
CP02	5.00	4.70	Made Ground (Cohesive)
	8.00	5.50	Clay
CP03	6.1	5.5	Gravel
	8.2	5.6	Gravel

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

5 CONTAMINATION TESTING RESULTS

The proposed development of the site is to be commercial comprising the new Biomethane Gas to Grid Blackburn Meadows Scheme The chemical samples were generally retrieved in line with BS ISO 18400-105:2017 *Soil Quality. Sampling*. The chemical results are presented in Appendix C.

5.1 Contamination Testing and Rationale

5.1.1 Soil Contamination Testing

To provide information upon the possibility of ground contamination eleven samples of made ground and three samples of natural clay were selected for shallow contamination testing. The number and type of samples chosen were specified by AtkinsRealis and are detailed below.

- CP01 – 0.70-1.20 Made Ground (Cohesive)
- CP01 – 6.50-6.95 Natural Sand & Gravel
- CP02 – 0.60-1.00 Made Ground (Cohesive)
- CP02 – 2.00-2.45 Made Ground (Cohesive)
- CP03 – 0.50-0.60 Made Ground (Granular)
- CP03 – 6.00-6.45 Natural Gravel
- CP02 – 0.50-0.60 Made Ground (Cohesive)
- CP01 – 0.50-0.60 Made Ground (Cohesive)
- CP01 – 6.00-6.45 Natural Sand & Gravel
- TP01 – 0.60-0.70 Made Ground (Cohesive)
- TP02 – 0.60-0.70 Made Ground (Granular)
- TP03 – 1.10-1.20 Made Ground (Cohesive)
- TP04 – 0.20-0.30 Made Ground (Cohesive)
- BH06 – 1.00-1.10 Made Ground (Cohesive)

The samples selected are considered to provide coverage of both the made ground and shallow natural strata from across the site that would be most likely to be exposed during future site works. The samples were tested for the following contaminant suites:

TABLE 2: SUMMARY OF SOILS TESTING CHEMICAL DETERMINANDS

Suite B.1 – Soils Suite (Baseline)	Suite B.3 – Soils Suite (Contaminated Land Liabilities)
Ethylene Glycol	pH
Unsaponificated Oil & Grease	Soil Organic Matter
Methyl mercaptan	Sulphate (as SO4) - Total
pH	Phenols – Total (monohydric)
Soil Organic Matter	Total Cyanides
Speciated TPH (CWG)	Free Cyanide
Copper	Complex Cyanide
Chromium	Boron
Nickel	Arsenic
Lead	Chromium
Zinc	Chromium - Hexavalent
Tin	Copper
Arsenic	Lead
Iron	Iron
Cadmium	Selenium
Mercury	Zinc
Selenium	Cadmium
Vanadium	Mercury
Molybdenum	Nickel
Aluminium	Vanadium
Nitrite	Asbestos identification
Ammoniacal Nitrogen	Asbestos quantification
	Speciated polycyclic aromatic hydrocarbons (16 PAHs)
	Speciated TPH (CWG)
	Benzene, toluene, ethylbenzene and xylene (BTEX) and MTBE
	Volatile Organic Compounds (VOC)
	Semi Volatile Organic Compounds (SVOC)
	Phosphate
	Nitrate
	Ammoniacal Nitrogen
	Ammonia
	Ammonium
	Total Speciated PCBs – WHO 12

- 11no Suite B.1 – Soils Suite (Baseline)
- 10no Suite B.3 – Soils Suite (Contaminated Land Liabilities)

5.1.2 Leachate Contamination Testing

The following samples where also sent for leachate analysis, at the request of AtkinsRealis:

- CP01 – 0.70-1.20 Made Ground (Cohesive)
- CP02 – 2.00-2.45 Made Ground (Cohesive)
- CP03 – 0.50-0.60 Made Ground (Granular)
- CP02 – 0.50-0.60 Made Ground (Cohesive)
- CP01 – 0.50-0.60 Made Ground (Cohesive)
- TP01 – 0.60-0.70 Made Ground (Cohesive)
- TP02 – 0.60-0.70 Made Ground (Granular)
- TP03 – 1.10-1.20 Made Ground (Cohesive)
- TP04 – 0.20-0.30 Made Ground (Cohesive)
- BH06 – 1.00-1.10 Made Ground (Cohesive)

The suite of determinants is tested is outlined in Table 3, below:

TABLE 3: SUMMARY OF LEACHATE TESTING CHEMICAL DETERMINANDS

Suite B.4 – Soil Leachate Suite (Contaminated Land Liabilities)
pH
Boron (water soluble)
Arsenic
Chromium (total)
Chromium - Hexavalent
Copper
Lead
Iron
Selenium
Zinc
Cadmium
Mercury
Nickel
Vanadium
Cyanide (free)
Cyanide (total)

5.1.1 *Water Contamination Testing*

During the monitoring fieldwork, two to three samples of groundwater were retrieved. Samples were retrieved once the wells were purged 3x the well volume and then allowed to recharge. The following samples were sent for water analysis, at the request of AtkinsRealis:

Visit 1 (18/09/24):

- CP01 – 5.60m
- CP03 – 5.50m

Visit 2 (03/10/24):

- CP01 – 4.50m
- CP02 – 4.20m
- CP03 – 4.50m

Visit 3 (16/10/24):

- CP01 – 4.50m
- CP02 – 4.20m
- CP03 – 4.50m

The water samples were tested for the following determinands outlined in Table 4 below:

TABLE 4: SUMMARY OF GROUNDWATER TESTING CHEMICAL DETERMINANDS

Suite B.2 – Groundwater Suite (Baseline)	Suite B.5 – Groundwater Suite (Contaminated Land Liabilities)
Ethylene Glycol	Arsenic
Unsaponificated Oil & Grease	Boron
Methyl mercaptan	Cadmium
pH	Chromium (total)
Electrical Conductivity	Chromium (hexavalent)
Speciated TPH (CWG)	Copper
Copper	Lead
Chromium	Mercury
Nickel	Nickel
Lead	Selenium
Zinc	Zinc
Tin	Vanadium
Arsenic	Iron
Iron	Chemical Oxygen Demand
Cadmium	Biological Oxygen Demand
Mercury	pH
Selenium	Electrical Conductivity
Vanadium	Redox
Molybdenum	Water soluble sulphate (as SO4)
Aluminium	Sulphide
Nitrite	HCO3
Ammonical Nitrogen	Ammoniacal Nitrogen as N
	Ammonium as NH4
	Ammonia as NH3
	Nitrate
	Nitrite
	Nitrogen
	Calcium
	Magnesium
	Sodium
	Potassium
	Chloride
	Cyanide (total)
	Cyanide (free)
	Cyanide (complex) Speciated
	Polycyclic aromatic hydrocarbons (16 PAHs)
	Phenol
	Total organic carbon
	Total coliforms
	Fecal coliforms

5.2 Test Results

The soil, leachate and groundwater analysis results can be found in Appendix C.

6 GROUND GAS ASSESSMENT

For this report, gas monitoring is via measuring emissions from four standpipes (CP01 to CP03 and BH06) that were installed during the sitework. The gas monitoring consisted of 3 monitoring visits, and the results are presented in Appendix D.

6.1 Ground Gas Results

Ground gas results for all visits up to the date of this report can be found within Appendix D. A summary of ground gas results is given below in Table 5.

TABLE 5: SUMMARY OF GAS DATA

Borehole	Flow Range (l/hr)	CH_4 Range (%v/v)	CO_2 Range (% v/v)	O_2 Range (%v/v)	Groundwater Range (mbgl)
CP01	0.1	0	0.2 – 0.5	17.6 – 20.5	5.60 – 4.50
CP02	0.1-2.3	0	0.1 – 0.2	20.3 – 20.6	Dry – 4.95
CP03	0.1-1.9	0	0.1 - 0.3	20.3 – 20.6	5.50 – 4.50
BH06	1.0	0.2	0.3	9.2	3.92

Levels of VOCs within the monitoring positions were read using a Photo Ionisation Detection (PID) meter. Levels of VOCs in the standpipes ranged between 2 and 8ppm.

7 WATER MONITORING

For this report, groundwater monitoring was undertaken from four standpipes (CP01 to CP03 inclusive and BH06) that were installed during the sitework.

7.1 Monitoring Wells and Response Zones

During the site investigation works, monitoring wells were installed within three boreholes. The response zones were specified by AtkinsRealis and are briefly summarised below in Table 6.

TABLE 6: SUMMARY OF MONITORING WELL RESPONSE ZONES

Borehole	Pipework	Installation Depth (mbgl)	Response zone of slotted pipework (mbgl)	Response Zone Stratum
CP01	50mm HDPE pipe	9.50	6.50-9.50	NATURAL GRANULAR
CP02	50mm HDPE pipe	5.00	1.00-5.00	MADE GROUND
CP03	50mm HDPE pipe	9.30	7.00-9.30	NATURAL GRANULAR

SOLMEK

APPENDIX A

SOLMEK
12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

OS SIte Location Plan

Project Number

M24-112

Project Name

Blackburn Meadows, Sheffield

Client

SGN

Date

October 2024

DRG Number

Figure 1

Scale

1:8500 @ A4 [DO NOT SCALE]

Legend Key

Project Bounds - Project Bounds

SOLMEK

12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Aerial Site Location Plan

Project Number

M24-112

Project Name

Blackburn Meadows, Sheffield

Client

SGN

Date

October 2024

DRG Number

Figure 2

Scale

1:8500 @ A4 [DO NOT SCALE]

Legend Key

Project Bounds - Project Bounds

SOLMEK
12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Exploratory Location Plan

Project Number

M24-112

Project Name

Blackburn Meadows, Sheffield

Client

SGN

Date

October 2024

DRG Number

Figure 2

Scale

1:1000 @ A4 [DO NOT SCALE]

Legend Key

- Locations By Type - Empty
- Locations By Type - BH
- Locations By Type - CP
- Locations By Type - TP
- Project Bounds - Project Bounds

APPENDIX B

SOLMEK
12-16 Yarm Road
Stockton on Tees
TS18 3NA
01642 607083
info@solmek.com

Borehole Log

Scale 1:50 Sheet 1 of 1

BH06

Contract no:	M24-112	**Site:**	Blackburn Meadows, Sheffield	**Driller:**	Clay Drilling Ltd
				Plant used:	Mini Rig
				Started:	04/09/2024
Client:	SGN			**Ended:**	04/09/2024
Method:	Small Percussive			**Backfilled:**	04/09/2024

GL (AOD):	32.72m
Easting:	440068
Northing:	391721
Logged:	MM
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing: Depth (m)	Type	Results
				MADE GROUND: Light brown, slightly gravelly, sand. Fine to coarse sand. Fine to coarse, angular to rounded, gravel of brick, chert, tile and quartz.	0.00 - 1.20	B	
					0.20	PID	9.00
					0.20 - 0.30	ES	
					0.60 - 0.70	ES	
		1.00	31.72	MADE GROUND: Soft black locally stiff sandy, gravelly clay. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of brick, coal, slag and sandstone.	1.00 - 1.10	ES	
					1.10	PID	8.00
					1.20 - 1.65	SPT (S)	N=4 (1,1/1,1,1,1)
					1.20 - 1.90	B	
				Fine to medium, sub-rounded to sub-angular gravel of tarmac, plastic, limestone are also present.	2.00 - 2.45	SPT (S)	N=50+
					2.00	PID	(6,9/11,14,16,9)
					2.00 - 2.10	B	8.00
					2.00 - 2.90	ES	
				Fine to medium, angular gravel of glass is also present.	3.00 - 3.45	SPT (S)	N=24 (4,4/6,6,6,6)
					3.00	PID	6.00
					3.00 - 3.10	B	
					3.00 - 3.90	ES	
				Fine to medium, angular gravels of broken tiles are also present.	4.00 - 4.45	SPT (S)	N=20 (5,4/4,5,5,6)
					4.00	PID	2.00
					4.00 - 4.10	B	
					4.00 - 4.90	ES	
		4.80	27.92	Firm, light brown sandy, high strength CLAY. Sand is fine to coarse.	4.60 - 5.05	SPT (S)	N=50+ (20,5/50,20)
		5.05	27.67	End of Borehole at 5.050m			

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. No groundwater encountered	From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)

SOLMEK
12-16 Yarm Road
Stockton on Tees
TS18 3NA
01642 607083
info@solmek.com

Cable Percussive Log

Scale 1:50 Sheet 1 of 1

CP01

Contract no:	M24-112	**Site:**	Blackburn Meadows, Sheffield	**Driller:**	Clay Drilling Ltd
				Plant used:	Dando 3000
				Started:	05/09/2024
Client:	SGN			**Ended:**	05/09/2024
Method:	Cable Percussive			**Backfilled:**	05/09/2024

GL (AOD):	32.76m
Easting:	440065
Northing:	391704
Logged:	MM
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing: Depth (m)	Type	Results
				MADE GROUND: Brown, soft, slightly gravelly, sandy, clay. Fine to coarse sand. Fine to coarse, subangular, gravel of brick, concrete, quartz and chert. Occasional small, subangular, cobbles of sandstone. Occasional rope and plastic.	0.20	PID	5.00
					0.20	B+ES	
					0.20 - 0.70	D	
					0.50 - 0.60	ES	6.00
		0.70	32.06		0.60	PID	
				MADE GROUND: Soft, dark brown, sandy, slightly gravelly, clay. Fine to coarse sand. Fine to coarse, subangular to subrounded, gravel of brick, concrete, tile, quartz and chert. Occasional rope, plastic and metal.	0.70 - 1.20	B+ES	
					1.10	PID	6.00
		1.20	31.56		1.10 - 1.20	ES	N=9 (2,1/2,2,2,3)
				MADE GROUND: Soft, dark brown, very sandy gravelly clay. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of glass, tiles, brick, chert, quartz and sandstone.	1.20 - 1.65	SPT (S)	
					1.20 - 1.65	B+ES	
		2.00	30.76		2.00 - 2.45	SPT (S)	N=17 (2,2/2,4,4,7)
				MADE GROUND: Black locally grey and yellow, slightly sandy gravelly clay. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded of brick, shale, slate, plastic, sandstone, coal and wood. Occasional small, rounded, cobbles of chert.	2.00	PID	7.00
					2.00 - 2.45	B+ES	
		3.00	29.76		3.00 - 3.45	SPT (S)	N=16 (4,4/4,4,4,4)
				MADE GROUND: Firm, brown, sandy, slightly gravelly, clay Fine to coarse sand, Fine to coarse, subangular gravel of slag and concrete. Small, subangular, cobbles of concrete. Organic odour noted.	3.00	PID	8.00
					3.00 - 3.45	B+ES	
					4.00 - 4.45	SPT (S)	N=24 (4,5/6,6,7,5)
					4.00	PID	7.00
					4.00 - 4.45	B+ES	
		5.00	27.76		5.00 - 5.45	SPT (S)	N=44 (4,5/11,17,9,7)
				MADE GROUND: Soft locally firm, sandy, slightly gravelly, clay. Fine to coarse sand. Fine to coarse, subangular to rounded, gravel of brick, concrete, chert and tile. Occasional plastic and metal.	5.00	PID	7.00
					5.00 - 5.45	B+ES	
					5.30	D	
		6.00	26.76		6.00	PID	6.00
				Medium Dense to very dense, brown-orange, slightly clayey, sandy, GRAVEL. Fine to coarse sand. Fine to coarse, subangular to rounded, gravel of quartz, chert, and sandstone. Occasional small, subangular, cobbles of sandstone.	6.50 - 6.95	SPT (S)	N=12 (3,2/4,2,3,3)
					6.50 - 6.95	B+ES	
					7.00	PID	5.00
					8.00 - 8.32	SPT (S)	N=50+ (11,14 for 35mm/20,16,14 for 65mm,0 for 0mm)
					8.00	PID	
					8.00 - 8.50	B+ES	4.00
					9.00	PID	3.00
W					9.50 - 9.78	SPT (S)	N=50+ (9,10/12,38 for 50mm,0 for 0mm,0 for 0mm)
		9.80	22.96	End of Borehole at 9.800m			

Hole Diameter		Casing Depths		General Remarks
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	
		9.80	150	1.2m Hand excavated inspection pit dug. No groundwater encountered.

