GeoAssist Limited
Civil, Environmental & Geotechnical

Client:
Renaker Build Limited
1st Floor, NQ Building
47 Bengal Street
Ancoats
Manchester
M4 6BB

Architect/Consultant
Desimone Consulting Engineering
Suite 3, Unit 8
Pennine Industrial Park
Valley Road
Hebden Bridge
HX7 7BZ

Phase II Contaminated Land Risk Assessment

Plot E1 & E2 Great Jackson Street, Manchetser

Unit 4
Sheffield Street
Heaton Norris
Stockport
Cheshire
SK4 1RU

[redacted]

July 2025 **Site Ref: 6180/VTE-CLRA v1.00**

Client:
Renaker Build Limited
1st Floor, NQ Building
47 Bengal Street
Ancoats
Manchester
M4 6BB

Architect/Consultant
Desimone Consulting Engineering
Suite 3, Unit 8
Pennine Industrial Park
Valley Road
Hebden Bridge
HX7 7BZ

Phase II Contaminated Land Risk Assessment

1. Introduction 4
2. Description of the Site 5
2.1 Present 5
2.2 Proposed 5
3. Review Of Previous Reports 7
4. Preliminary Conceptual Model 8
5. Intrusive Investigation 10
5.1 Intrusive Investigation objectives 10
5.2 Intrusive Investigation Strategy 10
5.3 Methods Used for Forming Exploratory Holes 10
5.4 Exploratory Hole Programme 11
5.5 Field Sampling and Testing 11
6. Laboratory Investigation 13
6.1 Contamination Testing 13
7. Subsurface Stratigraphy 15
7.1 Made Ground - MG 15
7.2 Fluvio-Glacial Till - FG 15
7.3 Glacial Till - GT 15
7.4 Weathered Sherwood Sandstone – S1 15
7.5 Sherwood Sandstone – S2 16
7.6 Sherwood Sandstone – S3 16
8. Groundwater 17
9. Ground Gas 19
10. Part IIA Legislation 22
10.1 Assessment Methodology 22
10.2 Soils 23
10.3 Waters 24

10.4 Subsoil Deposits 25
11. Discussion 26
12. Remediation 28
13. Conceptual Model 28
14. Conclusions 30
14.1 Supplementary Recommendations 30

Appendices

A1. Site Plan with Exploratory Hole Locations
A2. Proposed Site Plan
A3. Rockhead Contour Plan
A4. Groundwater Contour Plan
B1. Exploratory Hole Logs
B2. Groundwater Monitoring Plot
B3. Ground Gas Monitoring Results & Risk Assessment
B4. Gas Monitoring Equipment Calibration Certificate
C1. i2 Chemical Test Results - Soils
C2. Analysis of Results with Assessment Criteria - Soils
C3. i2 Chemical Test Results - Groundwater
C4. Analysis of Results with Assessment Criteria - Groundwater

Client:
Renaker Build Limited
1st Floor, NQ Building
47 Bengal Street
Ancoats
Manchester
M4 6BB

Architect/Consultant
Desimone Consulting Engineering
Suite 3, Unit 8
Pennine Industrial Park
Valley Road
Hebden Bridge
HX7 7BZ

Phase II Contaminated Land Risk Assessment

1. Introduction

This report is an account of a Phase II Contaminated Land Risk Assessment carried out by GeoAssist Limited at the request of the Client, Renaker Build Limited, for the proposed re-development of an area of land known as plot Plot E1 & E2 Great Jackson Street, Manchetser (Crown Street Phase III) formerly used for commercial and industrial purposes.

The work was commissioned following acceptance of the quotation and an instruction to proceed issued by the Client, Renaker Build Limited, in 24th March 2025.

The purpose of this Phase II investigation is to provide information following the conclusions of the Preliminary Contaminated Land Risk Assessment report, referenced 6180 /VTE PCLRA and dated July 2025, in order to ensure that the site:

- Is assessed in accordance with the UK government methodology outlined online in Land Contamination Risk Management (LCRM)
- Satisfies the relevant requirements of the National Planning Policy Framework December 2024.
- Is suitable for the intended proposed land use. In this case, as a centrally managed mixed-use development.

The approximate grid reference for the centre of the site is 383310, 397310 and the total area of the site is approximately 4,900m^2. The area of the site scheduled for investigation is outlined with a solid red line on the site plan in Appendix A1. The positions of exploratory holes are also indicated on the plan. The proposed development plan is shown in Appendix A2.

2. Description of the Site

2.1 Present

The site is a brownfield site located on an area of land between Owen Street and Great Jackson Street on the southwestern edge of Manchester City Centre. The site is rectangular in shape and covered by concrete hardstanding over its entirety. There are no buildings on the site and the southern half of the site is presently used as a construction storage yard for the Contour development (Plots F1 & F2) to the south and southeast. A small <1500 litre double bunded diesel tank present in the centre of the site and is used to refuel plant associated with the adjacent construction site. No particular evidence of spillage or leakage has been noted on the ground in the area. Elsewhere, floor slabs and cutoff columns from previous site warehouse uses are evident at locations across the site. The Northern half of the site is presently used as a Padel sports and leisure facility.

The topography of the site is flat and level and meets Owen Street at road level and Great Jackson Street.

The site boundary is formed by a gravel surfaced carpark to the north, Owen Street to the east beyond which is the recently established Deansgate Square development, the ongoing Contour Development to the south and Great Jackson Street to the west beyond which is situated the Renaker Marketing Suite and the recently completed Blade and Three60 developments.

2.2 Proposed

It is understood that the development for Plots E1 & E2 incorporates:

- The demolition and removal of all structures on site.
- Crown Street Phase 3 will be a residential development comprising of four towers totalling circa 1666 apartments. The towers will consist of unitised curtain walling to the main towers with a brick clad podium inclusive of residential space, commercial space, amenity space, landscaping and public realm as well as 2-3 levels of Basement Car Parking. The scope of this report encompasses the development of Towers E1 and E2.
- Tower E1 of Crown Street Phase 3 will provide circa 451 Apartments over circa 46 floors and will utilise a multi-level podium, Residential Amenity, Concierge and residents below ground car parking
- Tower E2 of Crown Street Phase 3 will provide circa 451 Apartments over circa 46 floors and will utilise a multi-level podium, Residential Amenity, Concierge and residents below ground car parking.
- The ground floor will be uses in a commercial capacity with retail units, concierge space, plant rooms and bin stores.

It is understood that the proposed construction will be achieved by removal of the made ground/drift material across the entire site down to, and in to, competent bedrock with foundations formed directly onto the bedrock.

The excavations will be supported by contiguous bored piling around the majority of site area with the contiguous bored piling along the south side of the site already installed as part of the development of Plot F1 Jackson Street. It is anticipated that the majority of the basement foundations will be located below the current groundwater level present within the sandstone bedrock in this area. The foundations for the main structure will also be located below the existing groundwater level.

Preliminary Information supplied by the Clients Engineer indicates that the proposals comprise reinforced concrete raft foundations 2.5m thick for the Tower blocks to be constructed on this site along with a ground floor and 3 basement levels throughout and are summarised below.

Table 2.2 Major Structure Foundation Summary

	Size Nominal	Top of Concrete	Depth of concrete	Formation Level	Notes
E1 & E2 Tower Rafts	47m x 20m E1 & E2 similar	23.20mOD	2500mm	20.70mOD	Raft Foundations for E1 & E2 similar
B3 Podium Level Pads	3m x 3m	23.00mOD	750mm	22.25mOD	
B3 Level Slab	400mm thick	23.60mOD	400mm	23.20mOD	

3. Review Of Previous Reports

The searches undertaken as part of this ground investigation indicate that a previous ground investigation is known to have been undertaken on the site. There are also several other investigations known to have been undertaken in the immediately adjacent areas which have been subject to development in recent years. A reference list of known ground investigations on the site is presented in the table below including a brief description of the main findings.

Reference	Date	Location	Description
RoC Consulting Phase 1 Desktop Study Report DRAFT	June 2017	On site	Phase 1 Desktop Study Report Concluding a Phase II investigation would be required to characterise the site and identify any Pollutant linkages.
RoC Consulting Phase 2 Site Investigation Report FINAL	July 2018	On site	Phase II Investigation and Contaminated Land Risk Assessment for 3x 18 to 32 Storey residential tower blocks with a single level of basement car park. 6 Boreholes were established 3 of which with rotary follow on. Between 0.50 and 2.30m of made ground overlying clay. Weathered Bedrock encountered at 4.00 to 5.00m becoming more competent at 5.25 to 9.38m depth. GW level at 30.55 and 27.37mAOD. PAH and Heavy Metal above Generic Assessment Criteria for Residential with Plant Uptake. Likelihood of a pollutant linkage assessed as Low.

The issues to be covered in the present investigation are to provide information in respect of any potentially unacceptable geo-environmental risks arising from previous on site and off site land uses in the immediate area, including from ground gas, and the potential for sources of contamination to impact both present and future receptors, including:

- Human
- Controlled waters via established pathways
- Property
- Adjoining land and ecological systems

4. Preliminary Conceptual Model

The outline conceptual model has as defined in the Phase I Preliminary Contaminated Land Risk Assessment has been reproduced below. Off Site risks have been identified in order based on distance to the potential source of contaminant risk.

Table 8.1 Preliminary Conceptual model.

Potential Source /Hazard	Nature of Hazard (Risk Level to site given a Commercial end use	Contaminants Associated with Source	Potential Pathway	Potential Receptor
	Previous & Present ON SITE Land uses:			
1. Terraced Housing (potential infilled cellars)	Ground contamination **Low Risk**	TPH Mineral Oils	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low to Moderate Risk**	Low levels of Carbon Dioxide Methane	Vertical and Lateral Migration	Site Users Future Buildings & Services
2. Commercial Warehouse Units	Ground contamination **Low to Moderate Risk**	Heavy Metal PAH	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low Risk**	Methane Carbon Dioxide	Vertical and Lateral Migration	Site Users Future Buildings & Services
	Previous OFF SITE land uses within 250m as indicated by Historical Plans Including:			
3. Fuel Station (shown as garage) Site Redeveloped under Temporary LPA planning permission	Ground contamination **Moderate Risk** Possible UST	TPH Heavy Metals BTEX VOCs	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Moderate Risk**	Hydrocarbon vapours Carbon Dioxide	Vertical and Lateral Migration	Site Users Future Buildings & Services
4. Iron Works & Foundry becomes Automobile Engineering Works then Car Park *Site Redeveloped under LPA planning Framework inc. GI and remediation strategy	Ground contamination **Low to Moderate Risk**	See DoE Profiles	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low to Moderate Risk**	Hydrocarbon vapours Carbon Dioxide Methane	Vertical and Lateral Migration Groundwater Inhalation	Site Users Future Buildings & Services
5. Reservoir & Corporation Yard *Site Redeveloped under LPA planning Framework inc. GI and remediation strategy	Ground contamination **Low Risk**	See DoE Profiles	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low Risk**	None	None	Site Users Future Buildings & Services
6. Timber Yard	Ground contamination **Low Risk**	See DoE Profiles	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low Risk**	None	None	Site Users Future Buildings & Services
7. Cotton Mills	Ground contamination **Low Risk**	See DoE Profiles	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters

Potential Source /Hazard	Nature of Hazard (Risk Level to site given a Commercial end use	Contaminants Associated with Source	Potential Pathway	Potential Receptor
	Gas from in-filled ground **Low Risk**	None	None	Site Users Future Buildings & Services
8. Refuse Heap *Site Redeveloped under LPA planning Framework inc. GI and remediation strategy	Ground contamination **Low Risk**	See DoE Profiles	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low Risk**	None	None	Site Users Future Buildings & Services
9. Others Smithy (small scale) General Engineering Works Warehouses Railway Land Coal Yard	Ground contamination **Low Risk**	Heavy Metals PAHs	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Low Risk**	None	None	Site Users Future Buildings & Services
10. Coal Workings & Brine Extraction	Geotechnical Hazard **Low Risk**	None	Ground Collapse Subsidence	Humans (site users) Future Buildings & Services
	Ground contamination **Low Risk**	None	None	Site Users Services
	Mine Gas **Low Risk**	None	None	Humans (site users) Future Buildings

Only sources that have not been present on site in the past or currently are considered within the off-site category. Unless the information is deemed to be pertinent to the analysis.

5. Intrusive Investigation

5.1 Intrusive Investigation objectives

The objectives of the site investigation are to collect data to confirm whether the soils beneath the site in their current state pose a risk by reason of substances within or under the land that;

- Significant harm is being caused or there is significant possibility of such harm being caused; or
- Pollution of controlled waters is being, or is likely to be, caused.

Data to describe the following parameters has been collected at a suitable spatial resolution in accordance with BS10175, 2015:

- Soil Characteristics including type of material
- Chemical profile of the soil.
- Hydrological regime beneath the site

These data will be used to refine a conceptual site model and confirm the existence of any established pollutant linkages in accordance with the UK government methodology outlined online in Land Contamination Risk Management (LCRM) as well as The Environment Agency Requirements for Land Contamination Reports, 2005 where appropriate.

5.2 Intrusive Investigation Strategy

The ground investigation was carried out in accordance with British Standard 5930: 2015 Code of Practice for Site Investigations and BS BS10175: 2015 Investigation of potentially contaminated sites where relevant.
All fieldwork was supervised by suitably qualified GeoAssist Limited Environmental Engineers.
The geotechnical laboratory testing was carried out at GeoAssist's own laboratory testing facility in Stockport. The analytical testing was carried out in an independent UKAS accredited Laboratory.

5.3 Methods Used for Forming Exploratory Holes

The exploratory holes drilled across the Site as part of this investigation were established using:

- Windowless sampling percussive drilling methods with casing advancement
- Cable percussive drilling methods with casing advancement
- Rotary core drilling methods with casing advancement

Information provided by the Client regarding the position of proposed structures and the final design scheme was used to inform a decision on the actual exploratory hole locations whilst taking account of positions that could be reasonably accessed within an operational construction site and leisure facility. In general, deeper rotary boreholes were used to establish the geotechnical parameters for construction purposes and groundwater levels for environmental monitoring purposes. These exploratory holes were located in positions on or in close proximity to the footprint of the proposed structures. Windowless sampling holes were used in all other areas where the requirement for drilling deep holes into the parent material was not justified. The

location of services was also considered during the positioning of the exploratory holes. A plan showing the locations of the exploratory holes established as part of the investigation forms Appendix A1 to this report.

5.4 Exploratory Hole Programme

In total 10 exploratory holes were established across the Site utilising various exploration techniques as outlined below:

- Five exploratory holes referenced BH1 to BH5 were undertaken by GeoAssist using a light cable percussive rig in the superficial deposits and supplemented by using a rotary rig for proving the bedrock at depth.
- Five exploratory holes WS1 to WS5 were undertaken across the Site using windowless sampling techniques. All of these holes were terminated on the Sandstone Bedrock.
- Hand excavated inspection pits were undertaken at each exploratory hole location using BS 8020 compliant tools in order to avoid services.

The details of the strata in the exploratory holes were recorded by a suitably qualified Professional Engineer. Upon completion the WS series exploratory holes were converted to shallow depth gas monitoring standpipes. Exploratory holes BH1 to BH5 were converted to deeper depth groundwater standpipes sealed into the sandstone bedrock beneath the Site.

All intrusive work was carried out in accordance with:

- British Standard 5930: 2015 Code of Practice for Site Investigations
- British Standard 10175: 2011 where applicable

The fieldwork for all exploratory holes was completed between 4th April 2025 and 28th May 2025 in mainly dry and mild weather conditions. The location of the exploratory holes is shown on the Site plan in Appendix A1.

5.5 Field Sampling and Testing

For the windowless sample exploratory holes, a non-targeted borehole layout supplemented by some judgmental sampling (WS3 opposite vehicle refuelling garage, WS4 and WS1 adjacent to automotive works now redeveloped) was selected as the most appropriate strategy for this site. Representative samples were taken of all the strata encountered in the exploratory holes. Once exposed samples to be subjected to chemical analysis were immediately placed into a suitable container and stored in a cool dark sample box prior to submission to the laboratory to prevent alteration of the composition of the samples. In all cases 500ml wide necked amber glass jars were used with a Teflon faced foamed polyethylene cap liner that offers excellent chemical resistance with the compressibility and sealing properties of polyethylene foam. These containers were filled with sample, sealed and delivered to the laboratory for testing. Samples for volatile compounds were placed into appropriate containers with a screw cap and pierceable septum as supplied by the testing laboratory specifically appropriate to the determinand. These containers were filled with sample sealed and delivered to the laboratory for testing. Water samples for screening purposes were collected following the Site operations and stored in Amber glass bottles with cap liners as described previously. These

containers were filled with water samples, collected in accordance with the guidance referenced in BS5930:2015+A1:2020 and BS ISO 5667-11 2009, sealed and delivered to the laboratory for testing. Observations of groundwater conditions were recorded throughout the fieldwork operations.

All other samples were stored in airtight containers and returned to the laboratory for examination and geotechnical testing where necessary.

A photo ionisation detector (PID) was used as a screening tool to indicate the likelihood of the presence of volatile organic compounds during the fieldwork and in the laboratory. The results are included in section 6.2 of this report only where readings in excess of 20ppm were monitored.

6. Laboratory Investigation

6.1 Contamination Testing

In total 13 (10 soil and 3 groundwater) samples were collected and subjected to elements of the suite of chemical testing as outlined below. All tests were conducted by i2 Analytical under UKAS Testing No 4041. The results of all the chemical analysis tests are given in appendix C1 & C3.

Soils		Waters	
Arsenic	Acenaphthene	Arsenic	Acenaphthene
Boron (water-soluble)	Acenaphthylene	Boron (water-soluble)	Acenaphthylene
Cadmium	Anthracene	Cadmium	Anthracene
Chromium	Benzo(a)Anthracene	Chromium	Benzo(a)Anthracene
Chromium VI	Benzo(a)Pyrene		Benzo(a)Pyrene
Copper	Benzo(b/k)Fluoranthene	Copper	Benzo(b/k)Fluoranthene
Cyanide(Total)	Benzo(ghi)Perylene	Cyanide(Total)	Benzo(ghi)Perylene
Cyanide(free)	Chrysene		Chrysene
Lead	Dibenzo(ah)Anthracene	Lead	Dibenzo(ah)Anthracene
Mercury	Fluoranthene	Mercury	Fluoranthene
Nickel	Fluorene	Nickel	Fluorene
pH	Indeno(123-cd)Pyrene	pH	Indeno(123-cd)Pyrene
Phenols(Mono)	Naphthalene	Phenols(Mono)	Naphthalene
Selenium	Phenanthrene	Selenium	Phenanthrene
SO4(Total)	Pyrene	SO4(Total)	Pyrene
Sulphide	BTEX & MTBE	Sulphide	Speciated TPH
Sulphur(Free)	Speciated TPH	Zinc	BTEX & MTBE
Zinc	SVOCs		SVOCs
Asbestos ID (screen)	VOCs		VOCs

6.2 Exploratory Holes and Associated Sampling.

A photo ionisation detector (PID) with a 10.6eV lamp was used as a screening tool to indicate the likelihood of the presence of volatile organic compounds throughout the profile of the soils and rock in the laboratory. The PID results are all given as isobutylene equivalents and are included within Table 6.2.

Table 6.2 Summary of Peak PID profiling within WS series exploratory holes with 100% isobutylene equivalent conversion to Toluene (contaminant of concern) as indicated by previous investigations on adjacent sites and the results of analytical testing on water samples from this ground investigation.

Ref	Depth (m)	Isobutylene Equiv. (ppm)	Gasoline 95octane CF 10.6eV (ppm)	TWA PEL 8hrs. (ppm)
		1	1.0 to 1.2	300
WS3	2.00	24.1	24 to 30	

The results of the exploratory hole Peak PID testing confirmed that levels of volatile contaminants were low across the site. The highest readings being recorded in WS3 at 2.00m depth. The readings were not considered indicative of a wider VOC issue. Nonetheless soil samples from 1.50m depth and 2.00m depth in WS3 were submitted for speciated TPH, BTEX, MTBE, and in the case of the 2.00m depth sample SVOC and VOC analysis.

7. Subsurface Stratigraphy

The subsoil profile obtained from the exploratory holes consists of made ground over sandy gravel with cobbles (Fluvio Glacial Till) in parts over gravelly sandy silty clay (Glacial Till) with irregular horizons of very silty clay (Glaciolacustrine Clay) over sandstone bedrock (Sherwood Sandstone).