Chiselling		
From (m)	To (m)	Time (hr)
5.20	5.40	00:30

Ground Water				
Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
6.50	6.30		20	5.50
9.00	8.90		20	5.70

SOLMEK
12-16 Yarm Road
Stockton on Tees
TS18 3NA
01642 607083
info@solmek.com

Cable Percussive Log

Scale 1:50 Sheet 1 of 1

CP02

Contract no:	M24-112	**Site:**	Blackburn Meadows, Sheffield	**Driller:**	Clay Drilling Lt
				Plant used:	Dando 3000
				Started:	06/09/2024
Client:	SGN			**Ended:**	06/09/2024
Method:	Cable Percussive			**Backfilled:**	06/09/2024

GL (AOD):	32.67m	
Easting:	440056	
Northing:	391688	
Logged:	MM	
Status:	FINAL	

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
				MADE GROUND: Soft, brown, sandy, gravelly clay. Sand is fine to coarse, angular to rounded, of brick, slag, concrete, tiles, sandstone, coal. Frequent, small to large, subangular to angular, cobbles of concrete and brick. Occasional small, subangular, boulders of concrete. Occasional plastic and metal.	0.00 - 0.60	B+ES	
					0.20	PID	4.00
		0.60	32.07		0.50 - 0.60	ES	
					0.60	PID	5.00
				MADE GROUND: Soft grey slightly sandy, slightly gravelly clay. Sand is fine to medium. Gravel is fine to coarse, angular to subrounded of brick, chert and sandstone. Occasional wood	0.60 - 1.00	B+ES	
					1.00	PID	6.00
					1.10 - 1.20	ES	N=7 (1,2/1,2,2,2)
					1.20 - 1.65	SPT (S)	
					1.20 - 1.65	B+ES	
					2.00 - 2.45	SPT (S)	N=34 (3,5/6,5,6,17)
					2.00	PID	6.00
					2.00 - 2.45	B+ES	
					3.00 - 3.45	SPT (S)	N=16 (2,2/3,4,4,5)
					3.00	PID	6.00
					3.00 - 3.45	B+ES	
		4.00	28.67	MADE GROUND: Firm locally grey to yellow slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of brick, chert and sandstone. Occasional wood.	4.00 - 4.45	SPT (S)	N=8 (1,1/2,2,2,2)
					4.00	PID	7.00
					4.00 - 4.45	B+ES	
					4.80	D	
W		5.00	27.67	Water softened, light brown locally grey to yellow, very sandy slightly gravelly, high strength CLAY. Sand is fine to coarse. Gravel is fine to coarse angular of quartz, chert.	5.00 - 5.45	SPT (S)	N=25 (4,6/8,6,6,5)
					5.00	PID	6.00
					5.00 - 5.45	B+ES	
					6.00	PID	7.00
		6.50	26.17	Water softened, light brown locally grey to yellow, very sandy gravelly, high strength CLAY. Sand is fine to coarse. Gravel is fine to coarse angular of quartz, chert.	6.50 - 6.95	SPT (S)	N=29 (3,6/6,7,7,9)
					6.50 - 6.95	B+ES	
					7.00	PID	5.00
					8.00 - 8.45	SPT (S)	N=49
					8.00	PID	(12,13/12,12,12,13)
					8.00 - 8.45	B+ES	4.00
					9.00	PID	3.00
					9.50 - 9.95	SPT (S)	N=45
					9.50 - 9.95	D	(7,9/11,12,11,11)
		9.95	22.72	End of Borehole at 9.950m			

Hole Diameter		Casing Depths		General Remarks
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	1.2m Hand excavated inspection pit dug. No groundwater encountered.

Chiselling		
From (m)	To (m)	Time (hr)
8.40	8.60	00:30

Ground Water				
Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
5.00	4.80		20	4.70
8.00	7.90		20	5.50

SOLMEK
12-16 Yarm Road
Stockton on Tees
TS18 3NA
01642 607083
info@solmek.com

Cable Percussive Log

Scale 1:50 Sheet 1 of 1

CP03

Contract no:	M24-112	**Site:**	Blackburn Meadows, Sheffield	**Driller:**	Clay Drilling Ltd
				Plant used:	Dando 3000
				Started:	04/09/2024
Client:	SGN			**Ended:**	04/09/2024
Method:	Cable Percussive			**Backfilled:**	04/09/2024

GL (AOD):	32.72m
Easting:	440041
Northing:	391669
Logged:	MM
Status:	FINAL

Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
			Depth (m)	Type	Results
		MADE GROUND: Brown fine to coarse gravelly clayey sand. Gravel is fine to coarse, subangular to subrounded of brick, concrete, quartz and chert. Occasional rope and plastic.	0.10 - 0.30	B+ES	
			0.20	PID	4.00
			0.20	D	
0.60	32.12		0.20 - 0.60	ES	
		MADE GROUND: Soft, dark grey to brown sandy, gravelly clay. Sand is fine to coarse. Gravel is angular to subrounded of brick and quartz. Occasional wood.	0.50 - 0.60	ES	
			0.60	B	
			0.60 - 1.00	D	
			1.10	PID	8.00
			1.10 - 1.20	ES	N=50+ (1,2/3,4,5,38)
			1.20 - 1.65	SPT (S)	
			1.20 - 1.65	B	
2.00	30.72				
		MADE GROUND: Soft, dark grey, sandy, gravelly clay. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of cobbles of brick, concrete, tiles, sandstone and quartz.	2.00 - 2.45	SPT (S)	N=17 (4,11/17)
			2.00	PID	7.00
			2.00 - 2.45	B	
			2.00 - 2.50	ES	
			3.00 - 3.45	SPT (S)	N=22 (2,2/3,5,7,7)
			3.00	PID	7.00
			3.00 - 3.45	B	
			3.00 - 3.45	ES	
4.00	28.72				
		MADE GROUND: Soft, grey locally light brown, very sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded of brick, chalk, sandstone and coal.	4.00 - 4.45	SPT (S)	N=21 (3,5/6,5,5,5)
			4.00	PID	6.00
			4.00 - 4.45	B	
			4.00 - 4.45	ES	
5.00	27.72				
		MADE GROUND: Stiff, grey locally light brown, sandy gravelly clay. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded of brick, chalk, sandstone and coal.	5.00 - 5.45	SPT (S)	N=27 (5,6/6,7,7,7)
			5.00	PID	6.00
			5.00 - 5.45	B	
			5.00 - 5.45	ES	
6.00	26.72				
		Very dense, yellow-grey, clayey, very sandy, GRAVEL. Fine to coarse sand. Fine to coarse, subrounded, gravel of quartz and sandstone.	6.00 - 6.45	SPT (S)	N=37 (6,8/8,10,10,9)
			6.00	PID	7.00
			6.00 - 6.45	B	
			6.00 - 6.45	ES	
			7.00	PID	3.00
			7.00 - 7.45	ES	
			7.50 - 7.95	SPT (S)	N=50+
			7.50 - 7.95	B	(16,9/16,12,14,8)
			8.00	PID	3.00
			8.00 - 8.45	ES	
			9.00 - 9.45	SPT (S)	N=40 (3,9/10,11,9,10)
			9.00	PID	2.00
9.45	23.27	End of Borehole at 9.450m			

Hole Diameter

Depth Base (m)	Diameter (mm)

Casing Depths

Depth Base (m)	Diameter (mm)

General Remarks

1.2m Hand excavated inspection pit dug. Groundwater encountered at 6.10m & 8.20m.

Chiselling

From (m)	To (m)	Time (hr)
1.60	1.90	00:30
2.30	2.50	00:45

Ground Water

Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
6.10	5.50		20	5.50
8.20	8.00		20	5.60

SOLMEK
Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP01
Sheet 1 of 1

Project Name:	Blackburn Meadows, Sheffield	Project No. M24-112	Co-ords: 440100E - 391686N Level: 32.78
Date	04/09/2024		
Plant Used:	JCB 3CX	Dimensions (m): Depth 3.00	2.10 × 0.60
Scale	1:26		
Client:	SGN		
Logged	MM		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10 - 0.20	ES					MADE GROUND: Soft, brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to rounded, of brick, slag, concrete, tiles, sandstone, coal. Frequent, small to large, subangular to angular, cobbles of concrete and brick. Occasional small, subangular, boulders of concrete. Occasional plastic and metal.
	0.60 - 0.70	ES					
	1.00 - 1.10	ES					
	1.40 - 1.50	ES		1.30	31.48		MADE GROUND: Dark grey, very gravelly, slightly clayey SAND. Fine to coarse sand. Fine to coarse, subangular to angular, gravel of brick, concrete slag and tile. Frequent small to medium, subangular, cobbles of brick and concrete. Occasional metal and plastic.
	1.90 - 2.00	ES		1.80	30.98		MADE GROUND: Black, slightly clayey, gravelly, SAND. Fine to coarse sand, Fine to coarse, subangular to subrounded, gravel of brick, mudstone and slag. Occasional plastic.
	2.80 - 2.90	ES					
				3.00	29.78		End of Pit at 3.000m

Remarks:

Stability: Stable.

SOLMEK
Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP02
Sheet 1 of 1

Project Name:	Blackburn Meadows, Sheffield	Project No. M24-112	Co-ords: 440074E - 391667N Level: 32.81
Date	04/09/2024		
Plant Used:	JCB 3CX	Dimensions (m): Depth 3.20	3.30 × 0.80
Scale	1:26		
Client:	SGN		
Logged	MM		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30 - 0.40	ES					MADE GROUND: Soft, brown to locally black, gravelly, slightly clayey to clayey, SAND. Fine to coarse sand. Fine to coarse, angular to rounded, gravel of brick, slag, concrete, tile, sandstone and coal. Occasional small to large, angular to subangular, cobbles of brick and concrete. Occasional small, subangular, boulders of concrete. Occasional glass, plastic and metal.
	0.60 - 0.70	ES					
	1.20 - 1.30	ES					
				1.60	31.21		MADE GROUND: Soft, grey, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to sub-rounded of brick, blue slag, mudstone, and mudstone. Occasional, glass and plastic.
	2.10 - 2.20	ES					
▼	3.10 - 3.20	ES					
				3.20	29.61		End of Pit at 3.200m

1 2 3 4 5

Remarks:

Stability: Unstable in surface-level strata.

Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP03
Sheet 1 of 1

Project Name:	Blackburn Meadows, Sheffield	Project No. M24-112	Co-ords: 440051E - 391649N Level: 32.91
Date	04/09/2024		
Plant Used:	JCB 3CX	Dimensions (m): Depth 3.00	4.00 × 0.80
Scale	1:26		
Client:	SGN		
Logged	MM		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.30 - 0.40	ES					MADE GROUND: Soft, brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to rounded, of brick, slag, concrete, tiles, sandstone, coal. Frequent, small to large, subangular to angular, cobbles of concrete and brick. Occasional small, subangular, boulders of concrete. Occasional plastic and metal.
	0.50 - 0.60	ES					
				1.00	31.91		
	1.10 - 1.20	ES					MADE GROUND: Soft, black, sandy, gravelly, CLAY. Fine to coarse sand. Fine to coarse, subangular to subrounded, gravel of brick, quartz, and coal. Occasional small to large, subangular to angular, gravel of brick and concrete. Occasional small, subangular, boulders of concrete. Occasional wood. Organic odour noted.
				1.40	31.51		
	1.50 - 1.60	ES					MADE GROUND: Soft, brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to rounded, of brick, slag, concrete, tiles, sandstone, coal. Frequent, small to large, subangular to angular, cobbles of concrete and brick. Occasional small, subangular, boulders of concrete. Occasional plastic and metal.
				2.30	30.61		
	2.40 - 2.50	ES					MADE GROUND: Soft, black, sandy, gravelly, CLAY. Fine to coarse sand. Fine to coarse, subangular to subrounded, gravel of brick, quartz, and coal. Occasional small to large, subangular to angular, gravel of brick and concrete. Occasional small, subangular, boulders of concrete. Occasional wood. Organic odour noted.
				3.00	29.91		End of Pit at 3.000m

Remarks:

Stability: Unstable in surface-level strata.

SOLMEK
Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP04
Sheet 1 of 1

Project Name:	Blackburn Meadows, Sheffield	Project No. M24-112	Co-ords: 440012E - 391660N Level: 32.83
Date	04/09/2024		
Plant Used:	JCB 3CX	Dimensions (m): Depth 3.00	4.00 × 0.80
Scale	1:26		
Client:	SGN		
Logged	MM		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20 - 0.30	ES					MADE GROUND: Soft, brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to rounded, of brick, slag, concrete, tiles, sandstone, coal. Frequent, small to large, subangular to angular, cobbles of concrete and brick. Occasional small, subangular, boulders of concrete. Occasional plastic and metal.
	0.60 - 0.70	ES					
				0.90	31.93		
	1.10 - 1.20	ES					MADE GROUND: Black, clayey, gravelly, SAND. Fine to coarse sand. Fine to coarse, subrounded to angular, gravel of brick, slag, mudstone and coal. Occasional plastic.
				1.60	31.23		
							MADE GROUND: Soft, brown, sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to rounded, of brick, slag, concrete, tiles, sandstone, coal. Frequent, small to large, subangular to angular, cobbles of concrete and brick. Occasional small, subangular, boulders of concrete. Occasional plastic and metal.
				2.10	30.73		
							MADE GROUND: Black, clayey, gravelly, SAND. Fine to coarse sand. Fine to coarse, subrounded to angular, gravel of brick, slag, mudstone and coal. Occasional plastic.
▼	2.90 - 3.00	ES					
				3.00	29.83		End of Pit at 3.000m

Remarks:

Stability: Unstable in surface-level strata.

APPENDIX C

Certificate of Analysis

Report No.:	**24-07323-1**
Issue No.:	**1**
Date of Issue	**16/10/2024**
Customer Details:	Normec DETS Limited, Unit 2 Park Road Industrial Estate, Consett, County Durham, DH8 5PY, United Kingdom
Customer Contact:	Jenny Shaw
Customer Order No.:	PO165968
Customer Reference:	Not Supplied
Quotation Reference:	Q24-02435 (Issue: 10)
Description:	2 geo samples
Date Received:	20/09/2024
Date Started:	20/09/2024
Date Completed:	15/10/2024
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None

Approved By: **David Long, LIMS Manager**

RPS Environmental Management Limited trading as RPS Mountainheath. Registered in England No. 01756175.
13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400
A member of the RPS Group plc. Terms and conditions apply - copy on request

Results Summary

Report No.: 24-07323-1

Customer Reference: Not Supplied

Customer Order No: PO165968

Customer Sample No	**2395989**	**2395990**
RPS Sample No	69682	69683
Sample Type	**GEO**	**GEO**
Sample Matrix	SOIL	SOIL
Sampling Date	05/09/2024	06/09/2024

Determinand	CAS No	Codes	SOP	RL	Units		
ethanediol (ethylene glycol)	107-21-1	N	G042	10	mg/kg AR	< 10.0	< 10.0
methanethiol (methyl mercaptan)	74-93-1	N	G098	0.1	mg/kg DW	< 0.1	< 0.1

Deviating Samples

Report No.: 24-07323-1

Customer Reference: Not Supplied

Customer Order No: PO165968

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
69682	2395989		05/09/2024	plastic tub	No	
69683	2395990		06/09/2024	100 mL amber glass jar	No	

Report No.: 24-07323-1

Type	Matrix Code	Description
Food	CEREALPROD	Cereals, grains & products
Food	DRIEDFRUIT	Dried fruits
Food	FRIEDBAKED	Fried or baked food
Food	LEGUME	Legumes
Food	MEAT	Meat
Food	POWDERED	Powdered food
Food	PULSE	Pulses (dried legumes)
Food	VEGETABLES	Vegetables
Gas	TDTUBE	TD Tube
Gas	TENAX	Tenax Tube
Gas	TUBE	Tube
Gas	VAPOUR	Gas
Geological	SED_MAR	Marine Sediment
Geological	SED_RIV	River Sediment
Geological	SLUDG_SOL	Sludge (solid only)
Geological	SOIL	Soil
Liquid	BEVERAGE	Beverage
Liquid	BLOOD	Blood
Liquid	CONDENSATE	Condensate
Liquid	FOAM_LIQ	Liquid foam
Liquid	FORMULATN	Formula
Liquid	LEACHATE	Leachate
Liquid	OIL/GREASE	Oil or grease
Liquid	SLUDG_LIQ	Sludge (liquid only)
Liquid	SOLVENT	Solvent
Liquid	URINE	Urine
Sludge	SLUDG_WHL	Sludge for bulk route
Solid	BADGE	Badge
Solid	BEDDING	Bedding
Solid	BIOTA	Biota (general)
Solid	BIOTA_F	Biota (fish)
Solid	BIOTA_SF	Biota (shellfish)
Solid	CONSTRCTN	Construction materials
Solid	FABRIC	Fabrics & furnishing materials
Solid	FEED	Animal feed
Solid	FERTILISER	Fertiliser
Solid	FILTER	Filter
Solid	FOAM	Solid foam material
Solid	LATEX	Latex/Rubber
Solid	PACKAGING	Packaging material
Solid	PAPER	Paper
Solid	PLANT	Plant (vegetation)
Solid	POWDER	Powder
Solid	SWAB	Swab
Water	BAL	Ballast Water
Water	BIL	Bilge Water
Water	DW	Drinking Water
Water	EFFLUENT	Effluent
Water	GW	Ground Water
Water	INFLUENT	Influent
Water	MINEW	Mine Water
Water	SALTW	Salt Water
Water	SW	Surface Water
Water	TW	Tap Water
Water	W	Unknown Water

Report No.: 24-07323-1

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
*	Modified standard method
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis
L (in results)	Result is outside normal limits

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).