Table 7.0 Conceptual Ground Model

Strata	Depth of Strata (m) below ground level	
	Top	Base
Made Ground - **MG** Concrete/Tarmac Hard standing over generally granular material	Ground Level	1.30 to 3.40
Fluvio Glacial Till - **FG** Sandy Gravels with cobbles Absent in BH1, BH2 and BH5. WS1 and WS3	1.00 to 2.40	2.10 to 2.80
Glacial Till - **GT** Clay with sands and gravels	1.90 to 2.80	4.70 to 6.20
Glacial Till – **LGT** Glaciolacustrine Clay with silt inclusions	0.50 to 2.00m thick within Glacial Till – GT Present in BH4, WS4 and WS5	
Sherwood Sandstone Weathered to Silty Sand/Sandstone - **S1** WS1 to WS5 terminate in S1	4.00 to 6.20	7.10 to 7.80
Sherwood Sandstone – Weak to moderately week Sandstone – **S2**	7.10 to 7.80	26.00 to 27.80
Sherwood Sandstone – Moderately Weak more competent Sandstone – **S3**	26.00 to 27.80	>45.40

7.1 Made Ground - MG

The made ground consists generally of hard standing over sandy gravel, brick rubble and concrete fragments with cinders and random building debris and varies from very loose to medium dense in state of compaction.

7.2 Fluvio-Glacial Till - FG

Loose to medium dense sandy Gravel with cobbles was penetrated in the majority of the exploratory holes. The diameter of the drilling precludes the recovery of large cobbles, and it might reasonably be expected that larger cobbles would be present within this stratum.

7.3 Glacial Till - GT

Gravelly sandy silty Clay of low plasticity and varying from 1.50m to 4.50m in thickness was penetrated at the base of the Fluvio-Glacial Till and above the weathered sandstone in all of the exploratory holes.

7.4 Weathered Sherwood Sandstone – S1

All of the windowless sampled and light cable tool percussive holes penetrated the made ground and superficial deposits and were terminated in the sandstone bedrock encountered at depths between 4.00m and 6.20m. This upper zone of the sandstone bedrock is generally weathered to a very dense silty sand for several metres.

7.5 Sherwood Sandstone – S2

The upper Sherwood Sandstone is generally weak to moderately weak in strength, thickly laminated with bedding around 10 to 15 degrees to the horizontal and generally with sub horizontal fracture spacing up to 350mm as observed in the cores. Occasional subvertical fracturing was noted within the S2 sandstone.
The sandstone contains random rounded gravel bands and rare marl gravel/pellets/lenses.
The assessment of the spacing of fractures in cores is open to interpretation due to induced fractures during the drilling process and incipient fractures along weak bedding planes.

7.6 Sherwood Sandstone – S3

The lower Sherwood Sandstone is moderately weak in strength. The sandstone contains random rounded gravel bands and rare marl gravel/pellets and lenses.

Further details of the subsurface stratigraphy can be found in the exploratory hole log sheets which form Appendix B1 to this report.

8. Groundwater

Seepage groundwater was noted to be present in WS1, WS3, and WS4 at depths between 2.40m and 1.50m (29.7 and 31.1 mAOD minimum and maximum) during the course of the fieldwork. Groundwater did not develop by the time boring was completed. Where groundwater was encountered within the WS series holes it was perched above the very low permeability natural Glacial Till deposits. Subsequent spot monitoring of groundwater levels spanning a period from 30th April 2025 to 10th July 2025 in the installations at WS1 to WS5 confirm the upper perched groundwater levels to range between 27.7mAOD and 30.8mAOD in the superficial deposits.

Groundwater was encountered in the Sandstone Bedrock at levels between 23.4mAOD and 24.9mAOD during the course of the fieldwork. Groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken. Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Subsequent monitoring of groundwater levels spanning a period from 30th April 2025 to 03rd July 2025 (10th July in the case of spot readings) in the standpipe installations at BH1 to BH5 confirm the groundwater levels to range between 23.3mAOD to 23.9mAOD in the sandstone bedrock. The readings obtained are considered to be generally representative of the steady state groundwater levels across the site. For use in design the groundwater levels obtained from the longer term post drilling monitoring are used in preference to those obtained during drilling operations.

Table 8.0 Groundwater observation summary showing the lowest and highest levels recorded during the field work and the subsequent monitoring period.

High Resolution Groundwater Monitoring (Lower) Sandstone Aquifer						
	BH1	**BH2**	**BH3**	**BH4**	**BH5**	**Combined**
Minimum (mAOD)	23.565	23.576	23.749	23.590	23.466	23.466
Corresponding Date & Time	08/06/2025 18:00	14/05/2025 16:00	08/06/2025 18:00	14/05/2025 16:00	08/06/2025 18:00	08/06/2025 18:00
Maximum (mAOD)	23.708	23.860	23.893	23.873	23.610	23.893
Corresponding Date & Time	12/06/2025 12:00	08/05/2025 18:00	26/06/2025 12:00	06/05/2025 18:00	05/06/2025 10:00	08/05/2025 18:00
Differential (m)	0.143	0.284	0.144	0.284	0.144	0.428
Ground level (mAOD)	31.898	32.633	32.901	32.536	32.078	Not Applicable

Spot Groundwater Monitoring (Lower) Sandstone Aquifer						
	BH1	**BH2**	**BH3**	**BH4**	**BH5**	**Combined**
During Drilling	23.498	23.533	23.701	23.436	24.878	
30/04/2025		23.643		23.606		
29/05/2025	23.678		23.801		23.528	
12/06/2025	23.708	23.743	23.831	23.736	23.568	
04/07/2025	23.678	23.703	23.781	23.686	23.528	
10/07/2025	23.648	23.683	23.771	23.666	23.498	
***Minimum (mAOD)**	23.678	23.643	23.801	23.606	23.267	23.267
Corresponding Date & Time	29/05/2025	30/04/2025	29/05/2025	30/04/2025	29/05/2025	29/05/2025
***Maximum (mAOD)**	23.708	23.743	23.831	23.736	23.307	23.831
Corresponding Date & Time	12/06/2025	12/06/2025	12/06/2025	12/06/2025	12/06/2025	12/06/2025
Differential (m)	0.030	0.100	0.030	0.130	0.040	0.564
Ground level (mAOD)	31.898	32.633	32.901	32.536	32.078	Not Applicable

Spot Groundwater Monitoring (Upper) Perched Water Table						
	WS1	**WS2**	**WS3**	**WS4**	**WS5**	**Combined**
During Boring	29.702		31.058	30.038		
30/04/2025	29.402		30.458	28.038		
13/05/2025	29.402		30.458	28.038	27.761	
12/06/2025	29.902		30.808	28.188	27.811	
04/07/2025	29.752		30.668	28.038		
10/07/2025	29.752		30.658	28.138	28.881	
***Minimum (mAOD)**	29.402	-	30.458	28.038	27.761	27.761
Corresponding Date & Time	30/04/2025		30/04/2025	30/04/2025	13/05/2025	13/05/2025
***Maximum (mAOD)**	29.902		30.808	28.188	27.811	30.808
Corresponding Date & Time	12/06/2025		12/06/2025	12/06/2025	12/06/2025	12/06/2025
Differential (m)	0.500		0.350	0.150	0.050	3.047
Ground level (mAOD)	32.102	32.578	32.558	32.038	32.611	Not Applicable

***Excludes During Drilling and Boring**

The results from the recent high resolution monitoring of groundwater levels across the Site forms appendix B2 to this report.

9. Ground Gas

The preliminary risk assessment by GeoAssist Limited indicated the potential for the presence of ground gas from historical infilled ground both on the site and within 250m of the site boundary. Data obtained from this ground investigation (April and May2025) and ground gas monitoring risk assessment confirm that no landfill has been identified on the site and only limited areas of relatively shallow made ground with limited potential to produce ground gas have been identified on the site.

Ground gas monitoring pipes were installed in exploratory holes WS1 to WS5 and gas monitoring has been carried out over a period of 3 months and has incorporated periods of low and falling pressure in accordance with best practice guidance.

The ground gas monitoring protocol used by GeoAssist follows standard practice and measures flow rates followed by gas concentrations. The gas concentrations are measured by pumping for 90 seconds followed by a 5 second stabilization period. Once readings have been logged the instrument is then purge pumped in atmosphere for the same period. The gas analysis equipment is manufactured by Gas Data Limited and is serviced and maintained at the manufacturers recommended intervals and calibrated every 12 months.

Analysis of the gas monitoring data collected from the installations show that the following regime has been identified at the site as follows:

1) Upper deposits including made ground and natural superficial deposits of Boulder Clays and Sand with no measured concentrations of Methane, and very low concentrations of Carbon Dioxide with steady flow rates below the limit of detection for the instrument (0.1l/hr).

Analysis of the gas monitoring data recorded from the installations show that Carbon Dioxide has been detected at levels between 0.0 and 3.7 % v/v within the exploratory holes. Peak CO2 levels were detected in WS5 during the monitoring readings undertaken on the 29/05/2025. Methane, Hydrogen Sulphide and Carbon Monoxide have not been detected during the monitoring period. No positive gas flow rates from the installations have been recorded during the monitoring period. The combined worst-case Gas Screening Values (GSVs) in accordance with Ciria C665 are calculated at less than 0.004 across the site.

The Characteristic Situation is assessed to be CS1 for the site. Consequently, no special precautions are required to mitigate against the risk from ground gas in accordance with Ciria C665.

The ground gas monitoring readings are summarised in Appendix B3 along with the gas risk assessment. The gas monitoring equipment calibration certification covering the period of monitoring is presented in Appendix B4.

A review of the protective measures necessary based on the monitoring results using the BS8485: 2015 methodology is presented below:

		BS8485: 2015				
Building Type	**Ciria R149 Characteristic Situation**	**Protection Req'd Score**	**Structural Barrier Obtained Score**	**Ventilation Obtained Score**	**Gas protection Obtained Score**	**Total Score**
Type C	CS1	0	2	4	0	6
Commercial/public with full and managed control of structural alterations, ventilation			Basement Floor and Walls, Grade 2 Waterproofing	Ventilated car park (floor slab of occupied part of the building under consideration is underlain by Multiple levels of basement or under croft carpark)		6>0 Therefore measures acceptable

BS8485: 2015 measures indicate that the development as designed is sufficiently adequate to protect from the very low risk of ground gas at this site.