Note: Where the following information is included in this certificate, it has usually been supplied by the customer: Customer Sample ID, Sample Location, Sample Depth, Sampling Date and Sampling Time. The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

Certificate of Analysis

Certificate Number	24-19939	*Issued:*	16-Oct-24

Client SOLMEK
12 Yarm Road
Stockton On Tees
Cleveland
TS18 3NA

Our Reference	24-19939
Client Reference ~	M24-112
Order No ~	MID-0375
Contract Title ~	Blackburn Meadows, Sheffield
Description	3 Soil samples, 2 Leachate prepared by DETS samples.
Date Received	18-Sep-24
Date Started	18-Sep-24
Date Completed	16-Oct-24
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

MCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Sample ID	Depth	Lab No	Completed	Matrix Description
CP01	0.70-1.20	2395988	16/10/2024	Dark brown gravelly, sandy CLAY
CP01	6.50-6.95	2395989	16/10/2024	Brown sandy GRAVEL (sample matrix outside MCERTS scope of accreditation)
CP02	0.60-1.00	2395990	16/10/2024	Dark grey sandy CLAY

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395988	2395989	2395990
			Sample ID ~	CP01	CP01	CP02
			Depth ~	0.70-1.20	6.50-6.95	0.60-1.00
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	05/09/2024	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Aluminium	DETSC 2301*	1	mg/kg		3900	14000
Arsenic	DETSC 2301#	0.2	mg/kg	9.1	2.1	6.7
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	1.7		1.3
Cadmium	DETSC 2301#	0.1	mg/kg	0.6	< 0.1	0.2
Chromium	DETSC 2301#	0.15	mg/kg	53	11	26
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0		< 1.0
Copper	DETSC 2301#	0.2	mg/kg	52	5.2	39
Iron	DETSC 2301	25	mg/kg	35000	12000	39000
Lead	DETSC 2301#	0.3	mg/kg	70	6.2	32
Mercury	DETSC 2325#	0.05	mg/kg	0.09	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg		1.0	2.2
Nickel	DETSC 2301#	1	mg/kg	23	9.7	41
Selenium	DETSC 2301#	0.5	mg/kg	0.6	< 0.5	< 0.5
Tin	DETSC 2301	1	mg/kg		< 1.0	2.1
Vanadium	DETSC 2301#	0.8	mg/kg	28	10	22
Zinc	DETSC 2301#	1	mg/kg	160	18	100
Inorganics						
pH	DETSC 2008#		pH	9.3	9.6	8.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2		0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1		< 0.1
Cyanide, Complex	DETSC 2130*	0.2	mg/kg	< 0.2		< 0.2
Organic matter	DETSC 2002#	0.1	%	2.4	0.3	2.5
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	5.6	1.6	15
Nitrate as NO3	DETSC 2055	1	mg/kg	190	13	80
Nitrite as NO2	DETSC 2055	1	mg/kg	2.3	< 1.0	1.9
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.19		0.08
Petroleum Hydrocarbons						
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395988	2395989	2395990
			Sample ID ~	CP01	CP01	CP02
			Depth ~	0.70-1.20	6.50-6.95	0.60-1.00
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	05/09/2024	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	4.9	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	36	< 1.4	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	11	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	53	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	53	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01		< 0.01
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1		< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.2		0.2
Acenaphthene	DETSC 3301	0.1	mg/kg	0.7		0.2
Fluorene	DETSC 3301	0.1	mg/kg	0.3		0.3
Phenanthrene	DETSC 3301	0.1	mg/kg	2.4		1.4
Anthracene	DETSC 3301	0.1	mg/kg	1.3		0.5
Fluoranthene	DETSC 3301	0.1	mg/kg	10		2.1
Pyrene	DETSC 3301	0.1	mg/kg	10		2.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	5.6		1.1
Chrysene	DETSC 3301	0.1	mg/kg	5.6		1.0
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	3.7		0.7
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	2.4		0.4
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	5.1		0.9
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	3.1		0.6
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.6		0.1
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	2.6		0.7
PAH 16 Total	DETSC 3301	1.6	mg/kg	54		12
PCBs						
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01
Organics						

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395988	2395989	2395990
			Sample ID ~	CP01	CP01	CP02
			Depth ~	0.70-1.20	6.50-6.95	0.60-1.00
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	05/09/2024	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
DEM	DETSC 3001*	50	mg/kg		< 50	360

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395988	2395990
			Sample ID ~	CP01	CP02
			Depth ~	0.70-1.20	0.60-1.00
			Other ID ~		
			Sample Type ~	ES	ES
			Sampling Date ~	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
VOCs					
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395988	2395990
			Sample ID ~	CP01	CP02
			Depth ~	0.70-1.20	0.60-1.00
			Other ID ~		
			Sample Type ~	ES	ES
			Sampling Date ~	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01
SVOCs					
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	0.2
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	0.3
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395988	2395990
			Sample ID ~	CP01	CP02
			Depth ~	0.70-1.20	0.60-1.00
			Other ID ~		
			Sample Type ~	ES	ES
			Sampling Date ~	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	0.4	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1

Summary of Chemical Analysis
Leachate Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395991	2395992
			Sample ID ~	CP01	CP02
			Depth ~	0.70-1.20	2.00-2.45
			Other ID ~		
			Sample Type ~	ES	ES
			Sampling Date ~	05/09/2024	06/09/2024
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Preparation					
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.6	0.85
Boron, Dissolved	DETSC 2306*	12	ug/l	37	32
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.6	1.6
Iron, Dissolved	DETSC 2306	5.5	ug/l	15	37
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.28	0.77
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.49	< 0.25
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	3.1	1.5
Zinc, Dissolved	DETSC 2306	1.3	ug/l	1.5	< 1.3
Inorganics					
pH	DETSC 2008		pH	6.0	6.2
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20

Summary of Asbestos Analysis
Soil Samples

Our Ref 24-19939
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2395988	CP01 0.70-1.20	SOIL	NAD	none	Michael Kay
2395990	CP02 0.60-1.00	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 24-19939
Client Ref ~ M24-112
Contract ~ Blackburn Meadows, Sheffield

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2395988	BH01 0.70-1.20 SOIL	05/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2395989	BH01 6.50-6.95 SOIL	05/09/24	GJ 250ml, GV x2, PT 1L x2	Ammonia (3 days), pH + Conductivity (7 days)	
2395990	BH02 0.60-1.00 SOIL	06/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2395991	BH01 0.70-1.20 LEACHATE	05/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2395992	BH02 2.00-2.45 LEACHATE	06/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	

Key: G-Glass P-Plastic J-Jar V-Vial T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Certificate of Analysis

Report No.:	**24-07322-1**
Issue No.:	**1**
Date of Issue	**16/10/2024**
Customer Details:	Normec DETS Limited, Unit 2 Park Road Industrial Estate, Consett, County Durham, DH8 5PY, United Kingdom
Customer Contact:	Jenny Shaw
Customer Order No.:	PO165968
Customer Reference:	Not Supplied
Quotation Reference:	Q24-02435 (Issue: 10)
Description:	5 geo samples
Date Received:	20/09/2024
Date Started:	20/09/2024
Date Completed:	15/10/2024
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None

Approved By: **David Long, LIMS Manager**

RPS Environmental Management Limited trading as RPS Mountainheath. Registered in England No. 01756175.
13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400
A member of the RPS Group plc. Terms and conditions apply - copy on request

Results Summary

Report No.: 24-07322-1

Customer Reference: Not Supplied

Customer Order No: PO165968

Customer Sample No	**2395997**	**2395998**	**2395999**	**2396000**	**2396001**
RPS Sample No	69677	69678	69679	69680	69681
Sample Type	**GEO**	**GEO**	**GEO**	**GEO**	**GEO**
Sample Matrix	SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date	04/09/2024	04/09/2024	06/09/2024	05/09/2024	05/09/2024

Determinand	CAS No	Codes	SOP	RL	Units					
ethanediol (ethylene glycol)	107-21-1	N	G042	10	mg/kg AR	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
methanethiol (methyl mercaptan)	74-93-1	N	G098	0.1	mg/kg DW	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Deviating Samples

Report No.: 24-07322-1

Customer Reference: Not Supplied

Customer Order No: PO165968

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
69677	2395997		04/09/2024	100 mL amber glass jar	No	
69678	2395998		04/09/2024	100 mL amber glass jar	No	
69679	2395999		06/09/2024	100 mL amber glass jar	No	
69680	2396000		05/09/2024	100 mL amber glass jar	No	
69681	2396001		05/09/2024	100 mL amber glass jar	No	

Report No.: 24-07322-1

Type	Matrix Code	Description
Food	CEREALPROD	Cereals, grains & products
Food	DRIEDFRUIT	Dried fruits
Food	FRIEDBAKED	Fried or baked food
Food	LEGUME	Legumes
Food	MEAT	Meat
Food	POWDERED	Powdered food
Food	PULSE	Pulses (dried legumes)
Food	VEGETABLES	Vegetables
Gas	TDTUBE	TD Tube
Gas	TENAX	Tenax Tube
Gas	TUBE	Tube
Gas	VAPOUR	Gas
Geological	SED_MAR	Marine Sediment
Geological	SED_RIV	River Sediment
Geological	SLUDG_SOL	Sludge (solid only)
Geological	SOIL	Soil
Liquid	BEVERAGE	Beverage
Liquid	BLOOD	Blood
Liquid	CONDENSATE	Condensate
Liquid	FOAM_LIQ	Liquid foam
Liquid	FORMULATN	Formula
Liquid	LEACHATE	Leachate
Liquid	OIL/GREASE	Oil or grease
Liquid	SLUDG_LIQ	Sludge (liquid only)
Liquid	SOLVENT	Solvent
Liquid	URINE	Urine
Sludge	SLUDG_WHL	Sludge for bulk route
Solid	BADGE	Badge
Solid	BEDDING	Bedding
Solid	BIOTA	Biota (general)
Solid	BIOTA_F	Biota (fish)
Solid	BIOTA_SF	Biota (shellfish)
Solid	CONSTRCTN	Construction materials
Solid	FABRIC	Fabrics & furnishing materials
Solid	FEED	Animal feed
Solid	FERTILISER	Fertiliser
Solid	FILTER	Filter
Solid	FOAM	Solid foam material
Solid	LATEX	Latex/Rubber
Solid	PACKAGING	Packaging material
Solid	PAPER	Paper
Solid	PLANT	Plant (vegetation)
Solid	POWDER	Powder
Solid	SWAB	Swab
Water	BAL	Ballast Water
Water	BIL	Bilge Water
Water	DW	Drinking Water
Water	EFFLUENT	Effluent
Water	GW	Ground Water
Water	INFLUENT	Influent
Water	MINEW	Mine Water
Water	SALTW	Salt Water
Water	SW	Surface Water
Water	TW	Tap Water
Water	W	Unknown Water

Report No.: 24-07322-1

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
*	Modified standard method
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis
L (in results)	Result is outside normal limits

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).

Note: Where the following information is included in this certificate, it has usually been supplied by the customer: Customer Sample ID, Sample Location, Sample Depth, Sampling Date and Sampling Time. The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

Certificate of Analysis

Certificate Number	24-19941	*Issued:*	16-Oct-24

Client SOLMEK
12 Yarm Road
Stockton On Tees
Cleveland
TS18 3NA

Our Reference	24-19941
Client Reference ~	M24-112
Order No ~	MID-0375
Contract Title ~	Blackburn Meadows, Sheffield
Description	5 Soil samples, 3 Leachate prepared by DETS samples.
Date Received	18-Sep-24
Date Started	18-Sep-24
Date Completed	16-Oct-24
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

MCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

ilac-MRA

UKAS TESTING
2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Sample ID	Depth	Lab No	Completed	Matrix Description
CP03	0.50-0.60	2395997	16/10/2024	Dark brown gravelly, sandy CLAY
CP03	6.00-6.45	2395998	16/10/2024	Brown clayey, sandy GRAVEL (sample matrix outside MCERTS scope of accreditation)
CP02	0.50-0.60	2395999	16/10/2024	Dark brown gravelly, sandy CLAY
CP01	0.50-0.60	2396000	16/10/2024	Dark brown gravelly, sandy CLAY (Possible made ground - brick)
CP01	6.00-6.45	2396001	16/10/2024	Brown clayey, sandy GRAVEL (sample matrix outside MCERTS scope of accreditation)

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

				Lab No	2395997	2395998	2395999	2396000	2396001
				Sample ID ~	CP03	CP03	CP02	CP01	CP01
				Depth ~	0.50-0.60	6.00-6.45	0.50-0.60	0.50-0.60	6.00-6.45
				Other ID ~					
				Sample Type ~	ES	ES	ES	ES	ES
				Sampling Date ~	04/09/2024	04/09/2024	06/09/2024	05/09/2024	05/09/2024
				Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Asbestos Quantification	DETSC 1102	0.001	%			< 0.001		
Metals									
Aluminium	DETSC 2301*	1	mg/kg	7500	5200	8700	17000	3000
Arsenic	DETSC 2301#	0.2	mg/kg	6.8	4.2	8.7	6.0	5.8
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.9		1.1	0.9	
Cadmium	DETSC 2301#	0.1	mg/kg	0.5	0.5	0.5	0.5	0.3
Chromium	DETSC 2301#	0.15	mg/kg	23	31	33	33	18
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0		< 1.0	< 1.0	
Copper	DETSC 2301#	0.2	mg/kg	22	15	65	26	11
Iron	DETSC 2301	25	mg/kg	59000	54000	48000	25000	50000
Lead	DETSC 2301#	0.3	mg/kg	23	15	170	17	17
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.08	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	2.5	3.4	2.6	0.9	2.0
Nickel	DETSC 2301#	1	mg/kg	27	32	33	35	29
Selenium	DETSC 2301#	0.5	mg/kg	0.8	0.8	0.5	< 0.5	0.7
Tin	DETSC 2301	1	mg/kg	< 1.0	8.5	900	3.8	1.3
Vanadium	DETSC 2301#	0.8	mg/kg	26	16	26	35	11
Zinc	DETSC 2301#	1	mg/kg	81	100	120	110	110
Inorganics									
pH	DETSC 2008#		pH	10.2	11.8	9.1	7.8	8.8
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2		0.2	< 0.1	
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1		< 0.1	< 0.1	
Cyanide, Complex	DETSC 2130*	0.2	mg/kg	0.2		< 0.2	< 0.2	
Organic matter	DETSC 2002#	0.1	%	1.0	0.4	1.5	1.2	0.1
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.3	< 0.50	1.8	14	0.93
Nitrate as NO3	DETSC 2055	1	mg/kg	9.5	< 1.0	8.4	5.1	2.3
Nitrite as NO2	DETSC 2055	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.12		0.10	0.06	
Petroleum Hydrocarbons									
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	4.8	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	55	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	20	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	81	< 10	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395997	2395998	2395999	2396000	2396001
			Sample ID ~	CP03	CP03	CP02	CP01	CP01
			Depth ~	0.50-0.60	6.00-6.45	0.50-0.60	0.50-0.60	6.00-6.45
			Other ID ~					
			Sample Type ~	ES	ES	ES	ES	ES
			Sampling Date ~	04/09/2024	04/09/2024	06/09/2024	05/09/2024	05/09/2024
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	6.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	16	< 0.6	2.8	< 0.6	< 0.6
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	140	< 1.4	3.4	< 1.4	< 1.4
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	54	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	220	< 10	< 10	< 10	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	300	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
MTBE	DETSC 3321	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1		< 0.1	< 0.1	
Acenaphthylene	DETSC 3301	0.1	mg/kg	0.1		0.3	< 0.1	
Acenaphthene	DETSC 3301	0.1	mg/kg	0.1		0.1	< 0.1	
Fluorene	DETSC 3301	0.1	mg/kg	0.1		0.3	< 0.1	
Phenanthrene	DETSC 3301	0.1	mg/kg	0.7		1.7	0.2	
Anthracene	DETSC 3301	0.1	mg/kg	0.3		0.5	< 0.1	
Fluoranthene	DETSC 3301	0.1	mg/kg	1.4		3.1	0.2	
Pyrene	DETSC 3301	0.1	mg/kg	1.4		2.9	0.2	
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	0.7		1.6	< 0.1	
Chrysene	DETSC 3301	0.1	mg/kg	0.6		1.4	< 0.1	
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	0.4		1.1	< 0.1	
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.2		0.7	< 0.1	
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	0.6		1.4	< 0.1	
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	0.3		0.9	< 0.1	
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1		0.2	< 0.1	
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.3		0.8	< 0.1	
PAH 16 Total	DETSC 3301	1.6	mg/kg	7.1		17	< 1.6	
PCBs								
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01		< 0.01	< 0.01	

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395997	2395998	2395999	2396000	2396001
			Sample ID ~	CP03	CP03	CP02	CP01	CP01
			Depth ~	0.50-0.60	6.00-6.45	0.50-0.60	0.50-0.60	6.00-6.45
			Other ID ~					
			Sample Type ~	ES	ES	ES	ES	ES
			Sampling Date ~	04/09/2024	04/09/2024	06/09/2024	05/09/2024	05/09/2024
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Organics								
DEM	DETSC 3001*	50	mg/kg	660	< 50	78	220	210