Table 2 from BS 8485 - 2015 CS by site characteristic GSV reproduced below

Table 2 **CS by site characteristic GSV**

CS	Hazard potential	Site characteristic GSV [A)] L/h	Additional factors
CS1	Very low	<0.07	Typically <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	0.07 to <0.7	Typical measured flow rate <70 L/h (otherwise consider an increase to CS3)
CS3	Moderate	0.7 to <3.5	–
CS4	Moderate to high	3.5 to <15	–
CS5	High	15 to <70	–
CS6	Very high	>70	–

[A)] The figures used in this column are empirical.

NOTE The CS is equivalent to the characteristic GSV in CIRIA C665 [6].

Table 4 from BS 8485 - 2015 Gas Protection score by CS and Type of Building reproduced below

Table 4 **Gas protection score by CS and type of building**

CS	Minimum gas protection score (points)			
	High risk		Medium risk	Low risk
	Type A building	Type B building	Type C building	Type D building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5[A)]	5.5[A)]	4.5	3.5
5	—[B)]	6.5[A)]	5.5	4.5
6	—[B)]	—[B)]	7.5	6.5

[A)] Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.
[B)] The gas hazard is too high for this empirical method to be used to define the gas protection measures.

Table 8.6 Ciria 665 Typical scope of gas protection measures.

Table 8.6 *Typical scope of protective measures (risk management)*

Characteristic situation	Residential building (Not low-rise traditional housing)[1]		Office/commercial/industrial development	
(From Table 8.5)	Number of levels of protection	Typical scope of protective measures	Number of levels of protection	Typical scope of protective measures
1	None	No special precautions	None	No special precautions
2	2	a) Reinforced concrete cast *in situ* floor slab (suspended, non-suspended or raft) with at least 1200 g DPM[9] and underfloor venting b) Beam and block or pre-cast concrete and 2000 g DPM/ reinforced gas membrane and underfloor venting All joints and penetrations sealed.	1 to 2	a) Reinforced concrete cast *in situ* floor slab (suspended, non-suspended or raft) with at least 1200 g DPM[9] b) Beam and block or pre cast concrete slab and minimum 2000 g DPM/reinforced gas membrane c) Possibly underfloor venting or pressurisation in combination with a) and b) depending on use All joints and penetrations sealed.
3	2	All types of floor slab as above. All joints and penetrations sealed. Proprietary gas resistant membrane and passively ventilated or positively pressurised underfloor sub-space.	1 to 2	All types of floor slab as above. All joints and penetrations sealed. Minimum 2000 g/reinforced gas proof membrane and passively ventilated underfloor sub-space or positively pressurised underfloor sub-space

10. Part IIA Legislation

Part IIA of the Environmental Protection Act 1990 (inserted by Section 57 of the Environment Act 1995) provides a new regime for the control of specific threats to health or the environment from existing land contamination. In accordance with the Act and the statutory guidance document on The Contaminated Land (England) Regulations 2000, the definition of contaminated land is intended to embody the concept of risk assessment. Within the meaning of the Act, land is only "contaminated land" where it appears to the regulatory authority, by reason of substances within or under the land that

- Significant harm is being caused or there is significant possibility of such harm being caused; or
- Pollution of controlled waters is being, or is likely to be, caused.

The guidance defines "risk" as the combination of

- The probability, or frequency, of occurrence of a defined hazard (for example, exposure of a property to a substance with the potential to cause harm); and
- The magnitude (including the seriousness) of the consequences.

For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

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

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

10.1 Assessment Methodology

In order to assess the environmental risk posed by potential contaminants within the near surface soils and considering the final levels of the scheme, GeoAssist Limited undertook an initial screen of the laboratory results using GeoAssist Limited Generic Assessment Criteria (GACs) and where applicable Category 4 Screening Levels as given as part of Appendix C2.

The GeoAssist Limited GACs and Category 4 Screening levels (C4SLs herein) are generated in consideration of the proposed end use of the Site, in this case as commercial land. Contaminant concentrations below the GACs and or C4SLs levels are considered not to warrant further risk assessment. Concentrations of potential contaminants above the GACs and C4SLs levels require further consideration of the potential pollutant linkages. It should be noted that exceedance of the GACs and or C4SLs levels does not necessarily mean that the Site requires remediation, although this is dependent on the nature, type and depth of the contaminant and further justification may be required.

10.2 Soils

For assessment of the soil analysis results with regard to potential human health risks, GeoAssist Limited GACs are selected from the following sources which represent minimal risk to site users:

CLEA Soil Guideline Values (SGVs). These values have been developed by the Department of the Environment, Food and Rural Affairs (DEFRA) and the Environment Agency (EA) using the Contaminated Land Exposure Assessment (CLEA) Model, and are considered to be protective of human health (considered to be a potential receptor on site). To date, SGVs have been published for only a limited suite of contaminants, with SGVs derived for each contaminant for three different land use scenarios namely:

- residential
- allotments
- commercial and industrial.

The proposed assessment of this site is as commercial land as this is considered to be the most appropriate land use scenario for the proposed situation on site given the managed residential element of the development and the commercial ground floor situation.

Chartered Institute of Environmental Health Generic Assessment Criteria (LQM CIEH GAC) have been used where available and where CLEA SGVs have not yet been published.

Where CLEA or LQIM CIEH GAC values are not available, Atkins at Risk GAC values have been selected as appropriate all of which represent a minimal risk to receptors.

C4SLs have been used in conjunction with the above GAC and these represent a Low Level of Toxicological Concern (LLTC herein). LLTC represent an intake of low concern that remains suitably protective of health, and definitely does not approach an intake level that could be defined as Significant Possibility of Significant Harm.

The CLEA guidelines state that for each contaminant, apart from lead, the upper 95th percentile of the mean measured concentration should be calculated where appropriate and this value should be compared to the applicable screening value (defined here as the GeoAssist Limited GACs).

For Lead impacts the geometric mean should be calculated and compared to the GAC or C4SL.

The CLEA model states that, ‘the contamination is assumed to be at or within 1 m of the surface (CLR10 page 10 now withdrawn). It is considered that at depths greater than 1m, the probability of human exposure via the direct contact pathways are significantly reduced, leaving inhalation of volatile compounds as the dominant pathway. Typically, volatile compounds only significantly affect the indoor inhalation pathway.

10.3 Waters

The controlled waters risk assessment has been conducted in accordance with the risk assessment methodology presented in the Environment Agency Document titled Remedial Targets Methodology – Hydrological Risk Assessment for Land Contamination and dated October 2006.

The method presents three levels of assessment. For each successive level of assessment, more site-specific data are required to refine the model. It should be noted that statistical analysis of chemical analysis results using this method is not accepted. A level I assessment has been conducted for this site.

A summary of the levels is presented below:

Table 10.3.1 Remedial Targets Workbook levels

Level	Summarised Description
I (one)	Considers the impact of contaminant concentrations ignoring dilution, dispersion and attenuation, This level of assessment is based on the following generic screening criteria: 1. Groundwater Threshold Values 2. Environmental Quality Standards (EQS) 3. UK Drinking Water Standards (UK DWS) 4. World Health Organisation Drinking Water Guidelines (WHO DWS)
II (two)	Considers the effect of dilution by controlled water directly beneath the Site using site specific data.
III (three)	Considers the risks when natural attenuation including degradation, dispersion and retardation of the contaminant are taken into account within the saturated aquifer.

Table 10.3.2 Summary of identified groundwater impacts.

Determinand	Assessment Criteria (mg/kg)	No of samples tested	No of samples exceeding SGV/GAC	Max Value (mg/kg)	Location	Comment	Further action required
None Identified							

The analytical laboratory test results and analysis for waters are presented in appendix C3 & C4.

The assessment has not identified any potential risks to controlled waters from elevated levels of anthropogenic contamination within the groundwater beneath the Site.

10.4 Subsoil Deposits

The soils contaminants that were identified above the GeoAssist Limited GACs, SGVs and C4SLs for a commercial end use from the GeoAssist Limited investigations are summarized below.

Table 10.4 Tier one summary of identified soils impacts.

Determinand	Target Soil Value (mg/kg) Comm.	No of tests	No of samples exceeding SGV/GAC	Max Value (mg/kg)	Treat as a Hotspot	US95 Value or Geometric Mean (for Lead)	Further action required
tier one							
None Identified							

[sm] **Surrogate marker approach**

The analytical laboratory test results and analysis are presented in appendix C1 & C2 and have not identified potential risks to end users of the Site from elevated levels of anthropogenic contamination within the made ground or deeper natural drift deposits on the Site.

The construction phase plan for the Site requires complete removal of all of the made ground materials and drift deposits from the Site to a reduced level of approximately 23.2 mAOD with localised deeper removal for foundation pads and raft foundations. It is anticipated that such extensive site preparatory works will remove any potential sources of CoC across the Site. Any very limited areas of Made Ground Remaining on site will be capped by permanent concrete hardstanding as part of a pre-approved public realm landscaping scheme. Elsewhere asbestos occurrence or asbestos containing materials have not been identified within the soils tested. However, this does not preclude the possibility of sporadic isolated occurrences and the developer and the contractor should be aware that excavations may need a specific and detailed CAR 2012 method statement in the event that asbestos or asbestos containing material is encountered during site preparation works.

11. Discussion

The assessment of the chemical laboratory analytical tests has identified that the soils on this site pose a low risk to present site end users or proposed development site end users when assessed in accordance with the current UK methodology. Consequently, the risk to end users from ground contamination is classified as low given a commercial and centrally managed residential end use scenario of the site.
Removal of made ground will be undertaken as part of site preparation and enabling works.
The final proposed scheme for the Site will involve the significant removal of near surface soils over the entire area of the Site and replacement at a reduced level with standard construction materials such as crushed rock sub-base and concrete slabs, or hardstanding. In these areas this will suffice to remove any contamination source that may be present and hence preclude any further possibility of the source impacting end user receptors.

The soft landscaped areas of the Site will have a suitable growth medium such as British Standard Topsoil to a depth of at least 600mm. Any imported non first generation soil or aggregate materials will need to be tested at a rate of not less than 1 test per 250m^3 of imported material or where imported volumes are less than 750m^3 a minimum of 3 tests per source will be required.

It should be noted that as a direct consequence of the observed level of the water table at this site porous surfacing and or soakaway type drainage for the disposal of surface water from roofs, car parking and paved areas is not recommended at this time without clear details of anticipated volumes and levels for the scheme at the Site. Instead an alternative attenuation and greenfield release option via an EA approved device should be explored.

Analysis of drift materials and overlying made ground indicate that the underlying principal aquifer beneath the Site and any close by controlled waters are highly unlikely to be at significant risk from the soils on this site as a function of the relatively low levels and immobility of the determinants identified in the made ground and drift materials.

The assessment of the chemical laboratory analytical tests on groundwater samples has identified that the groundwater complies with the Environmental Quality Standards for Surface Water. It should be noted that the EQS levels used as part of the Level I remedial targets workbook method are directly applicable to surface waters and not groundwater and are used for guidance only. Consequently, the level I assessment of risk to controlled waters and aquatic ecosystems from soluble or free phase contaminants is classified as low in this case and no further quality monitoring is required.

Classification of waste materials in accordance with WM3 is beyond the scope of this ground investigation. A WM3 classification should be undertaken prior to disposal of soils or rock from the site. It should be noted that disposal at landfill is not the only option for materials leaving the Site and off-site recycling of all arisings through a recognised EA hub site using the voluntary code of practice (COP) could present opportunities for significant savings over traditional landfilling.

The results of asbestos fibre screening indicate that Asbestos fibres were not detected in the samples of made ground submitted for analysis. However, this does not preclude the possibility that sporadic occurrences of ACM may occur within the made ground on site. Ground works contractors are those most at risk and it is the duty of the principal contractor to apply appropriate measures under the Health & Safety at Work Act 1974 and the Control of Asbestos Regulations 2012.

The risk to construction workers from on-site generated dusts as part of the made ground removal is assessed to be low to moderate as a function of the age class of the receptor and the anticipated limited exposure durations of this group. Nonetheless, it is recommended that standard PPE & RPE including correctly fitted particulate masks and disposable coveralls and gloves should be worn by operatives as a matter of course during removal of made ground, superficial and bedrock deposits.
Excavations into bedrock should be monitored in the unlikely event of olfactory evidence of aromatic hydrocarbons being encountered.

The risk to building services from chemical attack is likely to be low given the depth of installation. The route of service pipes should be assessed when information for proposed connections becomes available.

12. Remediation

The soils and groundwater on site have been assessed to present a low risk to; human, controlled waters, property and adjoining land and ecological systems receptors and consequently a basic remediation strategy should be prepared for the site. The remediation strategy should confirm the area and volume of ground removed by the proposed development and specify the requirements of imported soils and aggregates for the proposed final scheme. It should be noted that any subsequent revision of the proposed redevelopment away from that considered herein may result in the full or partial re-interpretation of this report and assessment.

13. Conceptual Model

The updated conceptual model based on the information and test results presented in this report including contamination sources, pathways and receptors is presented below.

Table 13 Amended Conceptual Site Model based on information as presented within this report.

Potential Source /Hazard	Nature of Hazard (Risk Level to site given a Commercial end use	Contaminants Associated with Source	Potential Pathway	Potential Receptor
		Previous & Present ON SITE Land uses:		
1. Terraced Housing (potential infilled cellars)	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk** **(Ciria C665)**	Low levels of Carbon Dioxide <5%v/v	Vertical and Lateral Migration	Site Users Future Buildings & Services
2. Commercial Warehouse Units	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk** **(Ciria C665)**	Low levels of Carbon Dioxide <5%v/v	Vertical and Lateral Migration	Site Users Future Buildings & Services
		Previous OFF SITE land uses within 250m as indicated by Historical Plans Including:		
3. Fuel Station (shown as garage) Site Redeveloped under Temporary LPA planning permission	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk** **(Ciria C665)**	Low levels of Carbon Dioxide <5%v/v	Vertical and Lateral Migration	Site Users Future Buildings & Services
4. Iron Works & Foundry becomes Automobile Engineering Works then Car Park *Site Redeveloped under LPA planning Framework inc. GI and remediation strategy	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk**	None Site Redeveloped	Vertical and Lateral Migration Groundwater Inhalation	Site Users Future Buildings & Services
5. Reservoir & Corporation Yard *Site Redeveloped under	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters

Potential Source /Hazard	Nature of Hazard (Risk Level to site given a Commercial end use	Contaminants Associated with Source	Potential Pathway	Potential Receptor
LPA planning Framework inc. GI and remediation strategy	Gas from in-filled ground **Very Low Risk**	None Site Redeveloped	None	Site Users Future Buildings & Services
6. Timber Yard	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk**	None	None	Site Users Future Buildings & Services
7. Cotton Mills	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk**	None	None	Site Users Future Buildings & Services
8. Refuse Heap *Site Redeveloped under LPA planning Framework inc. GI and remediation strategy	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk**	None	None	Site Users Future Buildings & Services
9. Others Smithy (small scale) General Engineering Works Warehouses Railway Land Coal Yard	Ground contamination **Low Risk**	None Identified	Dermal Contact Ingestion Inhalation	Site Users Construction workers Controlled Waters
	Gas from in-filled ground **Very Low Risk**	None	None	Site Users Future Buildings & Services
10. Coal Workings & Brine Extraction	Geotechnical Hazard **Low Risk**	None	Ground Collapse Subsidence	Humans (site users) Future Buildings & Services
	Ground contamination **Low Risk**	None Identified	None	Site Users Services
	Mine Gas **Very Low Risk**	None	None	Humans (site users) Future Buildings

Only sources that have not been present on site in the past or currently are considered within the off site category. Unless the information is deemed to be pertinent to the analysis.

14. Conclusions

Evidence presented elsewhere within this report indicates that there is:

- A **Low Risk** to end user receptors from soil contamination at the site in its present condition
- The site presents a **Low Risk** to controlled waters in its present condition
- The proposed development presents a **Low Risk** to end user receptors from soil contamination.
- The proposed development presents a **Low Risk** to controlled waters.
- The gas regime at the site falls under Characteristic Situation 1 (CS1) and the risk to the development from ground gas is **Very Low Risk**

It should be noted that any subsequent revision of the proposed redevelopment away from that considered herein may result in the full or partial re-interpretation of this report and assessment.

14.1 Supplementary Recommendations

Careful observations will be made during foundation and earthworks to confirm the current assessment of site conditions. Any evidence of contamination not previously identified will be brought to the attention of the LPA as soon as is practicably possible and a mitigation plan should be prepared.

A WM3 hazardous waste assessment should be prepared for waste soils intended to be removed from site.



Matthew Benson MSc. GMICE
Geotechnical/Environmental Engineer



Mark Richardson MSc CEng MICE
Technical Director

Field investigations have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions are, and can be, variable and have only been tested at isolated locations across the site. Therefore, the potential exists for ground conditions to be encountered which are different to those considered in this report. Chemical analysis was conducted for a number of parameters based on an expert understanding of the historical and operational data available at the time and it should not be inferred or otherwise, that other chemical species are not present.

Ground gas measurements were undertaken for a range of typical gases based on a professional understanding of the historical and operational data available at the time and it should not be inferred or otherwise, that other ground gases are not present

This report has been prepared by GeoAssist Limited with all reasonable professional skill and care within the terms of the contract with Renaker Build Limited. The report is confidential to Renaker Build Limited, their/the named persons, advisors and bankers, and GeoAssist Limited accepts no responsibility of whatever nature to third parties to whom this report may be divulged. GeoAssist Limited owns the copyright in this report. All rights are reserved and unauthorised use is prohibited. Renaker Build Limited may use the report for their/her/his own purposes.

Appendix A

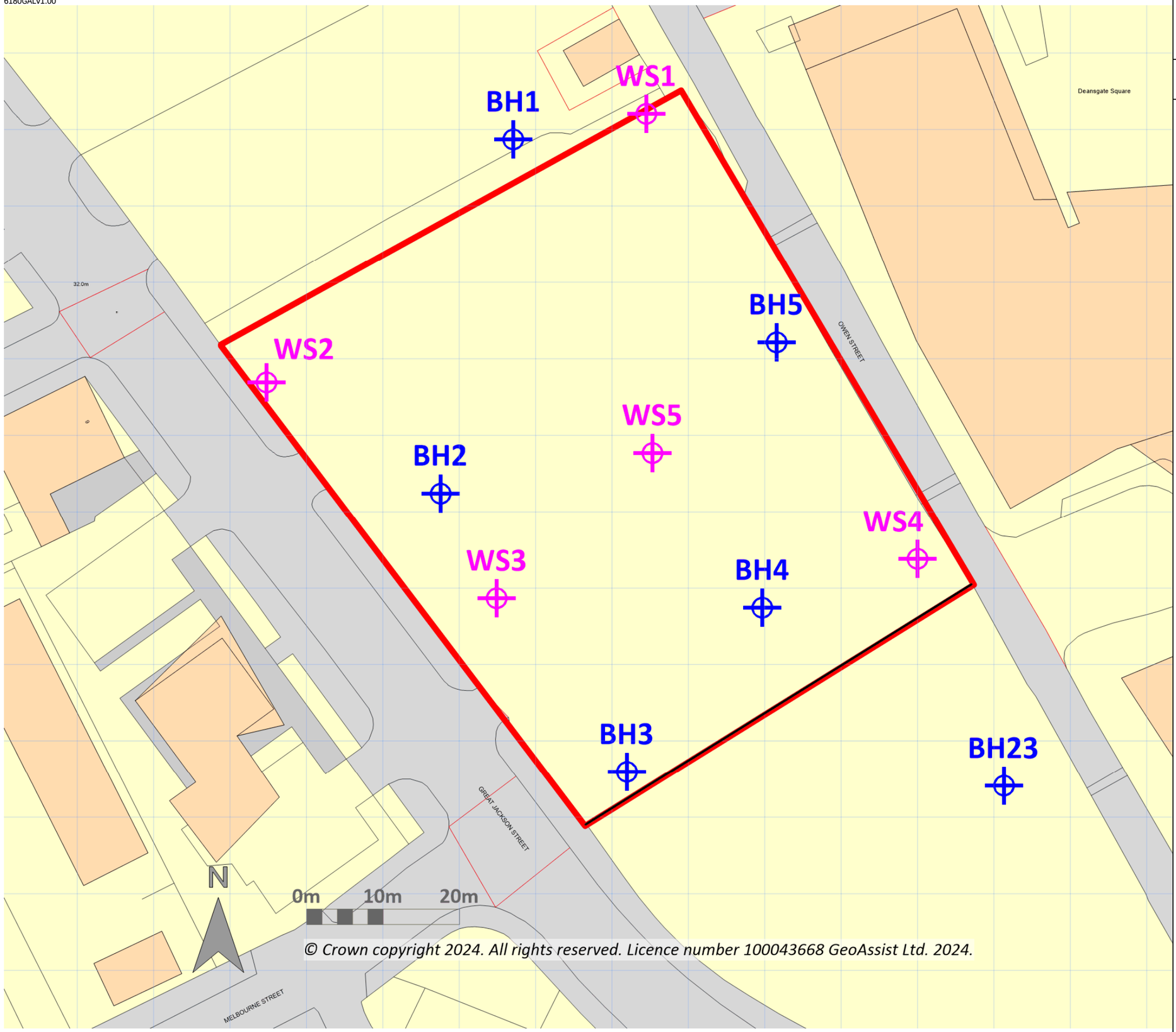
A1 Site Plan & Exploratory Hole Locations

A2 Proposed Site Plan

A3 Rock Head Contour Plans

A4 Groundwater Contour Plan

6180GALv1.00



© Crown copyright 2024. All rights reserved. Licence number 100043668 GeoAssist Ltd. 2024.