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395997	2395999	2396000
			Sample ID ~	CP03	CP02	CP01
			Depth ~	0.50-0.60	0.50-0.60	0.50-0.60
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	04/09/2024	06/09/2024	05/09/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
VOCs						
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

	Lab No	2395997	2395999	2396000
	Sample ID ~	CP03	CP02	CP01
	Depth ~	0.50-0.60	0.50-0.60	0.50-0.60
	Other ID ~			
	Sample Type ~	ES	ES	ES
	Sampling Date ~	04/09/2024	06/09/2024	05/09/2024
	Sampling Time ~	n/s	n/s	n/s

Test	Method	LOD	Units			
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
SVOCs						
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis
Soil VOC/SVOC Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2395997	2395999	2396000
			Sample ID ~	CP03	CP02	CP01
			Depth ~	0.50-0.60	0.50-0.60	0.50-0.60
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	04/09/2024	06/09/2024	05/09/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	0.5	< 0.1
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis
Leachate Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2396002	2396003	2396004
			Sample ID ~	CP03	CP02	CP01
			Depth ~	0.50-0.60	0.50-0.60	0.50-0.60
			Other ID ~			
			Sample Type ~	ES	ES	ES
			Sampling Date ~	04/09/2024	06/09/2024	05/09/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Preparation						
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.9	0.56	0.62
Boron, Dissolved	DETSC 2306*	12	ug/l	21	17	20
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.38	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	5.3	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	6.0	1.8	1.3
Iron, Dissolved	DETSC 2306	5.5	ug/l	220	73	32
Lead, Dissolved	DETSC 2306	0.09	ug/l	3.9	0.61	0.20
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.05	0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	4.2	< 0.5	< 0.5
Selenium, Dissolved	DETSC 2306	0.25	ug/l	2.7	0.81	0.66
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	6.5	1.1	1.2
Zinc, Dissolved	DETSC 2306	1.3	ug/l	9.2	5.6	2.9
Inorganics						
pH	DETSC 2008		pH	6.4	6.4	6.4
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20	< 20

Summary of Asbestos Analysis
Soil Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2395997	CP03 0.50-0.60	SOIL	NAD	none	D Wilkinson
2395999	CP02 0.50-0.60	SOIL	Chrysotile	Chrysotile present as fibre bundles	D Wilkinson
2396000	CP01 0.50-0.60	SOIL	NAD	none	D Wilkinson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 24-19941
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Lab No		2395999
Sample ID ~		CP02
Depth ~		0.50-0.60
Other ID ~		
Sample Type ~		ES
Sampling Date ~		06/09/2024
Sampling Time ~		

Test	**Method**	**Units**		
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %		**< 0.001**
Gravimetric Quantification (a)	DETSC 1102	Mass %		na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %		<0.001
Quantification by PCOM (c)	DETSC 1102	Mass %		na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g		na
Breakdown of Gravimetric Analysis (a)				
Mass of Sample		g		321.26
ACMs present*		type		
Mass of ACM in sample		g		
% ACM by mass		%		
% asbestos in ACM		%		
% asbestos in sample		%		
Breakdown of Detailed Gravimetric Analysis (b)				
% Amphibole bundles in sample		Mass %		na
% Chrysotile bundles in sample		Mass %		<0.001
Breakdown of PCOM Analysis (c)				
% Amphibole fibres in sample		Mass %		na
% Chrysotile fibres in sample		Mass %		na
Breakdown of Potentially Respirable Fibre Analysis (d)				
Amphibole fibres		Fibres/g		na
Chrysotile fibres		Fibres/g		na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 24-19941
Client Ref ~ M24-112
Contract ~ Blackburn Meadows, Sheffield

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2395997	CP03 0.50-0.60 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2395998	CP03 6.00-6.45 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days)	
2395999	CP02 0.50-0.60 SOIL	06/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396000	CP01 0.50-0.60 SOIL	05/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396001	CP01 6.00-6.45 SOIL	05/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days)	
2396002	CP03 0.50-0.60 LEACHATE	04/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2396003	CP02 0.50-0.60 LEACHATE	06/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2396004	CP01 0.50-0.60 LEACHATE	05/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	

Key: G-Glass P-Plastic J-Jar V-Vial T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Certificate of Analysis

Report No.:	**24-07321-1**
Issue No.:	**1**
Date of Issue	**16/10/2024**
Customer Details:	Normec DETS Limited, Unit 2 Park Road Industrial Estate, Consett, County Durham, DH8 5PY, United Kingdom
Customer Contact:	Jenny Shaw
Customer Order No.:	PO165968
Customer Reference:	Not Supplied
Quotation Reference:	Q24-02435 (Issue: 10)
Description:	5 geo samples
Date Received:	20/09/2024
Date Started:	20/09/2024
Date Completed:	15/10/2024
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None

Approved By: **David Long, LIMS Manager**

RPS Environmental Management Limited trading as RPS Mountainheath. Registered in England No. 01756175.
13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400
A member of the RPS Group plc. Terms and conditions apply - copy on request

Results Summary

Report No.: 24-07321-1

Customer Reference: Not Supplied

Customer Order No: PO165968

Customer Sample No						**2396005**	**2396006**	**2396007**	**2396008**	**2396000**
RPS Sample No						69673	69674	69675	69676	69908
Sample Type						**GEO**	**GEO**	**GEO**	**GEO**	**GEO**
Sample Matrix						SOIL	SOIL	SOIL	SOIL	SOIL
Sampling Date						04/09/2024	04/09/2024	04/09/2024	04/09/2024	23/09/2024
Determinand	**CAS No**	**Codes**	**SOP**	**RL**	**Units**					
ethanediol (ethylene glycol)	107-21-1	N	G042	10	mg/kg AR	< 10.0	< 10.0	< 10.0	< 10.0	< 10.0
methanethiol (methyl mercaptan)	74-93-1	N	G098	0.1	mg/kg DW	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Deviating Samples

Report No.: 24-07321-1

Customer Reference: Not Supplied

Customer Order No: PO165968

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
69673	2396005		04/09/2024	100 mL amber glass jar	No	
69674	2396006		04/09/2024	100 mL amber glass jar	No	
69675	2396007		04/09/2024	100 mL amber glass jar	No	
69676	2396008		04/09/2024	100 mL amber glass jar	No	
69908	2396000		23/09/2024	250 mL amber glass jar	No	

Report No.: 24-07321-1

Type	Matrix Code	Description
Food	CEREALPROD	Cereals, grains & products
Food	DRIEDFRUIT	Dried fruits
Food	FRIEDBAKED	Fried or baked food
Food	LEGUME	Legumes
Food	MEAT	Meat
Food	POWDERED	Powdered food
Food	PULSE	Pulses (dried legumes)
Food	VEGETABLES	Vegetables
Gas	TDTUBE	TD Tube
Gas	TENAX	Tenax Tube
Gas	TUBE	Tube
Gas	VAPOUR	Gas
Geological	SED_MAR	Marine Sediment
Geological	SED_RIV	River Sediment
Geological	SLUDG_SOL	Sludge (solid only)
Geological	SOIL	Soil
Liquid	BEVERAGE	Beverage
Liquid	BLOOD	Blood
Liquid	CONDENSATE	Condensate
Liquid	FOAM_LIQ	Liquid foam
Liquid	FORMULATN	Formula
Liquid	LEACHATE	Leachate
Liquid	OIL/GREASE	Oil or grease
Liquid	SLUDG_LIQ	Sludge (liquid only)
Liquid	SOLVENT	Solvent
Liquid	URINE	Urine
Sludge	SLUDG_WHL	Sludge for bulk route
Solid	BADGE	Badge
Solid	BEDDING	Bedding
Solid	BIOTA	Biota (general)
Solid	BIOTA_F	Biota (fish)
Solid	BIOTA_SF	Biota (shellfish)
Solid	CONSTRCTN	Construction materials
Solid	FABRIC	Fabrics & furnishing materials
Solid	FEED	Animal feed
Solid	FERTILISER	Fertiliser
Solid	FILTER	Filter
Solid	FOAM	Solid foam material
Solid	LATEX	Latex/Rubber
Solid	PACKAGING	Packaging material
Solid	PAPER	Paper
Solid	PLANT	Plant (vegetation)
Solid	POWDER	Powder
Solid	SWAB	Swab
Water	BAL	Ballast Water
Water	BIL	Bilge Water
Water	DW	Drinking Water
Water	EFFLUENT	Effluent
Water	GW	Ground Water
Water	INFLUENT	Influent
Water	MINEW	Mine Water
Water	SALTW	Salt Water
Water	SW	Surface Water
Water	TW	Tap Water
Water	W	Unknown Water

Report No.: 24-07321-1

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
*	Modified standard method
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis
L (in results)	Result is outside normal limits

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).

Note: Where the following information is included in this certificate, it has usually been supplied by the customer: Customer Sample ID, Sample Location, Sample Depth, Sampling Date and Sampling Time. The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

Certificate of Analysis

Certificate Number	24-19942	*Issued:*	16-Oct-24

Client SOLMEK
12 Yarm Road
Stockton On Tees
Cleveland
TS18 3NA

Our Reference	24-19942
Client Reference ~	M24-112
Order No ~	MID-0375
Contract Title ~	Blackburn Meadows, Sheffield
Description	5 Soil samples, 5 Leachate prepared by DETS samples.
Date Received	18-Sep-24
Date Started	18-Sep-24
Date Completed	16-Oct-24
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Sample ID	Depth	Lab No	Completed	Matrix Description
TP01	0.60-0.70	2396005	16/10/2024	Dark brown gravelly, sandy CLAY (Possible made ground - brick)
TP02	0.60-0.70	2396006	16/10/2024	Dark brown gravelly, sandy CLAY (Possible made ground - brick)
TP03	1.10-1.20	2396007	16/10/2024	Dark brown slightly gravelly, sandy CLAY including odd rootlets
TP04	0.20-0.30	2396008	16/10/2024	Dark brown gravelly, sandy CLAY including odd rootlets (Possible made ground - brick)
BH06	1.00-1.10	2396009	16/10/2024	Dark brown gravelly, sandy CLAY (Possible made ground - brick)

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

				Lab No	2396005	2396006	2396007	2396008	2396009
				Sample ID ~	TP01	TP02	TP03	TP04	BH06
				Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
				Other ID ~					
				Sample Type ~	ES	ES	ES	ES	ES
				Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
				Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Asbestos Quantification	DETSC 1102	0.001	%			0.004		0.002
Metals									
Aluminium	DETSC 2301*	1	mg/kg	4600	11000	10000	7400	
Arsenic	DETSC 2301#	0.2	mg/kg	5.1	14	13	7.5	13
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.5	1.6	2.3	0.9	1.8
Cadmium	DETSC 2301#	0.1	mg/kg	0.3	0.6	0.4	0.6	4.4
Chromium	DETSC 2301#	0.15	mg/kg	13	95	53	22	63
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	14	63	75	32	200
Iron	DETSC 2301	25	mg/kg	71000	92000	54000	99000	61000
Lead	DETSC 2301#	0.3	mg/kg	14	81	110	32	180
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.10	0.15	< 0.05	0.31
Molybdenum	DETSC 2301#	0.4	mg/kg	0.8	10	6.9	2.0	
Nickel	DETSC 2301#	1	mg/kg	21	74	34	27	110
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	1.2	1.0	0.9	1.0
Tin	DETSC 2301	1	mg/kg	< 1.0	5.5	52	1.6	
Vanadium	DETSC 2301#	0.8	mg/kg	18	110	36	26	31
Zinc	DETSC 2301#	1	mg/kg	51	160	150	92	200
Inorganics									
pH	DETSC 2008#		pH	10.0	8.8	8.9	9.1	9.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	0.2	0.8	0.3	1.8
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	0.1	< 0.1	< 0.1
Cyanide, Complex	DETSC 2130*	0.2	mg/kg	< 0.2	0.2	0.7	0.3	1.8
Organic matter	DETSC 2002#	0.1	%	0.5	2.8	3.7	1.3	2.7
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	0.74	1.6	9.6	1.3	15
Nitrate as NO3	DETSC 2055	1	mg/kg	2.8	14	4.4	14	2.6
Nitrite as NO2	DETSC 2055	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.08	0.49	0.22	0.11	0.11
Petroleum Hydrocarbons									
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	16	< 1.5	< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg	< 3.4	16	210	< 3.4	< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	63	< 3.4	< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg	< 10	16	290	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	6.2	< 0.9	< 0.9

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2396005	2396006	2396007	2396008	2396009
			Sample ID ~	TP01	TP02	TP03	TP04	BH06
			Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
			Other ID ~					
			Sample Type ~	ES	ES	ES	ES	ES
			Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	19	< 0.5	0.6
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg	< 0.6	1.6	70	< 0.6	4.1
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg	< 1.4	20	510	15	2.5
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg	< 1.4	5.9	140	9.6	< 1.4
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg	< 10	28	750	25	< 10
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg	< 10	44	1000	25	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	0.1	0.5
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.2
Fluorene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	0.1	0.6
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.1	0.3	1.9	0.6	4.3
Anthracene	DETSC 3301	0.1	mg/kg	< 0.1	0.1	0.4	0.1	1.4
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	0.6	2.3	1.0	9.8
Pyrene	DETSC 3301	0.1	mg/kg	0.2	0.6	2.1	0.9	9.0
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	0.4	1.2	0.6	4.5
Chrysene	DETSC 3301	0.1	mg/kg	< 0.1	0.3	1.0	0.4	4.0
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	0.2	0.6	0.3	2.9
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.3	0.2	1.9
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	0.3	0.8	0.6	4.1
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	0.3	2.3
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	0.4
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.1	< 0.1	0.4	0.3	2.7
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	2.7	12	5.6	48
PCBs								
PCB 77	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 81	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 105	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 114	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 118	DETSC 3401#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 123	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 126	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 156	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 157	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 167	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 169	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 189	DETSC 3401*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

				Lab No	2396005	2396006	2396007	2396008	2396009
				Sample ID ~	TP01	TP02	TP03	TP04	BH06
				Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
				Other ID ~					
				Sample Type ~	ES	ES	ES	ES	ES
				Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
				Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**						
Organics									
DEM	DETSC 3001*	50	mg/kg	< 50	390	510	490	

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2396005	2396006	2396007	2396008	2396009
			Sample ID ~	TP01	TP02	TP03	TP04	BH06
			Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
			Other ID ~					
			Sample Type ~	ES	ES	ES	ES	ES
			Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
VOCs								
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2396005	2396006	2396007	2396008	2396009
			Sample ID ~	TP01	TP02	TP03	TP04	BH06
			Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
			Other ID ~					
			Sample Type ~	ES	ES	ES	ES	ES
			Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
SVOCs								
Phenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	0.6	< 0.1	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	0.9	< 0.1	< 0.1
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2396005	2396006	2396007	2396008	2396009
			Sample ID ~	TP01	TP02	TP03	TP04	BH06
			Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
			Other ID ~					
			Sample Type ~	ES	ES	ES	ES	ES
			Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
			Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1	0.3	0.4	0.3	0.3
Di-n-octylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

Summary of Chemical Analysis
Leachate Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

	Lab No	2396010	2396011	2396012	2396013	2396014
	Sample ID ~	TP01	TP02	TP03	TP04	BH06
	Depth ~	0.60-0.70	0.60-0.70	1.10-1.20	0.20-0.30	1.00-1.10
	Other ID ~					
	Sample Type ~	ES	ES	ES	ES	ES
	Sampling Date ~	04/09/2024	04/09/2024	04/09/2024	04/09/2024	04/09/2024
	Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Preparation						
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y	Y	Y	Y	Y
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.1	0.76	0.70	0.94	1.6
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12	33	100	21	51
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.7	1.6	1.9	1.6	2.3
Iron, Dissolved	DETSC 2306	5.5	ug/l	160	20	12	200	68
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.44	0.09	0.11	0.51	0.26
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	0.5	0.7	< 0.5	0.7
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.83	0.85	0.41	0.54	0.83
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	1.8	1.3	0.9	2.1	2.7
Zinc, Dissolved	DETSC 2306	1.3	ug/l	1.7	2.1	2.3	1.3	< 1.3
Inorganics						
pH	DETSC 2008		pH	7.7	7.3	7.1	7.1	7.0
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40	< 40	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20	< 20	< 20	< 20

Summary of Asbestos Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2396005	TP01 0.60-0.70	SOIL	NAD	none	Darryl Fletcher
2396006	TP02 0.60-0.70	SOIL	NAD	none	Darryl Fletcher
2396007	TP03 1.10-1.20	SOIL	Chrysotile	Bundles of Chrysotile fibres	Darryl Fletcher
2396008	TP04 0.20-0.30	SOIL	NAD	none	Darryl Fletcher
2396009	BH06 1.00-1.10	SOIL	Chrysotile Chrysotile	Bundles of Chrysotile fibres	Darryl Fletcher

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Summary of Asbestos Quantification Analysis
Soil Samples