GeoAssist Limited
Civil, Environmental & Geotechnical
Telephone: +44 (0) 161 480 8885 e-mail : info@geoassist.co.uk

A1 Site Plan

Site Name	Plot E1 & E2 Great Jackson Street
Location	Manchetser
GeoAssist Ref	6180VTE
Client	Renaker Build Limited
	1st Floor, NQ Building 47 Bengal Street Ancoats Manchester M4 6BB
Planning Consultant	Desimone Consulting Engineering
NGR (centre of site)	383310,397310
Production Date	July 2025
Survey Method	
Surveyor	Others
Status	Final v1.00
Base Survey	OSGB36

Do Not Scale

Note:BH23 Undertaken by GeoAssist Limited in 2018 for Renaker Build Limited as part of the Deansgate Square Development.

ace
consultancy engineering business environment



© Crown copyright 2024. All rights reserved. Licence number 100043668 GeoAssist Ltd. 2024.

GeoAssist Limited
Civil, Environmental & Geotechnical
Telephone: +44 (0) 161 480 8885 e-mail : info@geoassist.co.uk

A2 Development Plan

Site Name	Plot E1 & E2 Great Jackson Street
Location	Manchetser
GeoAssist Ref	6180VTE
Client	Renaker Build Limited
	1st Floor, NQ Building 47 Bengal Street Ancoats Manchester M4 6BB
Planning Consultant	Desimone Consulting Engineering
NGR (centre of site)	383310,397310
Production Date	July 2025
Survey Method	
Surveyor	Others
Status	Final v1.00
Base Survey	OSGB36

Do Not Scale

ace
consultancy engineering business environment



© Crown copyright 2024. All rights reserved. Licence number 100043668 GeoAssist Ltd. 2024.

GeoAssist Limited
Civil, Environmental & Geotechnical
Telephone: +44 (0) 161 480 8885 e-mail : info@geoassist.co.uk

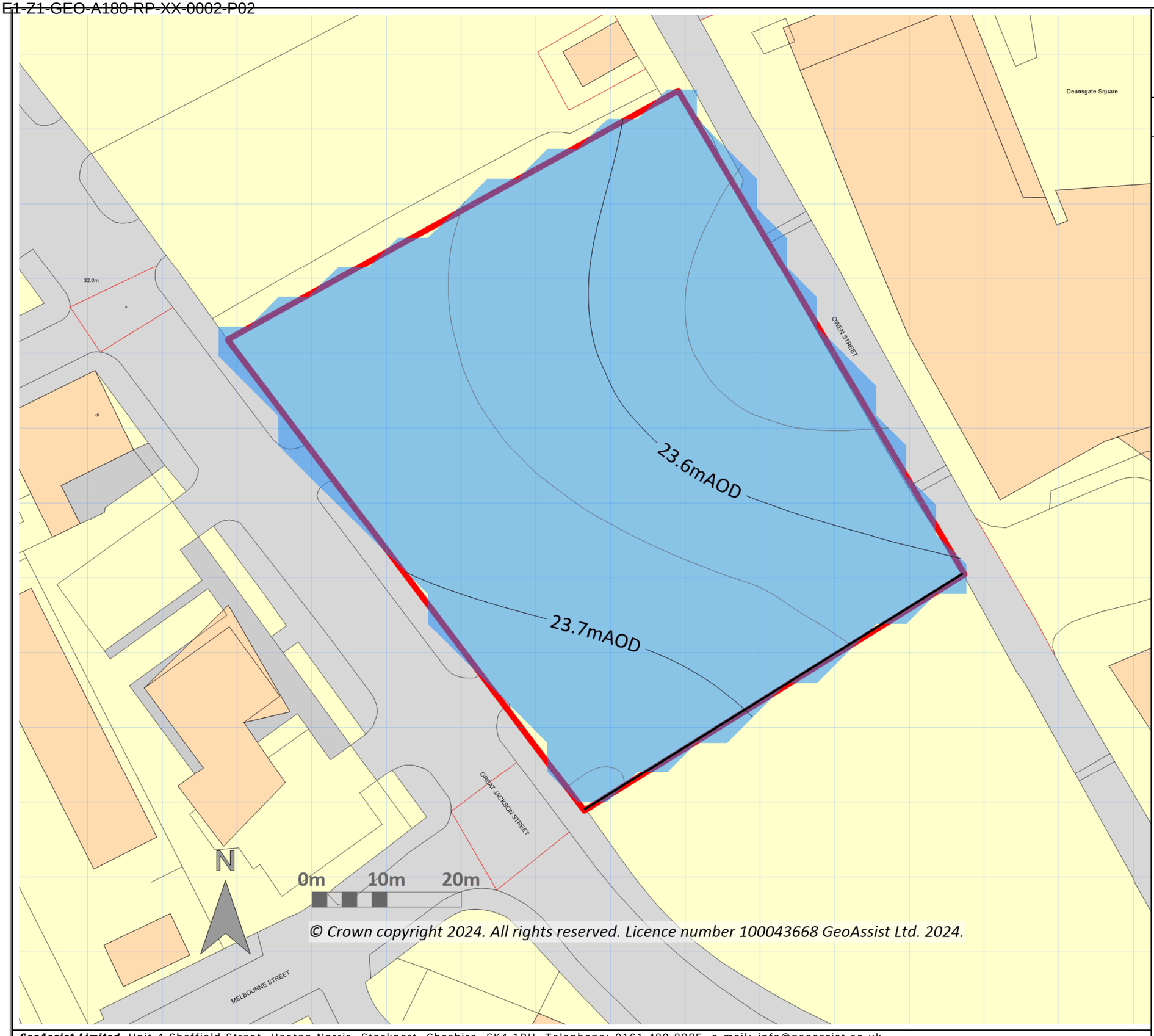
A3 Rockhead Plan

Site Name	Plot E1 & E2 Great Jackson Street
Location	Manchetser
GeoAssist Ref	6180VTE
Client	Renaker Build Limited
	1st Floor, NQ Building 47 Bengal Street Ancoats Manchester M4 6BB
Planning Consultant	Desimone Consulting Engineering
NGR (centre of site)	383310,397310
Production Date	July 2025
Survey Method	
Surveyor	Others
Status	Final v1.00
Base Survey	OSGB36

Do Not Scale

Rock head contour based on information from BH1 to BH5 and WS1 to WS5 and represents the level of the top of the weathered sandstone noted as S1 on the exploratory hole logs.

ace
consultancy engineering business environment



© Crown copyright 2024. All rights reserved. Licence number 100043668 GeoAssist Ltd. 2024.

GeoAssist Limited, Unit 4 Sheffield Street, Heaton Norris, Stockport, Cheshire, SK4 1RU, Telephone: 0161 480 8885, e-mail: info@geoassist.co.uk

GeoAssist Limited
Civil, Environmental & Geotechnical
Telephone: +44 (0) 161 480 8885 e-mail : info@geoassist.co.uk

A4 GW Contour Plan

Site Name	Plot E1 & E2 Great Jackson Street
Location	Manchetser
GeoAssist Ref	6180VTE
Client	Renaker Build Limited
	1st Floor, NQ Building 47 Bengal Street Ancoats Manchester M4 6BB
Planning Consultant	Desimone Consulting Engineering
NGR (centre of site)	383310,397310
Production Date	July 2025
Survey Method	
Surveyor	Others
Status	Final v1.00
Base Survey	OSGB36

Do Not Scale

Based on Groundwater Levels Obtained on 04/07/2025
In Boreholes 1 to 5

ace
consultancy engineering business environment

Appendix B

B1 Exploratory Hole Logs
B2 Groundwater Monitoring Plots
B3 Ground Gas Monitoring Results & Risk Assessment
B4 Gas Monitoring Equipment Calibration Certificate

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: WS1
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Archway Dart Rig with WLS sampling

Ground Level: 32.1 m.AOD
Co-ordinates: Easting: 383314.5(m) Northing: 397352(m)
Dates: 07/04/2025 to 07/04/2025

Drilling Foreman: M Walton
Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (m)	Stratum Description	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests: Depth (m) from	to	Sample Type/No	Blow Count N/(U)	Field Records
0	CONCRETE	0.10	32.00	MG					07/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
	Dark brown/grey sandy gravel with brick fragments rubble - MADE GROUND	(0.90)		MG	0.30	0.40	ES1		
					0.50	0.60	D1		
					0.80	0.90	ES2		
1		1.00	31.10		1.00		CP1	5	
	Loose dark grey/brown sandy gravel with brick and concrete fragments - MADE GROUND	(1.60)		MG					
2					2.00		CP2	5	
		2.60	29.50		2.60	2.70	ES3		Seepage at 2.40m
	Firm brown medium strength slightly sandy very silty CLAY	(0.60)		GT	2.70	2.80	D2		Hand vane at 2.70m - 48kPa
3		3.20	28.90		3.00		CP3	6	Hand penetrometer at 3.20m - 140kPa
	Stiff to very stiff brown high to very high strength gravelly very sandy silty CLAY	(0.80)		GT	3.50	3.60	D3		Hand penetrometer at 3.50m - >250kPa
4		4.00	28.10		4.00	4.30	P1		P1 at 4.00m - 8,10/73 for 150mm
	Medium dense to very dense orange/brown silty fine to medium SAND - completely weathered Sandstone	4.30	27.80	S1					On completion of exploratory hole at 4.30m. Water Nil with casing at 3.00m. 50mm ground gas/groundater monitoring standpipe installed to 3.50m depth with response zone from 1.00 to 3.50m
	Exploratory Hole complete at 4.30m								
5									
6									
7									
8									
9									
10									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Benson
Date: 08/04/2025
Checked: M Richardson
Date: 30/05/2025
Site Ref: 6180/VTE
Scale 1:50