Our Ref 24-19942
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

Lab No		2396007	2396009
Sample ID ~		TP03	BH06
Depth ~		1.10-1.20	1.00-1.10
Other ID ~			
Sample Type ~		ES	ES
Sampling Date ~		04/09/2024	04/09/2024
Sampling Time ~			

Test	**Method**	**Units**			
Total Mass% Asbestos (a+b+c)	DETSC 1102	Mass %		**0.004**	**0.002**
Gravimetric Quantification (a)	DETSC 1102	Mass %		na	na
Detailed Gravimetric Quantification (b)	DETSC 1102	Mass %		0.004	0.002
Quantification by PCOM (c)	DETSC 1102	Mass %		na	na
Potentially Respirable Fibres (d)	DETSC 1102	Fibres/g		na	na
Breakdown of Gravimetric Analysis (a)					
Mass of Sample		g		383.62	276.26
ACMs present*		type			
Mass of ACM in sample		g			
% ACM by mass		%			
% asbestos in ACM		%			
% asbestos in sample		%			
Breakdown of Detailed Gravimetric Analysis (b)					
% Amphibole bundles in sample		Mass %		na	na
% Chrysotile bundles in sample		Mass %		0.004	0.002
Breakdown of PCOM Analysis (c)					
% Amphibole fibres in sample		Mass %		na	na
% Chrysotile fibres in sample		Mass %		na	na
Breakdown of Potentially Respirable Fibre Analysis (d)					
Amphibole fibres		Fibres/g		na	na
Chrysotile fibres		Fibres/g		na	na

* Denotes test or material description outside of UKAS accreditation.
% asbestos in Asbestos Containing Materials (ACMs) is determined by
by reference to HSG 264.
Recommended sample size for quantification is approximately 1kg
# denotes deviating sample

Information in Support of the Analytical Results

Our Ref 24-19942
Client Ref ~ M24-112
Contract ~ Blackburn Meadows, Sheffield

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2396005	TP01 0.60-0.70 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396006	TP02 0.60-0.70 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396007	TP03 1.10-1.20 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396008	TP04 0.20-0.30 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396009	BH06 1.00-1.10 SOIL	04/09/24	GJ 250ml, GV x2, PT 1L	Ammonia (3 days), pH + Conductivity (7 days), VOC (7 days)	
2396010	TP01 0.60-0.70 LEACHATE	04/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2396011	TP02 0.60-0.70 LEACHATE	04/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2396012	TP03 1.10-1.20 LEACHATE	04/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2396013	TP04 0.20-0.30 LEACHATE	04/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	
2396014	BH06 1.00-1.10 LEACHATE	04/09/24	GJ 250ml, GV x2, PT 1L	Chromium, Hexavalent (4 days), Kone (4 days), pH/Cond (1 days)	

Key: G-Glass P-Plastic J-Jar V-Vial T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL

A TETRA TECH COMPANY

Certificate of Analysis

Report No.: **24-08239-1**

Issue No.: **1**
Date of Issue **01/11/2024**

Customer Details:	Normec DETS Limited, Unit 2 Park Road Industrial Estate, Consett, County Durham, DH8 5PY, United Kingdom
Customer Contact:	Jenny Shaw
Customer Order No.:	PO2000180
Customer Reference:	Not Supplied
Quotation Reference:	Q24-02434 (Issue: 12)
Description:	3 water samples
Date Received:	15/10/2024
Date Started:	15/10/2024
Date Completed:	01/11/2024
Test Methods:	Details available on request (refer to SOP code against relevant result/s)
Notes:	None

Approved By: **David Long, LIMS Manager**

RPS Environmental Management Limited trading as RPS Mountainheath. Registered in England No. 01756175.
13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400
A member of the RPS Group plc. Terms and conditions apply - copy on request

Results Summary

Report No.: 24-08239-1

Customer Reference: Not Supplied

Customer Order No: PO2000180

Customer Sample No	**2404218-CP01**	**2404219-CP02**	**2404220-CP03**
RPS Sample No	72370	72371	72372
Sample Type	**WATER**	**WATER**	**WATER**
Sample Matrix	W	W	W
Sampling Date	03/10/2024	03/10/2024	03/10/2024

Determinand	CAS No	Codes	SOP	RL	Units			
ethanediol (ethylene glycol)	107-21-1	N	G041	1	mg/L	< 1.0	< 1.0	< 1.0
methanethiol (methyl mercaptan)	74-93-1	N	G097	0.1	mg/L	0.7	1.2	1.7

Deviating Samples

Report No.: 24-08239-1

Customer Reference: Not Supplied

Customer Order No: PO2000180

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).
RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.
Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.
Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.
Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submisson may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
72370	2404218-BH01		03/10/2024	GAV40 40 mL amber glass vial	No	
72371	2404219-BH02		03/10/2024	GAV40 40 mL amber glass vial	No	
72372	2404220-BH03		03/10/2024	GAV40 40 mL amber glass vial	No	

Report No.: 24-08239-1

Type	Matrix Code	Description
Food	CEREALPROD	Cereals, grains & products
Food	DRIEDFRUIT	Dried fruits
Food	FRIEDBAKED	Fried or baked food
Food	LEGUME	Legumes
Food	MEAT	Meat
Food	POWDERED	Powdered food
Food	PULSE	Pulses (dried legumes)
Food	VEGETABLES	Vegetables
Gas	TDTUBE	TD Tube
Gas	TENAX	Tenax Tube
Gas	TUBE	Tube
Gas	VAPOUR	Gas
Geological	SED_MAR	Marine Sediment
Geological	SED_RIV	River Sediment
Geological	SLUDG_SOL	Sludge (solid only)
Geological	SOIL	Soil
Liquid	BEVERAGE	Beverage
Liquid	BLOOD	Blood
Liquid	CONDENSATE	Condensate
Liquid	FOAM_LIQ	Liquid foam
Liquid	FORMULATN	Formula
Liquid	LEACHATE	Leachate
Liquid	OIL/GREASE	Oil or grease
Liquid	SLUDG_LIQ	Sludge (liquid only)
Liquid	SOLVENT	Solvent
Liquid	URINE	Urine
Sludge	SLUDG_WHL	Sludge for bulk route
Solid	BADGE	Badge
Solid	BEDDING	Bedding
Solid	BIOTA	Biota (general)
Solid	BIOTA_F	Biota (fish)
Solid	BIOTA_SF	Biota (shellfish)
Solid	CONSTRCTN	Construction materials
Solid	FABRIC	Fabrics & furnishing materials
Solid	FEED	Animal feed
Solid	FERTILISER	Fertiliser
Solid	FILTER	Filter
Solid	FOAM	Solid foam material
Solid	LATEX	Latex/Rubber
Solid	PACKAGING	Packaging material
Solid	PAPER	Paper
Solid	PLANT	Plant (vegetation)
Solid	POWDER	Powder
Solid	SWAB	Swab
Water	BAL	Ballast Water
Water	BIL	Bilge Water
Water	DW	Drinking Water
Water	EFFLUENT	Effluent
Water	GW	Ground Water
Water	INFLUENT	Influent
Water	MINEW	Mine Water
Water	SALTW	Salt Water
Water	SW	Surface Water
Water	TW	Tap Water
Water	W	Unknown Water

Report No.: 24-08239-1

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
*	Modified standard method
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis
L (in results)	Result is outside normal limits

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).

Note: Where the following information is included in this certificate, it has usually been supplied by the customer: Customer Sample ID, Sample Location, Sample Depth, Sampling Date and Sampling Time. The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

Certificate of Analysis

Certificate Number	24-21330	*Issued:*	13-Nov-24

Client SOLMEK
Unit 3
Prospect House
Chesterfield
S43 3QE

Our Reference	24-21330
Client Reference ~	M24-112
Order No ~	MID-0409
Contract Title ~	Blackburn Meadows, Sheffield
Description	3 Groundwater samples.
Date Received	04-Oct-24
Date Started	04-Oct-24
Date Completed	13-Nov-24
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA UKAS TESTING 2139

Summary of Chemical Analysis
Water Samples

Our Ref 24-21330
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

	Lab No	2404218	2404219	2404220
	Sample ID ~	CP01	CP02	CP03
	Depth ~			
	Other ID ~			
	Sample Type ~	W	W	W
	Sampling Date ~	03/10/2024	03/10/2024	03/10/2024
	Sampling Time ~	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Aluminium, Dissolved	DETSC 2306	10	ug/l	73	11	< 10
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	5.1	6.8	1.8
Boron, Dissolved	DETSC 2306*	12	ug/l	160	260	210
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.59	0.16	0.12
Calcium, Dissolved	DETSC 2306	0.09	mg/l	50	200	130
Chromium, Dissolved	DETSC 2306	0.25	ug/l	11	0.55	< 0.25
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	17	5.9	3.4
Iron, Dissolved	DETSC 2306	5.5	ug/l	87	18	44
Lead, Dissolved	DETSC 2306	0.09	ug/l	3.8	0.24	< 0.09
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	6.4	15	37
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.20	0.93	0.08
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	68	480	140
Nickel, Dissolved	DETSC 2306	0.5	ug/l	33	15	21
Potassium, Dissolved	DETSC 2306	0.08	mg/l	39	45	8.8
Selenium, Dissolved	DETSC 2306	0.25	ug/l	7.6	2.7	1.4
Sodium, Dissolved	DETSC 2306	0.07	mg/l	47	100	95
Tin, Dissolved	DETSC 2306*	0.4	ug/l	2.1	0.7	1.9
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	30	16	0.7
Zinc, Dissolved	DETSC 2306	1.3	ug/l	46	18	59
Inorganics						
Conductivity	DETSC 2009	1	uS/cm	743	1730	1440
pH	DETSC 2008		pH	7.8	8.5	6.9
Alkalinity, Bicarbonate as CaCO3	DETSC 2030*	10	mg/l	110	64	160
Biochemical Oxygen Demand, Total	DETSC 2031	1	mg/l	2.7	< 2.0	1.4
Chemical Oxygen Demand, Total	DETSC 2032	10	mg/l	52	1100	43
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20	< 20
Cyanide, Complex	DETSC 2130*	40	ug/l	< 40	< 40	< 40
Redox Potential	DETSC 2016*	-500	mV	210	190	190
Ammoniacal Nitrogen as NH4	DETSC 2207	0.0193	mg/l	0.54	12	4.5
Ammoniacal Nitrogen as NH3	DETSC 2207	0.0183	mg/l	0.51	11	4.3
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.42	9.2	3.5
Chloride	DETSC 2055	0.1	mg/l	46	99	150
Nitrate as NO3	DETSC 2055	0.1	mg/l	27	0.40	0.17
Nitrite as NO2	DETSC 2055	0.1	mg/l	0.31	0.18	< 0.10
Nitrogen, Total	DETSC 2085*	0.5	mg/l	15	1.3	5.6
Sulphate as SO4	DETSC 2055	0.1	mg/l	150	520	370
Sulphide	DETSC 2208	10	ug/l	35	17	51
Total Organic Carbon	DETSC 2085	1	mg/l	14	4.6	17
Petroleum Hydrocarbons						

Summary of Chemical Analysis
Water Samples

Our Ref 24-21330
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2404218	2404219	2404220
			Sample ID ~	CP01	CP02	CP03
			Depth ~			
			Other ID ~			
			Sample Type ~	W	W	W
			Sampling Date ~	03/10/2024	03/10/2024	03/10/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	17	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	22	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	94	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	230	< 1.0
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10	360	< 10
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	< 10	360	< 10
Oils & Fats, Unsaponifiable	*	1000	ug/l	< 1000	10000	5000
PAHs						
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	7.9	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	0.03	7.8	0.07
Acenaphthene	DETSC 3304	0.01	ug/l	0.08	11	0.03
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	14	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.09	75	0.06
Anthracene	DETSC 3304	0.01	ug/l	0.07	29	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.23	260	0.15
Pyrene	DETSC 3304	0.01	ug/l	0.21	240	0.13
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.07	84	0.05
Chrysene	DETSC 3304	0.01	ug/l	0.08	70	0.06
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.13	110	0.10
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.04	44	0.05
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.07	78	0.06
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.10	73	0.08
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	9.0	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.08	57	0.07
PAH Total	DETSC 3304	0.2	ug/l	1.3	1200	0.89
Phenols						
Phenol - Monohydric	DETSC 2130	100	ug/l	< 100	< 100	< 100
Subcontracted Analysis						
E. coli	$*	0	n/100ml	3	55	2
Ethylene Glycol	$*	0.1	mg/l	< 1.0	< 1.0	< 1.0

Summary of Chemical Analysis
Water Samples

Our Ref 24-21330
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2404218	2404219	2404220
			Sample ID ~	CP01	CP02	CP03
			Depth ~			
			Other ID ~			
			Sample Type ~	W	W	W
			Sampling Date ~	03/10/2024	03/10/2024	03/10/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Total coliforms	$*	0	u/100ml	1	11	4
Faecal Coliforms	$*	0	n/100ml	345	980	1300

Information in Support of the Analytical Results

Our Ref 24-21330
Client Ref ~ M24-112
Contract ~ Blackburn Meadows, Sheffield

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2404218	CP01 GROUND WATER	03/10/24	GB 1L, GV x2, PB 1L		
2404219	CP02 GROUND WATER	03/10/24	GV x2, PB 1L		
2404220	CP03 GROUND WATER	03/10/24	GV x2, PB 1L		

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

***** -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

Certificate of Analysis

Certificate Number 24-20161 *Issued:* 20-Nov-24

Client SOLMEK
12 Yarm Road
Stockton On Tees
Cleveland
TS18 3NA

Our Reference 24-20161

Client Reference ~ M24-112

Order No ~ MID0392

Contract Title ~ Blackburn Meadows, Sheffield

Description 2 Water No Information Supplied samples.

Date Received 20-Sep-24

Date Started 20-Sep-24

Date Completed 20-Nov-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Water Samples

Our Ref 24-20161
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

	Lab No	2397229	2397230
	Sample ID ~	BH01	BH03
	Depth ~		
	Other ID ~		
	Sample Type ~	WATER UNKNOWN	WATER UNKNOWN
	Sampling Date ~	18/09/2024	18/09/2024
	Sampling Time ~	n/s	n/s

Test	Method	LOD	Units		
Metals					
Aluminium, Dissolved	DETSC 2306	10	ug/l	< 10	< 10
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	2.0	0.51
Boron, Dissolved	DETSC 2306*	12	ug/l	330	210
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.08	0.16
Calcium, Dissolved	DETSC 2306	0.09	mg/l	130	120
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.30	< 0.25
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	1.5	2.9
Iron, Dissolved	DETSC 2306	5.5	ug/l	99	5.9
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.10	< 0.09
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	24	44
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.04	< 0.01
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	94	4.3
Nickel, Dissolved	DETSC 2306	0.5	ug/l	34	14
Potassium, Dissolved	DETSC 2306	0.08	mg/l	21	7.3
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.37	0.34
Sodium, Dissolved	DETSC 2306	0.07	mg/l	64	83
Tin, Dissolved	DETSC 2306*	0.4	ug/l	1.4	0.7
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	< 0.6	< 0.6
Zinc, Dissolved	DETSC 2306	1.3	ug/l	60	56
Inorganics					
Conductivity	DETSC 2009	1	uS/cm	1130	1330
pH	DETSC 2008		pH	7.0	7.0
Alkalinity, Bicarbonate as CaCO3	DETSC 2030*	10	mg/l	280	530
Biochemical Oxygen Demand, Total	DETSC 2031	1	mg/l	4.0	7.0
Chemical Oxygen Demand, Total	DETSC 2032	10	mg/l	99	89
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20
Cyanide, Complex	DETSC 2130*	40	ug/l	< 40	< 40
Redox Potential	DETSC 2016*	-500	mV	150	150
Ammoniacal Nitrogen as NH4	DETSC 2207	0.0193	mg/l	2.2	1.7
Ammoniacal Nitrogen as NH3	DETSC 2207	0.0183	mg/l	2.0	1.6
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	1.7	1.3
Chloride	DETSC 2055	0.1	mg/l	58	150
Nitrate as NO3	DETSC 2055	0.1	mg/l	0.86	3.7
Nitrite as NO2	DETSC 2055	0.1	mg/l	0.95	2.4
Nitrogen, Total	DETSC 2085*	0.5	mg/l	4.3	3.0
Sulphate as SO4	DETSC 2055	0.1	mg/l	270	290
Sulphide	DETSC 2208	10	ug/l	16	11
Total Organic Carbon	DETSC 2085	1	mg/l	27	18
Petroleum Hydrocarbons					

Summary of Chemical Analysis
Water Samples

Our Ref 24-20161
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2397229	2397230
			Sample ID ~	BH01	BH03
			Depth ~		
			Other ID ~		
			Sample Type ~	WATER UNKNOWN	WATER UNKNOWN
			Sampling Date ~	18/09/2024	18/09/2024
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10	< 10
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	< 10	< 10
Oils & Fats, Unsaponifiable	*	1000	ug/l	1400	I/S
PAHs					
Naphthalene	DETSC 3304	0.05	ug/l	< 0.50	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	0.26	0.03
Acenaphthene	DETSC 3304	0.01	ug/l	1.7	0.02
Fluorene	DETSC 3304	0.01	ug/l	0.84	0.02
Phenanthrene	DETSC 3304	0.01	ug/l	4.9	0.12
Anthracene	DETSC 3304	0.01	ug/l	1.6	0.04
Fluoranthene	DETSC 3304	0.01	ug/l	6.8	0.20
Pyrene	DETSC 3304	0.01	ug/l	5.6	0.16
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	2.4	0.06
Chrysene	DETSC 3304	0.01	ug/l	2.1	0.06
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	3.2	0.09
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	1.4	0.04
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	2.3	0.06
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	1.6	0.05
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	0.25	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	1.9	0.05
PAH Total	DETSC 3304	0.2	ug/l	37	1.0
Phenols					
Phenol - Monohydric	DETSC 2130	100	ug/l	< 100	< 100
Subcontracted Analysis					
E. coli	$*	0	n/100ml	I/S	I/S
Ethylene Glycol	$*	0.1	mg/l	< 1.0	< 1.0

Summary of Chemical Analysis
Water Samples

Our Ref 24-20161
Client Ref ~ M24-112
Contract Title ~ Blackburn Meadows, Sheffield

			Lab No	2397229	2397230
			Sample ID ~	BH01	BH03
			Depth ~		
			Other ID ~		
			Sample Type ~	WATER UNKNOWN	WATER UNKNOWN
			Sampling Date ~	18/09/2024	18/09/2024
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Total coliforms	$*	0	cfu/100ml	15320	34
Faecal Coliforms	$*	0	cfu/100ml	187	32.0

2397229, 2397230 - WATER UNKNOWN testing is not accredited

Information in Support of the Analytical Results

Our Ref 24-20161
Client Ref ~ M24-112
Contract ~ Blackburn Meadows, Sheffield

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2397229	BH01 WATER UNKNOWN	18/09/24	GB 1L, GV x2, PB 1L	pH/Cond (1 days)	
2397230	BH03 WATER UNKNOWN	18/09/24	GB 1L, GV x2, PB 1L	pH/Cond (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

***** -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

Certificate of Analysis

Certificate Number 24-23829 *Issued:* 29-Nov-24

Client SOLMEK
Unit 3
Prospect House
Chesterfield
S43 3QE

Our Reference 24-23829

Client Reference ~ M24-112

Order No ~ MID-0409

Contract Title ~ BLACKBURN MEADOWS, SHEFFIELD

Description 3 Water No Information Supplied samples.

Date Received 05-Nov-24

Date Started 05-Nov-24

Date Completed 29-Nov-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. 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 except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

ilac-MRA UKAS TESTING 2139

Summary of Chemical Analysis
Water Samples

Our Ref 24-23829
Client Ref ~ M24-112
Contract Title ~ BLACKBURN MEADOWS, SHEFFIELD

			Lab No	2419269	2419270	2419271
			Sample ID ~	BH01	BH02	BH03
			Depth ~	4.48	4.11	4.48
			Other ID ~			
			Sample Type ~	WATER UNKNOWN	WATER UNKNOWN	WATER UNKNOWN
			Sampling Date ~	16/10/2024	16/10/2024	16/10/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Metals						
Aluminium, Dissolved	DETSC 2306	10	ug/l	39	23	22
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.5	6.1	6.7
Boron, Dissolved	DETSC 2306*	12	ug/l	210	240	200
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.27	0.04	0.17
Calcium, Dissolved	DETSC 2306	0.09	mg/l	81	140	120
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.59	0.32	0.37
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	16	1.0	7.5
Iron, Dissolved	DETSC 2306	5.5	ug/l	54	43	27
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.10	0.16	< 0.09
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	14	9.3	14
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	0.29	0.42
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	38	150	620
Nickel, Dissolved	DETSC 2306	0.5	ug/l	24	9.9	23
Potassium, Dissolved	DETSC 2306	0.08	mg/l	33	32	29
Selenium, Dissolved	DETSC 2306	0.25	ug/l	2.0	0.54	1.7
Sodium, Dissolved	DETSC 2306	0.07	mg/l	82	85	94
Tin, Dissolved	DETSC 2306*	0.4	ug/l	0.8	< 0.4	0.6
Vanadium, Dissolved	DETSC 2306	0.6	ug/l	5.3	3.6	6.7
Zinc, Dissolved	DETSC 2306	1.3	ug/l	140	68	98
Inorganics						
Conductivity	DETSC 2009	1	uS/cm	1050	1400	1420
pH	DETSC 2008		pH	7.6	8.4	7.8
Alkalinity, Bicarbonate as CaCO3	DETSC 2030*	10	mg/l	130	60	90
Biochemical Oxygen Demand, Total	DETSC 2031	1	mg/l	2.7	< 2.0	2.8
Chemical Oxygen Demand, Total	DETSC 2032	10	mg/l	31	130	130
Cyanide, Total	DETSC 2130	40	ug/l	< 40	< 40	< 40
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20	< 20
Cyanide, Complex	DETSC 2130*	40	ug/l	< 40	< 40	< 40
Redox Potential	DETSC 2016*	-500	mV	200	190	190
Ammoniacal Nitrogen as NH4	DETSC 2207	0.0193	mg/l	0.44	11	24
Ammoniacal Nitrogen as NH3	DETSC 2207	0.0183	mg/l	0.42	11	23
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.34	8.8	19
Chloride	DETSC 2055	0.1	mg/l	62	85	130
Nitrate as NO3	DETSC 2055	0.1	mg/l	15	0.98	2.5
Nitrite as NO2	DETSC 2055	0.1	mg/l	1.3	1.8	20
Nitrogen, Total	DETSC 2085*	0.5	mg/l	10	15	27
Sulphate as SO4	DETSC 2055	0.1	mg/l	310	470	330
Sulphide	DETSC 2208	10	ug/l	12	< 10	< 10
Total Organic Carbon	DETSC 2085	1	mg/l	11	49	46
Petroleum Hydrocarbons						

Summary of Chemical Analysis
Water Samples

Our Ref 24-23829
Client Ref ~ M24-112
Contract Title ~ BLACKBURN MEADOWS, SHEFFIELD

			Lab No	2419269	2419270	2419271
			Sample ID ~	BH01	BH02	BH03
			Depth ~	4.48	4.11	4.48
			Other ID ~			
			Sample Type ~	WATER UNKNOWN	WATER UNKNOWN	WATER UNKNOWN
			Sampling Date ~	16/10/2024	16/10/2024	16/10/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	< 10	< 10	< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C5-C35: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	< 10	< 10	< 10
Oils & Fats, Unsaponifiable	*	1000	ug/l	50000	18000	15000
PAHs						
Naphthalene	DETSC 3304	0.05	ug/l	0.11	< 0.05	< 0.50
Acenaphthylene	DETSC 3304	0.01	ug/l	0.17	0.05	0.12
Acenaphthene	DETSC 3304	0.01	ug/l	0.12	0.02	0.28
Fluorene	DETSC 3304	0.01	ug/l	0.15	< 0.01	0.16
Phenanthrene	DETSC 3304	0.01	ug/l	1.8	0.07	0.43
Anthracene	DETSC 3304	0.01	ug/l	0.47	0.09	0.26
Fluoranthene	DETSC 3304	0.01	ug/l	3.7	0.18	1.5
Pyrene	DETSC 3304	0.01	ug/l	3.1	0.18	1.3
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	2.1	0.09	0.58
Chrysene	DETSC 3304	0.01	ug/l	0.92	0.06	0.42
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	2.1	0.13	0.72
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.54	0.05	0.27
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	2.0	0.12	0.58
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.70	0.06	0.34
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	0.14	0.01	< 0.10
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.63	0.05	0.32
PAH Total	DETSC 3304	0.2	ug/l	19	1.2	7.3
Phenols						
Phenol - Monohydric	DETSC 2130	100	ug/l	< 100	< 100	< 100

Summary of Chemical Analysis
Water Samples

Our Ref 24-23829
Client Ref ~ M24-112
Contract Title ~ BLACKBURN MEADOWS, SHEFFIELD

			Lab No	2419269	2419270	2419271
			Sample ID ~	BH01	BH02	BH03
			Depth ~	4.48	4.11	4.48
			Other ID ~			
			Sample Type ~	WATER UNKNOWN	WATER UNKNOWN	WATER UNKNOWN
			Sampling Date ~	16/10/2024	16/10/2024	16/10/2024
			Sampling Time ~	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Subcontracted Analysis						
E. coli	$*	0	n/100ml	0	0	0
Total coliforms	$*	0	u/100ml	50	2	66
Faecal Coliforms	$*	0	n/100ml	2.00	6.00	1.00
Ethylene Glycol	$*	1	mg/l	< 1.0	< 1.0	< 1.0
methanethiol (methyl mercaptan)	$*	0.1	mg/l	<0.1	<0.1	<0.1

2419269, 2419270, 2419271 - WATER UNKNOWN
testing is not accredited

Information in Support of the Analytical Results

Our Ref 24-23829
Client Ref ~ M24-112
Contract ~ BLACKBURN MEADOWS, SHEFFIELD

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2419269	BH01 4.48 WATER UNKNOWN	16/10/24	GB 1L, GV x2, PB 1L	Aliphatics/Aromatics (4 days), Alkalinity (14 days), BOD (2 days), BTEX / C5-C10 (14 days), Chromium, Hexavalent (4 days), Kone (4 days), Kone (Sulphide) (5 days), pH/Cond (1 days), Naphthalene (14 days), Ammoniacal Nitrogen as NH4 (10 days), Ammoniacal Nitrogen as NH3 (10 days), Nitrite as NO2 (5 days), PAH MS (4 days), Cyanide/Mono pHoh (14 days)	
2419270	BH02 4.11 WATER UNKNOWN	16/10/24	GB 1L, GV x2, PB 1L	Aliphatics/Aromatics (4 days), Alkalinity (14 days), BOD (2 days), BTEX / C5-C10 (14 days), Chromium, Hexavalent (4 days), Kone (4 days), Kone (Sulphide) (5 days), pH/Cond (1 days), Naphthalene (14 days), Ammoniacal Nitrogen as NH4 (10 days), Ammoniacal Nitrogen as NH3 (10 days), Nitrite as NO2 (5 days), PAH MS (4 days), Cyanide/Mono pHoh (14 days)	
2419271	BH03 4.48 WATER UNKNOWN	16/10/24	GB 1L, GV x2, PB 1L	Aliphatics/Aromatics (4 days), Alkalinity (14 days), BOD (2 days), BTEX / C5-C10 (14 days), Chromium, Hexavalent (4 days), Kone (4 days), Kone (Sulphide) (5 days), pH/Cond (1 days), Naphthalene (14 days), Ammoniacal Nitrogen as NH4 (10 days), Ammoniacal Nitrogen as NH3 (10 days), Nitrite as NO2 (5 days), PAH MS (4 days), Cyanide/Mono pHoh (14 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial
DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
Aliphatic C5-C6	HS_1D_AL
Aliphatic C6-C8	HS_1D_AL
Aliphatic C8-C10	HS_1D_AL
Aliphatic C10-C12	EH_CU_1D_AL
Aliphatic C12-C16	EH_CU_1D_AL
Aliphatic C16-C21	EH_CU_1D_AL
Aliphatic C21-C35	EH_CU_1D_AL
Aliphatic C5-C35	EH_CU+HS_1D_AL
Aromatic C5-C7	HS_1D_AR
Aromatic C7-C8	HS_1D_AR
Aromatic C8-C10	HS_1D_AR
Aromatic C10-C12	EH_CU_1D_AR
Aromatic C12-C16	EH_CU_1D_AR
Aromatic C16-C21	EH_CU_1D_AR
Aromatic C21-C35	EH_CU_1D_AR
Aromatic C5-C35	EH_CU+HS_1D_AR
TPH Ali/Aro Total C5-C35	EH_CU+HS_1D_Total

Key:

~ Sample details are provided by the client and can affect the validity of the results

***** -not accredited.

-MCERTS (accreditation only applies if report carries the MCERTS logo).

$ -subcontracted.

n/s -not supplied.

I/S -insufficient sample.

U/S -unsuitable sample.

t/f -to follow.

nd -not detected.

End of Report

APPENDIX D

SOLMEK

GAS & GROUNDWATER MONITORING RESULTS

Project number	M24-112
Project name	Blackburn Meadows, Sheffield
Client	SGN
Visit no	1
Date	18/09/2024
Equipment	GFM 435 Gas Analyser
Operator	MM

Weather Conditions	Sunny, damp
Ground Conditions	Damp
Ambient Atmospheric Pressure	1029
Regional Pressure Trend	0

Position	Flow	Pressure	CH4		CO2		O2 (% v/v)	CO (ppm)	H2S (ppm)	Groundwater Level (mbgl)	Depth to Base (mbgl)	Notes
			(% v/v)	GSV (l/hr)	(% v/v)	GSV (l/hr)						
CP01	0.1	1029	0.0	0.0000	0.5	0.0005	17.6	0.0	0.0	5.60	NA	
CP02	0.1	1029	0.0	0.0000	0.2	0.0002	20.6	0.0	0.0	DRY	NA	
CP03	0.1	1029	0.0	0.0000	0.3	0.0003	20.6	0.0	0.0	5.50	NA	
BH06	1.0	1029	0.2	0.0020	0.3	0.0030	9.2	0.0	0.0	3.92	NA	

KEY

CH_4 = Methane, **CO_2** = Carbon Dioxide, **O_2** = Oxygen, **CO** = Carbon Monoxide, **H_2S** = Hydrogen Sulphide, **GSV** = Gas Screening Value (If no flow is recorded a value of 0.1 is assumed), ND = Not Detected, * = not measured, N/A = Not applicable, % = % by volume, mbgl = m below ground level, ppm = parts per million.

SOLMEK

GAS & GROUNDWATER MONITORING RESULTS

Project number	M24-112
Project name	Blackburn Meadows, Sheffield
Client	SGN
Visit no	2
Date	02/10/2024
Equipment	GFM 435 Gas Analyser
Operator	MM

Weather Conditions	Overcast
Ground Conditions	Very Wet
Ambient Atmospheric Pressure	1012
Regional Pressure Trend	#N/A

Position	Flow	Pressure	CH4		CO2		O2 (% v/v)	CO (ppm)	H2S (ppm)	Groundwater Level (mbgl)	Depth to Base (mbgl)	Notes
			(% v/v)	GSV (l/hr)	(% v/v)	GSV (l/hr)						
CP01	0.1	1012	0.0	0.0000	0.2	0.0002	20.5	0.0	0.0	4.50	NA	
CP02	2.3	1012	0.0	0.0000	0.2	0.0046	20.5	0.0	0.0	4.00	NA	
CP03	0.3	1012	0.0	0.0000	0.2	0.0006	20.5	0.0	0.0	4.50	NA	
BH06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Submerged

KEY

CH_4 = Methane, **CO_2** = Carbon Dioxide, **O_2** = Oxygen, **CO** = Carbon Monoxide, **H_2S** = Hydrogen Sulphide, **GSV** = Gas Screening Value (If no flow is recorded a value of 0.1 is assumed), ND = Not Detected, * = not measured, N/A = Not applicable, % = % by volume, mbgl = m below ground level, ppm = parts per million.

SOLMEK

GAS & GROUNDWATER MONITORING RESULTS

Project number	M24-112
Project name	Blackburn Meadows, Sheffield
Client	SGN
Visit no	3
Date	16/10/2024
Equipment	GFM 435 Gas Analyser
Operator	MM

Weather Conditions	Overcast
Ground Conditions	Wet
Ambient Atmospheric Pressure	1015
Regional Pressure Trend	#N/A

Position	Flow	Pressure	CH4		CO2		O2 (% v/v)	CO (ppm)	H2S (ppm)	Groundwater Level (mbgl)	Depth to Base (mbgl)	Notes
			(% v/v)	GSV (l/hr)	(% v/v)	GSV (l/hr)						
CP01	0.1	1015	0.0	0.0000	0.2	0.0002	20.5	0.0	0.0	5.15	9.50	
CP02	0.4	1015	0.0	0.0000	0.1	0.0004	20.3	0.0	0.0	4.95	5.00	
CP03	1.9	1015	0.0	0.0000	0.1	0.0019	20.3	0.0	0.0	4.95	9.35	
BH06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Well Submerged

KEY

CH_4 = Methane, **CO_2** = Carbon Dioxide, **O_2** = Oxygen, **CO** = Carbon Monoxide, **H_2S** = Hydrogen Sulphide, **GSV** = Gas Screening Value (If no flow is recorded a value of 0.1 is assumed), ND = Not Detected, * = not measured, N/A = Not applicable, % = % by volume, mbgl = m below ground level, ppm = parts per million.

APPENDIX E

♣Solmek conditions of offer, notes on limitations & basis for contract (ref: version1/2024)

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2011 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.