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: WS2
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited
Equipment: Archway Dart Rig with WLS sampling

Ground Level: 32.58 m.AOD
Co-ordinates: Easting: 383264.8(m) Northing: 397316.9(m)
Dates: 07/04/2025 to 07/04/2025

Drilling Foreman: M Walton
Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (m)	Stratum Description	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests: Depth (m) from	to	Sample Type/No	Blow Count N/(U)	Field Records
0	CONCRETE	0.10	32.48	MG					07/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
	Grey sandy gravel - MADE GROUND	0.40	32.18	MG	0.30	0.40	ES1		
	Dark grey/brown sandy gravel with brick and concrete fragments - MADE GROUND	(0.60)		MG	0.50	0.60	D1		
		1.00	31.58	MG	0.80	0.90	ES2		
1	Loose orange/brown with grey clayey silty very gravelly SAND - gravel rounded				1.00		CP1	5	
		(1.10)		FG	1.50	1.60	D2		
2		2.10	30.48		2.00		CP2	6	
	Stiff to very stiff brown high to very high strength gravelly sandy silty CLAY				2.50	2.60	D3		Hand penetrometer at 2.50m - 157kPa
3					3.00		CP3	8	
		(2.50)		GT					Hand penetrometer at 3.50m - 144kPa
4					4.00		CP4	9	
		4.60	27.98		4.50	4.60	D4		Hand penetrometer at 4.50m - 160kPa
	Very stiff brown very high strength gravelly very sandy silty CLAY	4.90	27.68	GT					
5	Very dense orange/brown silty fine to medium SAND with sandstone fragments - completely weathered Sandstone	(0.45)		S1	4.90	5.35	P1	99	P1 at 4.90m - 12,12/18,22,26,33
		5.35	27.23						On completion of exploratory hole at 5.35m. Water Nil with casing at 3.00m. 50mm ground gas/groundwater monitoring standpipe installed to 4.50m depth with response zone from 1.00 to 4.50m
	Exploratory Hole complete at 5.35m								
6									
7									
8									
9									
10									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Benson
Date: 08/04/2025
Checked: M Richardson
Date: 30/05/2025
Site Ref: 6180/VTE
Scale 1:50

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: WS3

Sheet: 1

Project: Plot E1 & E2 Great Jackson Street

Location: Manchetser

Consultant: Desimone Consulting Engineering

Client: Renaker Build Limited

Equipment: Archway Dart Rig with WLS sampling

Ground Level: 32.56 m.AOD

Co-ordinates: Easting: 383294.9(m) Northing: 397288.6(m)

Dates: 08/04/2025 to 08/04/2025

Drilling Foreman: M Walton

Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests: Depth (m) from	to	Sample Type/No	Blow Count N/(U)	Field Records
CONCRETE - reinforced	0.10	32.46	MG					08/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
Grey/brown sandy gravel with brick, concrete and metal fragments - MADE GROUND	(0.70)		MG	0.50	0.60	ES1		
				0.50	0.60	D1		
	0.80	31.76						
Brown with orange/brown sandy gravel, brick fragments and rubble - MADE GROUND	1.00	31.56	MG					
Brown/grey gravelly sandy silty clay - MADE GROUND	(0.50)		MG	1.00		CP1	13	
	1.50	31.06		1.50	1.60	ES2		Seepage at 1.50m
Grey/brown sand and gravel - MADE GROUND - oderous	(0.70)		MG	2.00	2.10	ES3		
	2.20	30.36		2.00		CP2	9	PID at 2.00m - 24.1ppm
Very stiff brown/grey very high strength gravelly sandy silty CLAY				2.50	2.60	D2		Hand penetrometer at 2.50m - 192kPa
	(2.00)		GT	3.00		CP3	11	
				3.50	3.60	D3		Hand penetrometer at 3.50m - 189kPa
	4.20	28.36		4.00		CP4	8	
Very stiff brown very high strength very sandy silty CLAY	(0.50)		GT	4.50	4.60	D4		Hand penetrometer at 4.50m - 174kPa
	4.70	27.86		4.70	5.15	P1	93	P1 at 4.70m - 10,14/23,23,26,21
Very dense orange/brown silty fine to medium SAND - completely weathered Sandstone	(0.45)		S1					
	5.15	27.41						On completion of exploratory hole at 5.15m. Water Nil with casing at 3.00m. 50mm ground gas/groundwater monitoring standpipe installed to 4.00m depth with response zone from 1.00 to 4.00m
Exploratory Hole complete at 5.15m								

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Benson
Date: 09/04/2025
Checked: M Richardson
Date: 30/05/2025
Site Ref: 6180/VTE
Scale 1:50

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: WS4
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Archway Dart Rig with WLS sampling

Ground Level: 32.04 m.AOD
Co-ordinates: Easting: 383350(m) Northing: 397293.8(m)
Dates: 08/04/2025 to 08/04/2025

Drilling Foreman: M Walton
Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth	Stratum Description	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests: Depth (m) from	to	Sample Type/No	Blow Count N/(U)	Field Records
0	Light grey sandy gravel - MADE GROUND	0.10	31.94	MG					08/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
	Dark brown sand and gravel with brick and concrete fragments - MADE GROUND	(0.80)		MG	0.30	0.40	ES1		
					0.50	0.60	D1		
		0.90	31.14						
1	Dark grey/brown gravelly sandy silty clay - MADE GROUND	(0.40)		MG	1.00		CP1	8	
		1.30	30.74		1.30	1.40	ES2		
	Loose brown silty very sandy subrounded to subangular GRAVEL				1.50	1.60	D2		
		(0.90)		FG					
2		2.20	29.84		2.00		CP2	10	Seepage at 2.00m
	Very stiff brown very high strength very sandy silty CLAY				2.50	2.60	D3		Hand penetrometer at 2.50m - 185kPa
		(1.10)		GT					
3		3.30	28.74		3.00		CP3	11	
	Very stiff brown/grey very high strength very silty CLAY with silt partings	(0.50)		LGT	3.50	3.60	D4		Hand penetrometer at 3.50m - 157kPa
		3.80	28.24						
4	Medium dense brown sandy rounded GRAVEL	4.10	27.94	FG	4.00		CP4	29	
	Very stiff brown very high strength gravelly very sandy silty CLAY								
		(0.90)		GT	4.50	4.60	D5		Hand penetrometer at 4.50m - >250kPa
5		5.00	27.04						
	Very dense orange/brown silty fine to medium SAND - completely weathered Sandstone	5.14	26.90	S1	5.00	5.45	P1		P1 at 5.00m - (62 for 135mm) On completion of exploratory hole at 5.14m. Water Nil with casing at 3.00m. 50mm ground gas/groundwater monitoring standpipe installed to 4.50m depth with response zone from 1.00 to 4.50m
	Exploratory Hole complete at 5.14m								
6									
7									
8									
9									
10									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Benson
Date: 09/04/2025
Checked: M Richardson
Date: 30/05/2025
Site Ref: 6180/VTE
Scale 1:50

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: WS5

Sheet: 1

Project: Plot E1 & E2 Great Jackson Street

Location: Manchetser

Consultant:
Desimone Consulting Engineering

Client:
Renaker Build Limited

Equipment:
Archway Dart Rig with WLS sampling

Ground Level: 32.61 m.AOD

Co-ordinates: Easting: 383315.3(m)
Northing: 397307.7(m)

Dates: 09/04/2025 to 09/04/2025

Drilling Foreman: M Walton

Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests: Depth (m) from	to	Sample Type/No	Blow Count N/(U)	Field Records
CONCRETE	0.10	32.51	MG					09/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
Light grey sandy gravel - MADE GROUND	0.25	32.36	MG	0.30	0.40	ES1		
CONCRETE	0.30	32.31						
Brown sand and gravel - MADE GROUND	0.70	31.91						
Grey sandstone cobbles - MADE GROUND	0.80	31.81	MG	0.80	0.90	ES2		
Dark brown/grey clayey gravel ,cinders and ash - MADE GROUND	(0.50)		MG	1.00		CP1	8	
	1.30	31.31		1.20	1.30	D1		
Loose orange/brown with grey sandy subrounded to subangular GRAVEL				1.60	1.70	ES3		
	(1.00)		FG					
				2.00		CP2	8	
	2.30	30.31						
Stiff grey high strength very silty CLAY with silt partings				2.50	2.60	D2		Hand penetrometer at 2.50m - 140kPa
				3.00		CP3	8	
	(2.00)		LGT	3.40	3.50	D3		Hand penetrometer at 3.40m - 145kPa
				4.00		CP4	11	
	4.30	28.31						
Very stiff brown very high strength gravelly very sandy silty CLAY				4.50	4.60	D4		Hand penetrometer at 4.50m - >250kPa
	(1.50)		GT	5.00		CP5	37	
	5.80	26.81						
Very dense orange/brown silty fine to medium SAND - completely weathered Sandstone	(0.57)		S1	6.00	6.45	P1		P1 at 6.00m - 11,13/99 for 220mm
	6.37	26.24						
Exploratory Hole complete at 6.37m								On completion of exploratory hole at 6.37m. Water Nil with casing at 3.00m. 50mm ground gas/groundwater monitoring standpipe installed to 5.00m depth with response zone from 1.00 to 5.00m

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Benson
Date: 09/04/2025
Checked: M Richardson
Date: 30/05/2025
Site Ref: 6180/VTE
Scale 1:50