Appendix C. Baseline data: minimum and maximum

Table C-1 Maximum and Minimum Soil Contaminant Concentrations

Constituents	Units	Number of Samples	Minimum	Maximum
Metals				
Aluminium	mg/kg	7	3000	17000
Arsenic	mg/kg	9	2.1	14
Cadmium	mg/kg	9	<0.1	4.4
Chromium	mg/kg	9	11	95
Copper	mg/kg	9	5.2	200
Iron	mg/kg	9	12000	92000
Lead	mg/kg	9	6.2	180
Mercury	mg/kg	9	<0.05	0.31
Molybdenum	mg/kg	7	0.8	10
Nickel	mg/kg	9	9.7	110
Selenium	mg/kg	9	<0.5	1.2
Tin	mg/kg	7	<1	900
Vanadium	mg/kg	9	10	110
Zinc	mg/kg	9	18	200
Inorganics				
pH	pH	9	7.8	10
Ammoniacal Nitrogen as N	mg/kg	9	0.74	15
Nitrate as NO3	mg/kg	9	2.3	190
Nitrite as NO2	mg/kg	9	<1	2.3
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	mg/kg	9	<0.01	<0.01
Aliphatic C6-C8: HS_1D_AL	mg/kg	9	<0.01	<0.01
Aliphatic C8-C10: HS_1D_AL	mg/kg	9	<0.01	<0.01

Constituents	Units	Number of Samples	Minimum	Maximum
Aliphatic C10-C12: EH_CU_1D_AL	mg/kg	9	<1.5	<1.5
Aliphatic C12-C16: EH_CU_1D_AL	mg/kg	9	<1.2	<1.2
Aliphatic C16-C21: EH_CU_1D_AL	mg/kg	9	<1.5	<1.5
Aliphatic C21-C35: EH_CU_1D_AL	mg/kg	9	<3.4	16
Aliphatic C35-C40: EH_CU_1D_AL	mg/kg	9	<3.4	<3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	mg/kg	9	<10	16
Aromatic C5-C7: HS_1D_AR	mg/kg	9	<0.01	<0.01
Aromatic C7-C8: HS_1D_AR	mg/kg	9	<0.01	<0.01
Aromatic C8-C10: HS_1D_AR	mg/kg	9	<0.01	<0.01
Aromatic C10-C12: EH_CU_1D_AR	mg/kg	9	<0.9	<0.9
Aromatic C12-C16: EH_CU_1D_AR	mg/kg	9	<0.5	0.6
Aromatic C16-C21: EH_CU_1D_AR	mg/kg	9	<0.6	4.9
Aromatic C21-C35: EH_CU_1D_AR	mg/kg	9	<1.4	36
Aromatic C35-C40: EH_CU_1D_AR	mg/kg	9	<1.4	11
Aromatic C5-C40: EH_CU+HS_1D_AR	mg/kg	9	<10	53
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	mg/kg	9	<10	53
Organics				
DEM (unsaponificated oil and grease)	mg/kg	7	<50	390
Subcontracted Analysis				
Ethylene glycol	mg/kg	7	<10	<10

Constituents	Units	Number of Samples	Minimum	Maximum
Methyl mercaptan	mg/kg	7	<0.1	<0.1

Table C-2 Maximum and Minimum Groundwater Contaminant Concentrations

Constituents	Units	No. of Samples	Minimum	Maximum
Metals				
Aluminium, Dissolved	mg/l	5	<0.01	0.073
Arsenic, Dissolved	mg/l	5	0.0015	0.0068
Cadmium, Dissolved	mg/l	5	0.00004	0.00059
Iron, Dissolved	mg/l	5	0.018	0.099
Lead, Dissolved	mg/l	5	0.0001	0.0038
Mercury, Dissolved	mg/l	5	<0.00001	0.00093
Molybdenum, Dissolved	mg/l	5	0.038	0.48
Selenium, Dissolved	mg/l	5	0.00037	0.0076
Tin, Dissolved	mg/l	5	<0.0004	0.0021
Vanadium, Dissolved	mg/l	5	<0.0006	0.03
Zinc, Dissolved	mg/l	5	0.018	0.14
Inorganics				
pH	pH	5	7	8.5
Ammoniacal Nitrogen as NH4	mg/l	5	0.44	12
Ammoniacal Nitrogen as NH3	mg/l	5	0.42	11
Ammoniacal Nitrogen as N	mg/l	5	0.34	9.2
Nitrate as NO3	mg/l	5	0.4	27
Nitrite as NO2	mg/l	5	0.18	1.8
Petroleum Hydrocarbons				
Aliphatic C5-C6: HS_1D_AL	mg/l	5	<0.0001	<0.0001
Aliphatic C6-C8: HS_1D_AL	mg/l	5	<0.0001	<0.0001
Aliphatic C8-C10: HS_1D_AL	mg/l	5	<0.0001	<0.0001

Constituents	Units	No. of Samples	Minimum	Maximum
Aliphatic C10-C12: EH_CU_1D_AL	mg/l	5	<0.001	<0.001
Aliphatic C12-C16: EH_CU_1D_AL	mg/l	5	<0.001	<0.001
Aliphatic C16-C21: EH_CU_1D_AL	mg/l	5	<0.001	<0.001
Aliphatic C21-C35: EH_CU_1D_AL	mg/l	5	<0.001	<0.001
Aliphatic C5-C35: EH_CU+HS_1D_AL	mg/l	5	<0.01	<0.01
Aromatic C5-C7: HS_1D_AR	mg/l	5	<0.0001	<0.0001
Aromatic C7-C8: HS_1D_AR	mg/l	5	<0.0001	<0.0001
Aromatic C8-C10: HS_1D_AR	mg/l	5	<0.0001	<0.0001
Aromatic C10-C12: EH_CU_1D_AR	mg/l	5	<0.001	0.017
Aromatic C12-C16: EH_CU_1D_AR	mg/l	5	<0.001	0.022
Aromatic C16-C21: EH_CU_1D_AR	mg/l	5	<0.001	0.094
Aromatic C21-C35: EH_CU_1D_AR	mg/l	5	<0.001	0.23
Aromatic C5-C35: EH_CU+HS_1D_AR	mg/l	5	<0.01	0.36
TPH Ali/Aro Total C5-C35: EH_CU+HS_1D_Total	mg/l	5	<0.01	0.36
Oils & Fats, Unsaponifiable	mg/l	5	<1	50
Subcontractor Analysis				
Ethylene Glycol	mg/l	5	<1	50
Methanethiol (methyl mercaptan)	mg/l	4	<0.1	1.2

Appendix D. Plans and drawings

The following Figures are provided in Appendix D:

Figure D-1: Biomethane to Grid Plant Site Layout and Boundary Plan.
Figure D-2: Location of the Biomethane to Grid Plant Boundary Relative to the YWS STF Boundary.
Figure D-3: Indicative Location Plan.
Figure D-4: Location of Shared Services.
Figure D-5: Location of Emission and Transfer Points.
Figure D-6: Indicative Drainage Plan.
Figure D-7: Substances Location Plan.

Figure D-1: Biomethane to Grid Plant Site Layout and Boundary Plan

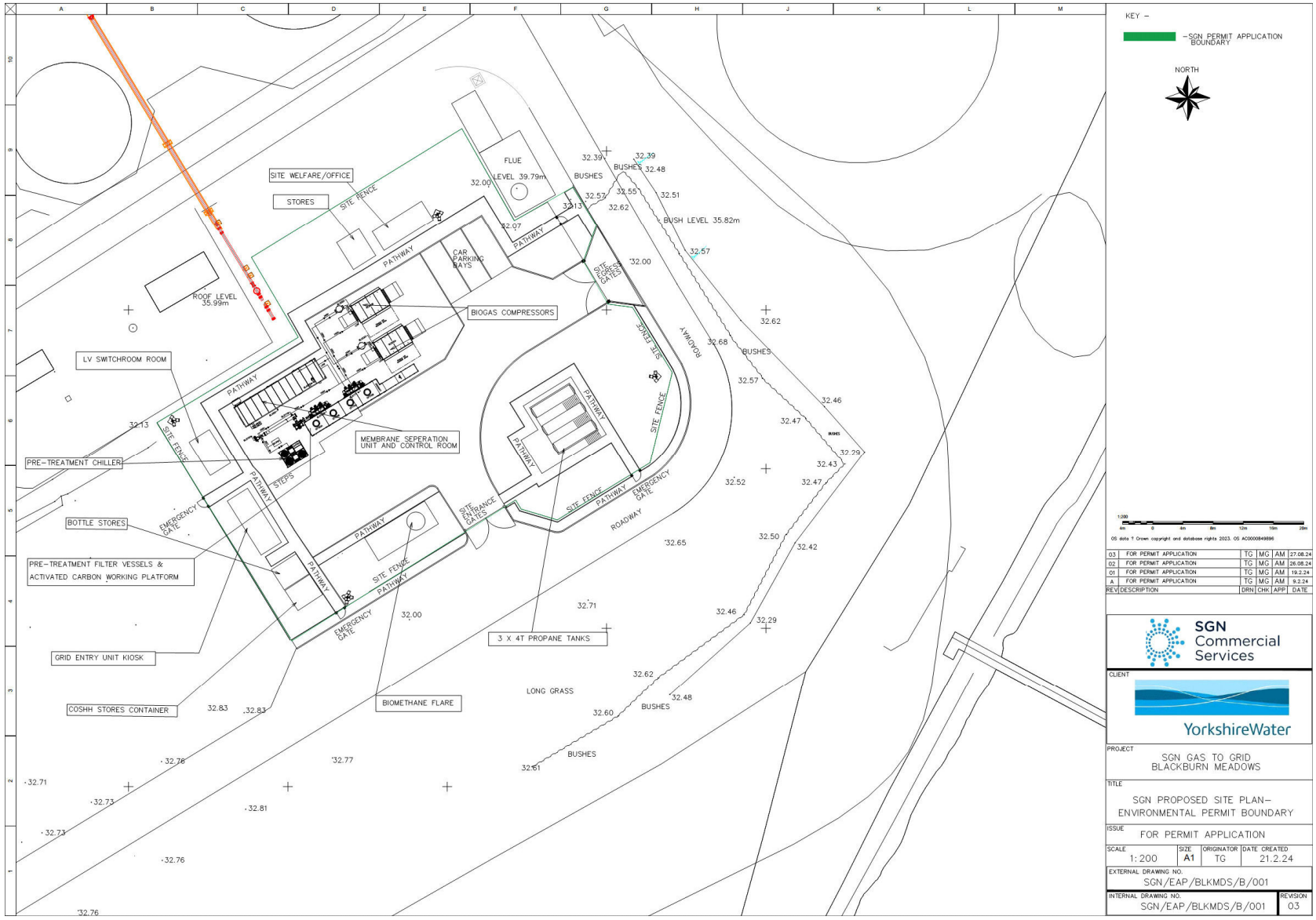


Figure D-2: Location of the BtG Plant Boundary Relative to the YWS STF Boundary

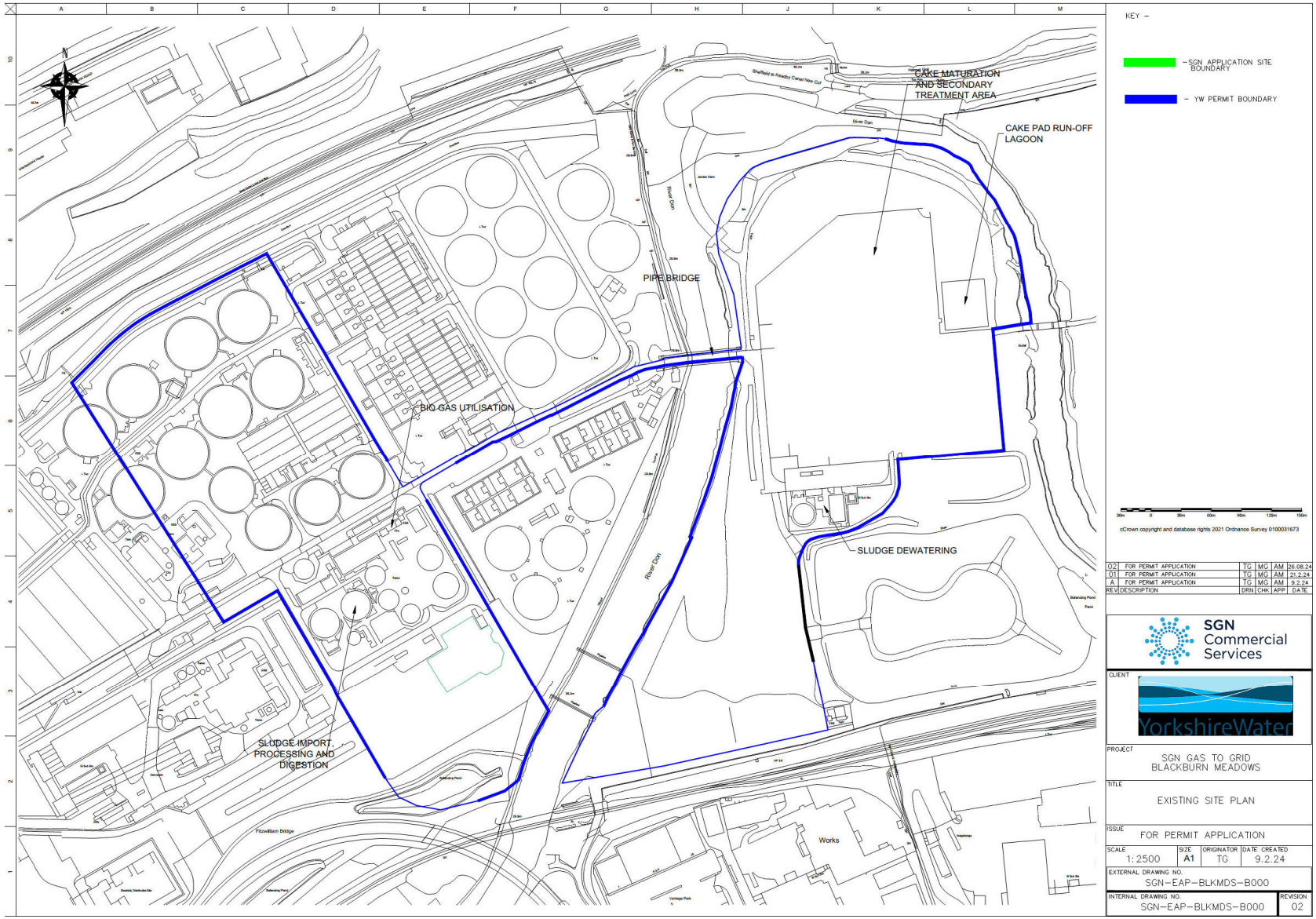


Figure D-3: Indicative Location Plan (Reproduced Courtesy of Yorkshire Water Services)

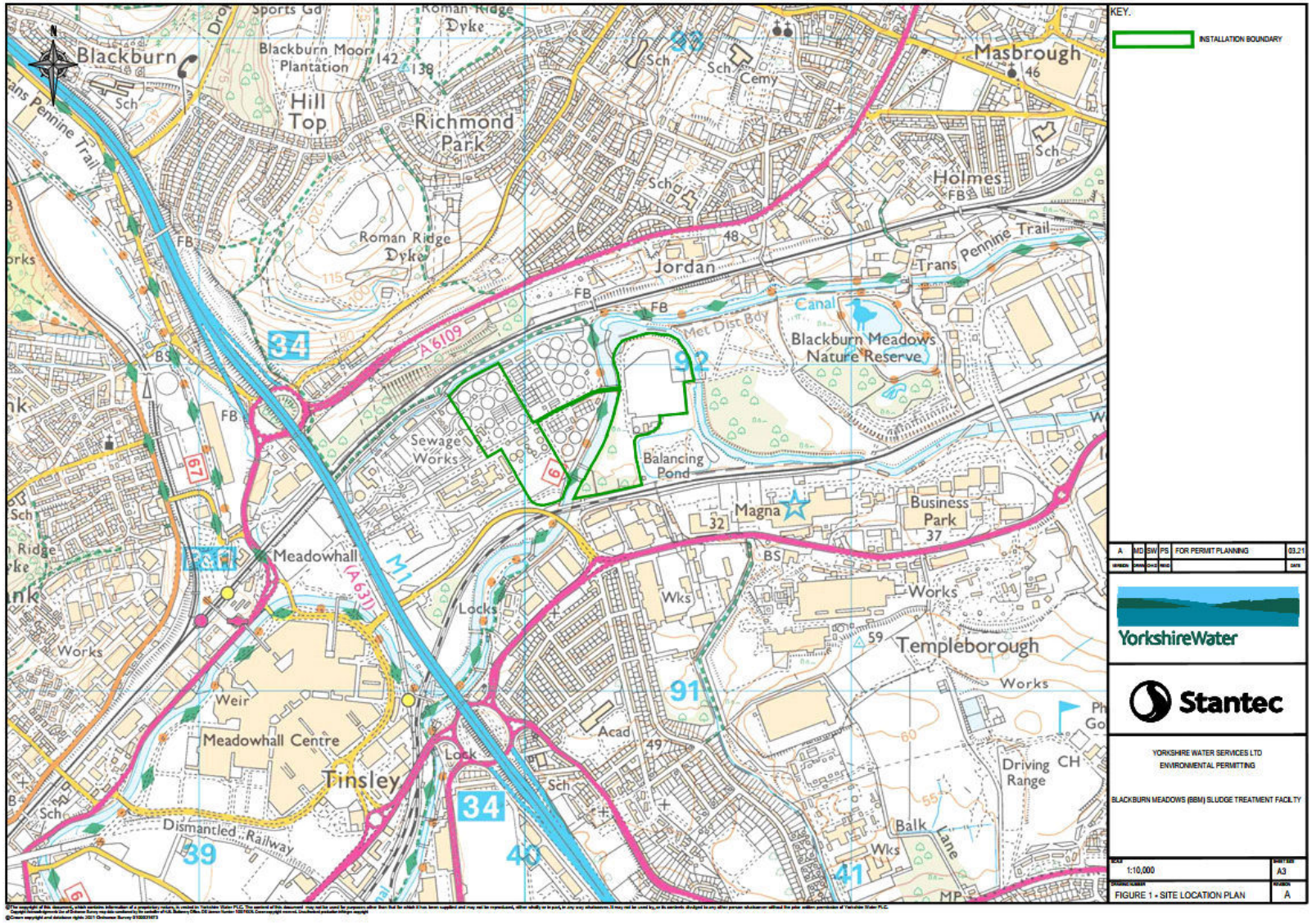


Figure D-4: Location of Shared Services

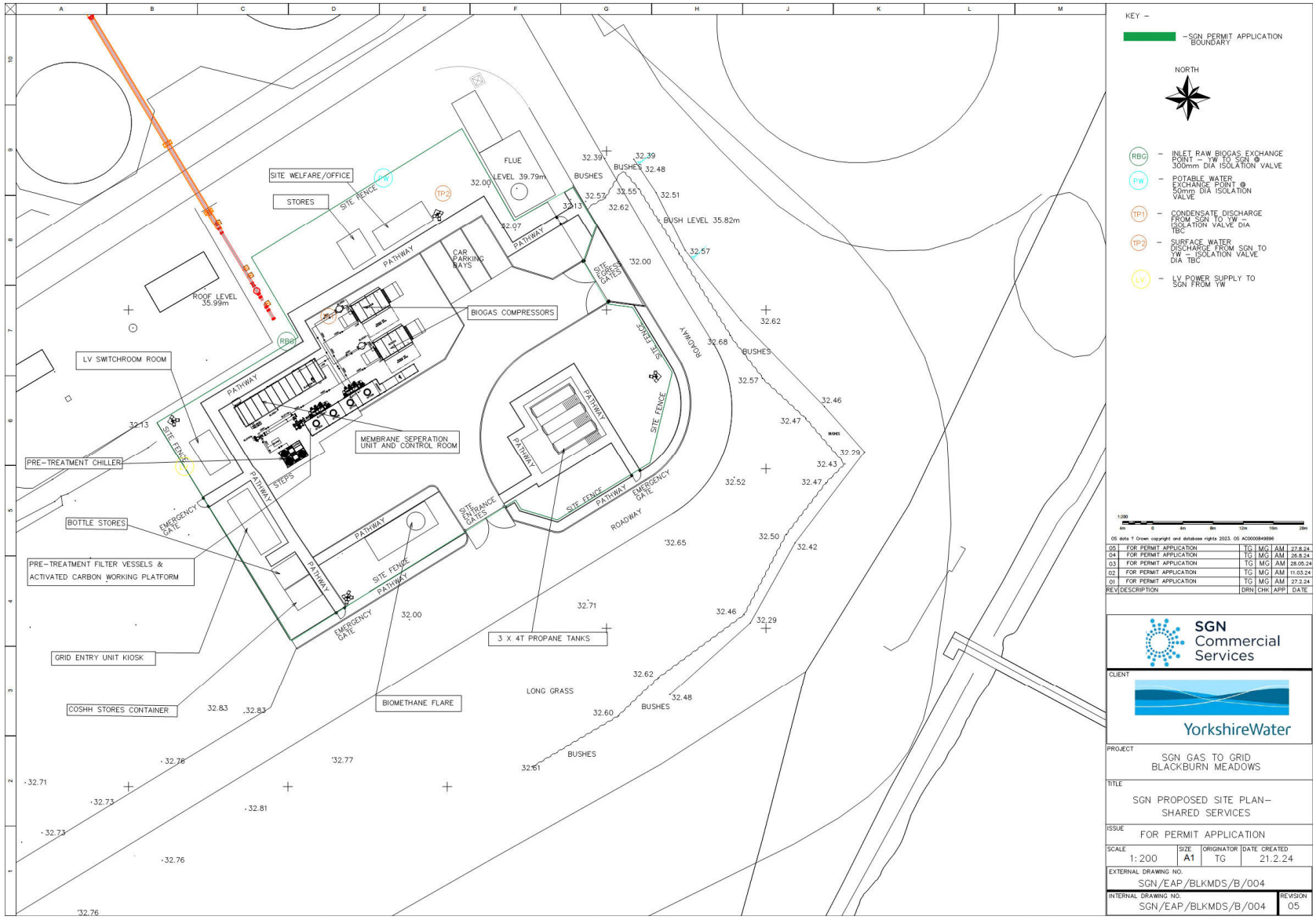


Figure D-5: Location of Emission and Transfer Points

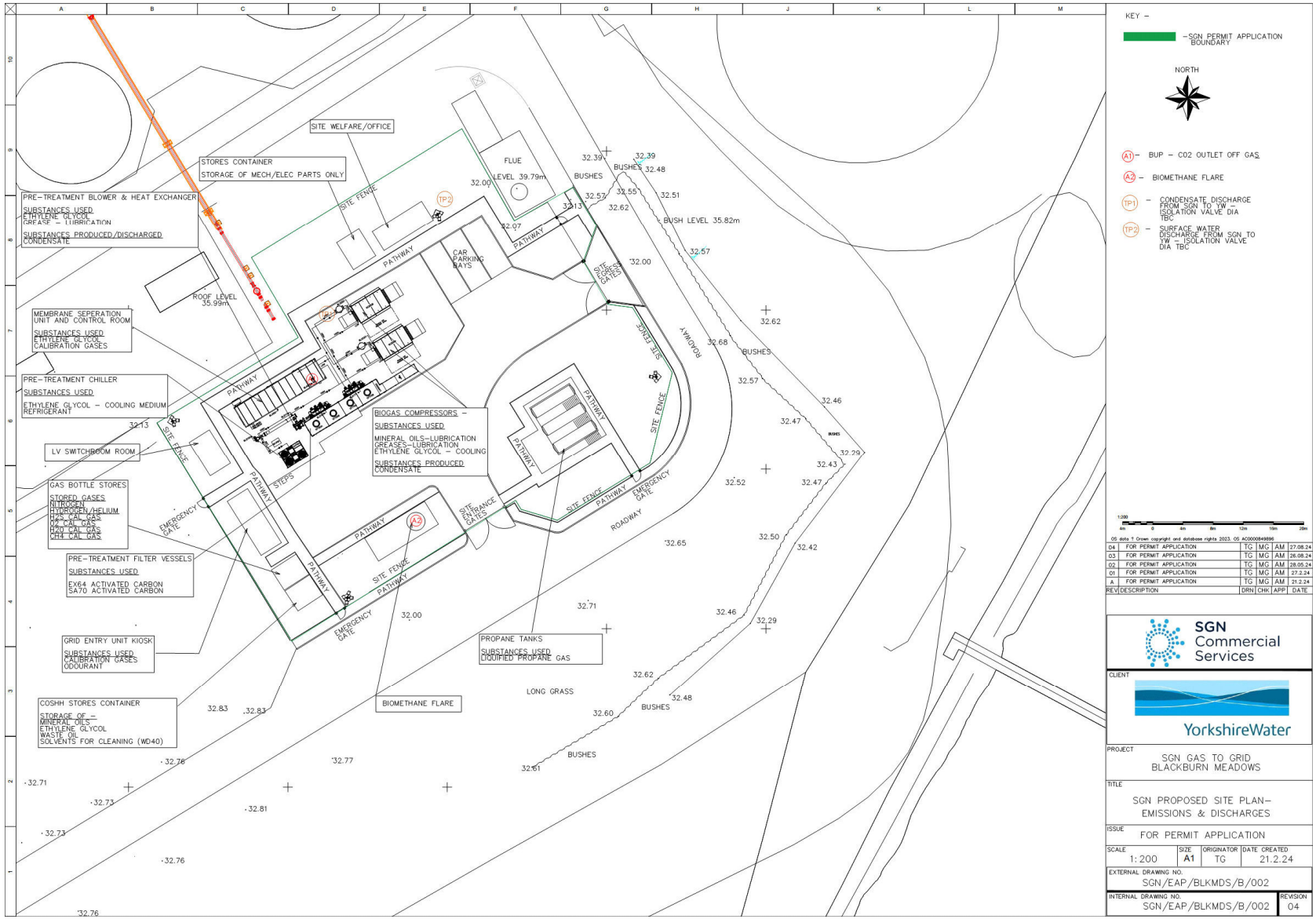


Figure D-6: Indicative Site Drainage Plan

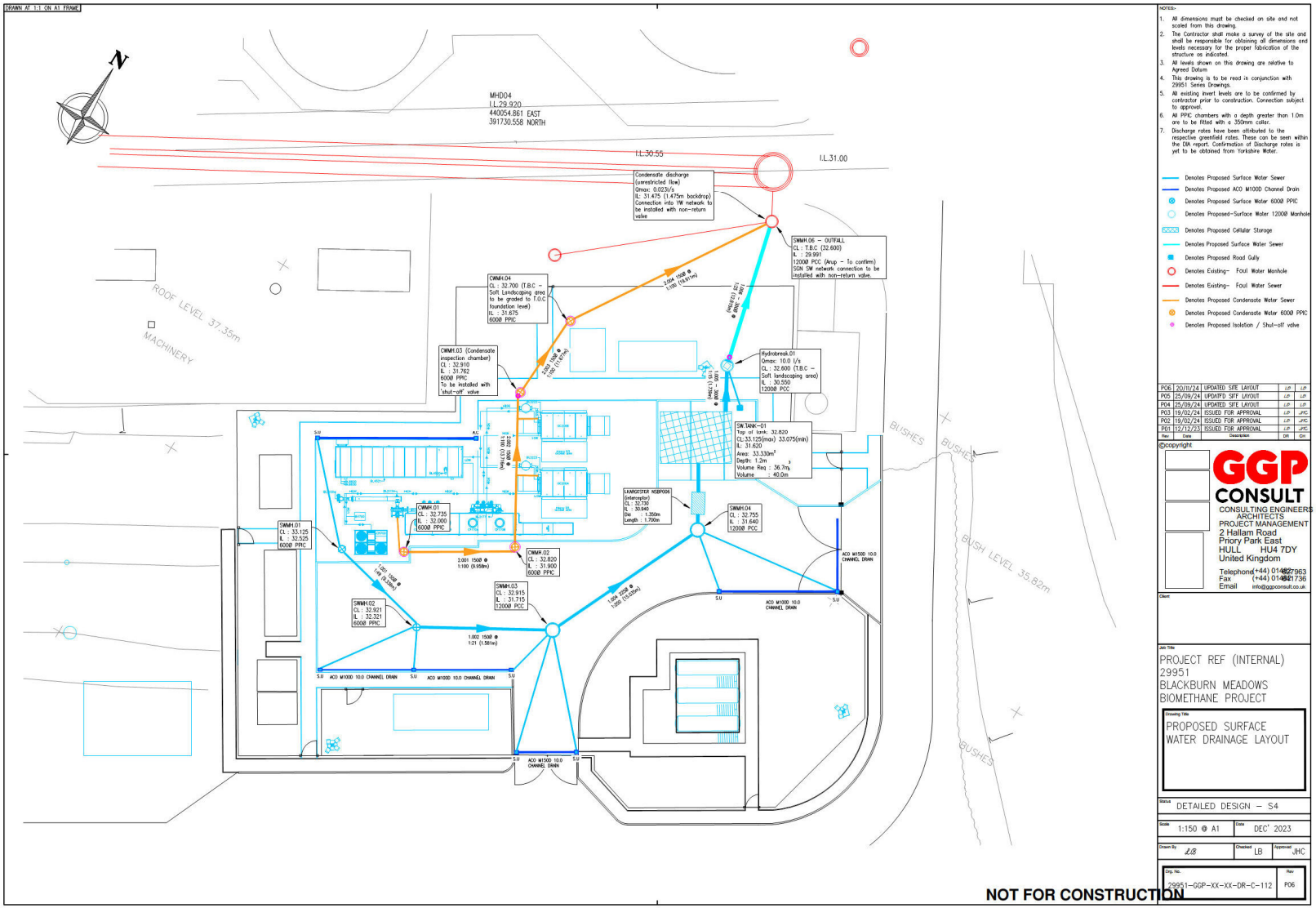
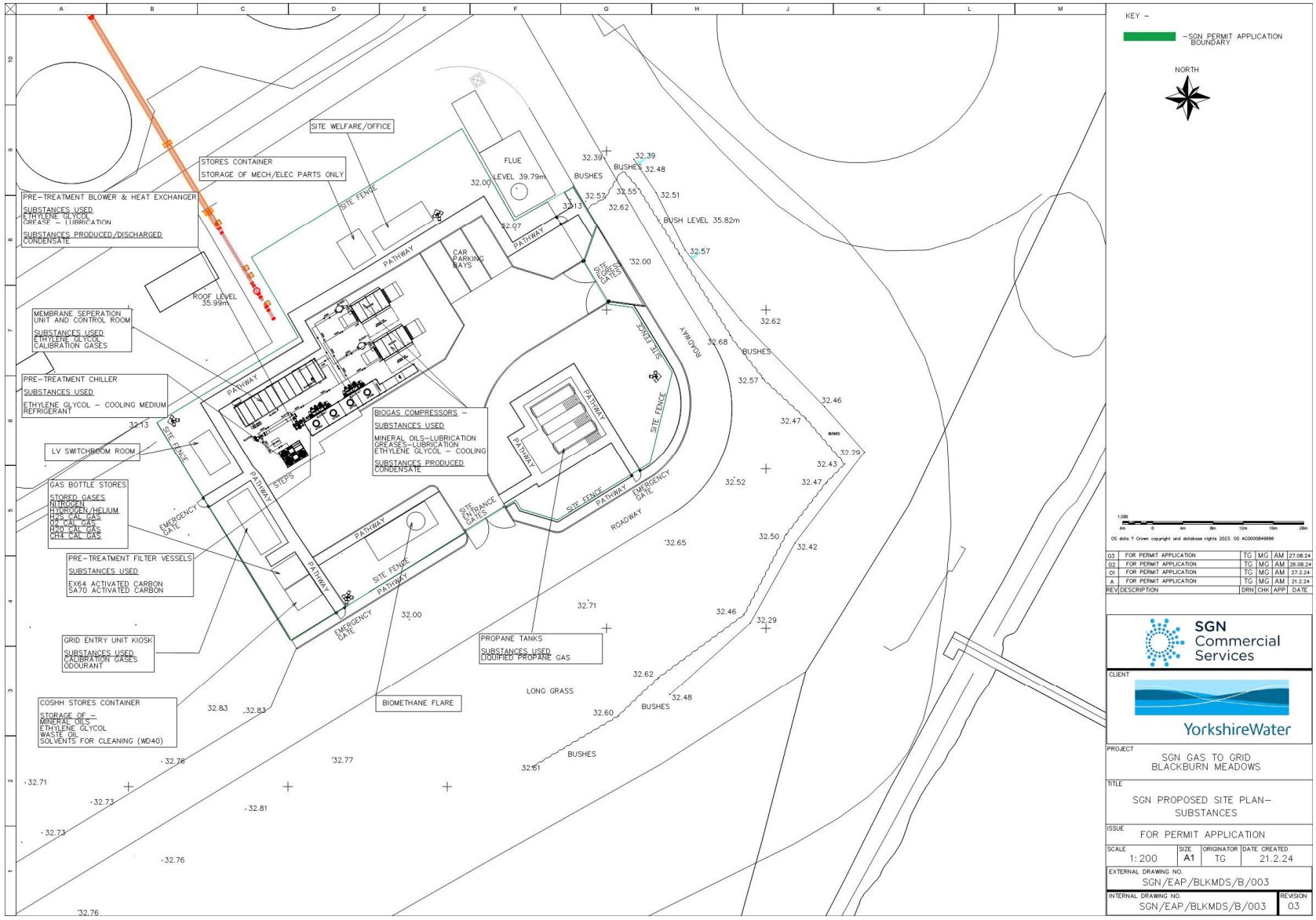


Figure D-7: Substances Location Plan



AtkinsRéalis

Chris Hughes
AtkinsRéalis UK Limited
Chadwick House
Birchwood Park
Warrington
WA3 6AE

Tel: +44 (0)1925 238000
Fax: +44 (0)1925 238500