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH1
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 31.9 m.AOD
Co-ordinates: Easting: 383297.1(m) Northing: 397348.7(m)
Dates: 28/04/2025 to 28/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Depth (m) from	to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Loose dark brown sandy gravel, brick and concrete fragments - MADE GROUND	(1.40)		MG	0.50	0.60	B1				28/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
				1.00	1.45	P1		7		P1 at 1.00m - 1,2/1,2,2,2
	1.40	30.50								
Brown gravelly sandy silty clay - MADE GROUND	(0.50)		MG	1.50	1.60	D1				
	1.90	30.00		1.90	2.00	D2				
Stiff to very stiff brown high strength gravelly sandy silty CLAY				2.00	2.45	U1		(22)		
				2.50	2.60	D3				
	(1.60)		GT							
				3.00	3.45	P2		39		P2 at 3.00m - 6,7/7,8,10,14
	3.50	28.40		3.50	3.60	D4				
Very stiff brown gravelly sandy to very sandy silty CLAY				4.00	4.45	P3		31		P3 at 4.00m - 7,5/5,7,8,11
	(1.50)		GT							
				4.50	4.60	D5				
	5.00	26.90								P4 at 5.00m - 13,23/113 for 210mm
Very dense orange/brown silty fine to medium SAND - completely weathered Sandstone	(0.60)		S1	5.00	5.36	P4				28/04/2025: Hard Boring Sandstone 5.00m to 5.60m -1.0hr
	5.60	26.30		5.60	5.90	P5				P5 at 5.60m - 14,17/85 for 145mm
Very weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel.	(1.60)		S1							28/04/2025: LCP hole completed at 5.90m. Water Nil. 200mm dia Casing at 5.50m. 15/05/2025: Rotary Drilling fro 5.90m to 11.90m with air/mist and water flush.
	7.20	24.70								
Weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. If=NI/30/120				5.90	8.90	C1	67	60	13	
	(2.00)		S2							
Fracture at 8.70m at 60 degrees										
	9.20	22.70								
Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE. with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough.	(0.80)		S2							
	10.00	21.90								

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 27/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH1
Sheet: 2

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 31.9 m.AOD
Co-ordinates: Easting: 383297.1(m) Northing: 397348.7(m)
Dates: 28/04/2025 to 28/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Continued Stratum. Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi=NI/25/250				8.90 11.90	C2	100	97	80	
				12.00	W1				16/05/2025: Water level 8.60m.Rotary Coring from 11.90m to 21.00m with air/mist and water flush.
HPD Pressuremeter Test at 13.20m **Thin Marl lens at 13.60m - 10 to 30mm**	(8.00)		S2	12.00 14.90	C3	100	93	69	
	18.00	13.90		15.00 18.00	C4	100	100	95	
Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi= Ni/70/250	(2.00)		S2						
HPD Pressuremeter Test at 19.30m				18.00 21.00	C5	100	93	73	
	20.00	11.90							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 27/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH1
Sheet: 3

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 31.9 m.AOD
Co-ordinates: Easting: 383297.1(m) Northing: 397348.7(m)
Dates: 28/04/2025 to 28/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (m)	STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
20	Continued Stratum. Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = Ni/70/250									19/05/2025: Water level at 8.40m depth. Rotary Coring from 21.00m to 27.10m with air/mist and water flush.
21										
22					21.00 24.00	C6	100	90	77	
	Very thin Marl lens at 22.70m -<5mm									
23	**Very thin Marl lens at 23.45m -<5mm**	(7.00)		S2						
24	**Very thin Marl lens at 24.50m -<5mm**									
25					24.00 27.10	C7	100	97	74	
26										
27		27.00	4.90							20/05/2025: Water level at 8.40m depth. Rotary Coring from 27.10m to 36.40m with air/mist and water flush.
	Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi =-/70/300									
	Very thin Marl lens at 27.8m -<5mm									
28										
	HPD Pressuremeter Test at 28.40m	(3.00)		S3	27.10 30.20	C8	100	97	74	
29										
30		30.00	1.90							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 27/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH1
Sheet: 4

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 31.9 m.AOD
Co-ordinates: Easting: 383297.1(m) Northing: 397348.7(m)
Dates: 28/04/2025 to 28/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
30 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = -/70/300				30.20 33.30	C9	100	97	87	
31									
32									
33									
34				33.30 36.40	C10	100	100	92	
35	(10.00)		S3						
36									21/05/2025: Water level at 8.40m depth. Rotary Coring from 36.40m to 45.20m with air/mist and water flush.
Very thin Marl lens at 36.00m - <5mm									
37									
HPD Pressuremeter Test at 37.50m									
38				36.40 39.50	C11	100	100	90	
39									
40	40.00	-8.10							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 27/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH1
Sheet: 5

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 31.9 m.AOD
Co-ordinates: Easting: 383297.1(m) Northing: 397348.7(m)
Dates: 28/04/2025 to 28/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (m)	STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
40	Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi =-/70/300				39.50 42.10	C12	100	96	81	
41										
	Very thin Marl lens at 41.90m -<5mm									
42										
		(5.20)		S3						
43										
	Very thin Marl lens at 43.04m - <5mm				42.10 45.20	C13	100	93	81	
44										
45		45.20	-13.30							28/05/2025: On completion of borehole at 45.20m depth. Water level at 8.30m depth. 50mm Groundwater monitoring standpipe installed to 25.00m depth with response zone from 9.00m to 25.00m
	Exploratory Hole complete at 45.20m									
46										
47										
48										
49										
50										

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 27/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH2
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.63 m.AOD
Co-ordinates: Easting: 383287.6(m) Northing: 397302.4(m)
Dates: 10/04/2025 to 23/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Depth (m) from	to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Light grey sandy gravel - MADE GROUND	0.15	32.48	MG							10/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
CONCRETE	0.30	32.33	MG							
Loose dark brown sand and gravel, brick, concrete and glass fragments - MADE GROUND	(1.30)		MG	0.50	0.80	B1				
				1.00	1.45	P1		6		P1 at 1.00m - 6,4/2,2,1,1
	1.60	31.03		1.50	1.35	D1				
Medium dense brown/grey silty clay, sand and gravel - MADE GROUND	(0.60)		MG							
	2.20	30.43		2.00	2.45	P2		17		P2 at 2.00m - 1,2/3,4,4,6
Stiff to very stiff brown high to very high strength sandy silty CLAY with sand bands and inclusions				2.50	2.60	D2				
				3.20	3.65	U1		(45)		
	(2.60)		GT	3.70	3.80	D3				
				4.00	4.45	P3		23		P3 at 4.00m - 3,4/4,5,6,8
				4.50	4.60	D4				
	4.80	27.83								
Very stiff brown very high strength gravelly sandy to very sandy silty CLAY	(0.70)		GT	5.00	5.45	P4		54		P4 at 5.00m - 6,9/10,11,14,19
	5.50	27.13								
Dense to very dense orange/brown silty fine to medium SAND with sandstone fragments - completely weathered Sandstone	(1.00)		S1	6.00	6.45	P5				P5 at 6.00m - (50 for 30mm) 10/04/2025: Hard Boring Sandstone 6.00m to 6.50m -1.0hrs
	6.50	26.13		6.50	5.12	P6				P6 at 6.50m - (50 for 40mm) 10/04/2025: LCP hole completed at 6.50m. Water Nil.150mm dia Casing at 6.00m. 17/04/2024: Rotary Drilling from 6.50m to 8.00m with air/mist and water flush.
Very weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE	(1.00)		S1	6.50	8.00	C1	73	33	20	
	7.50	25.13								
Weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE. Fi = NI/25/100	(1.70)		S2	8.00	9.50	C2	93	80	30	22/04/2025: Water Nil. Rotary Coring from 8.00m to 34.00m with air/mist and waer flush.
	9.20	23.43								Water struck at 9.20m. Satanding water after 20 minutes 9.20m
Weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi+ Ni/50/200	(0.80)		S2							
	10.00	22.63								

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 30/04/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH2
Sheet: 2

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.63 m.AOD
Co-ordinates: Easting: 383287.6(m) Northing: 397302.4(m)
Dates: 10/04/2025 to 23/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
10 Continued Stratum. Weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = NI/25/100			9.50 11.00	C3	93	87	50	
11			11.00 12.50	C4	100	93	47	
12								
13			12.50 14.00	C5	100	87	23	
14			14.00 15.50	C6	100	100	47	
15	(10.00)	S2						
16			15.50 18.50	C7	100	83	38	
17								
18								
19			18.50 20.00	C8	93	53	20	
Marl lens at 19.60m - 30 to 80mm								
20	20.00	12.63						

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 30/04/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH2
Sheet: 3

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.63 m.AOD
Co-ordinates: Easting: 383287.6(m) Northing: 397302.4(m)
Dates: 10/04/2025 to 23/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
20 Weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = NI/25/150			20.00 23.00	C9	100	83	13	
(6.00)		S2	23.00 26.00	C10	100	97	33	
26.00	6.63							
Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi= -/40/150			26.00 29.00	C11	100	55	30	
(4.00)		S3						
30.00	2.63							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 30/04/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH2
Sheet: 4

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.63 m.AOD
Co-ordinates: Easting: 383287.6(m) Northing: 397302.4(m)
Dates: 10/04/2025 to 23/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
30 Continued Stratum. Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi= -/40/150				29.00 32.00	C12	100	87	43	
31									
32									
	(5.50)		S3	32.00 34.00	C13	100	90	35	23/04/2025: Water level 9.10m. Rotary Coring from 34.00m to 35.50m with air/mist and water flush.
33									
34									
				34.00 35.50	C14	100	100	40	
35	35.50	-2.87							23/0/2025: On completion of borehole at 35.50m depth. Water level at 9.10m. 50mm Groundwater monitoring standpipe installed to 18.00m depth with response zone from 9.00m to 18.00m
Exploratory Hole complete at 35.50m									
36									
37									
38									
39									
40									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 30/04/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH3
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.9 m.AOD
Co-ordinates: Easting: 383311.9(m) Northing: 397265.9(m)
Dates: 25/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Depth (m) from	to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Light grey sandy gravel - MADE GROUND	0.30	32.60	MG							25/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
Loose to medium dense grey/brown sandy gravel, brick and concrete fragments - MADE GROUND	(2.10)		MG	0.50	0.60	B1				
				1.00	1.45	P1		9		P1 at 1.00m - 1,2/3,3,2,1
				1.50	1.60	D1				
				2.00	2.45	P2		15		P2 at 2.00m - 3,3/4,3,4,4
	2.40	30.50								
Orange/brown clayey silty SAND and GRAVEL	(0.40)		FG	2.50	2.60	D2				
	2.80	30.10								
Stiff to very stiff brown high to very high strength gravelly sandy silty CLAY	(1.70)		GT	3.20	3.65	U1		(24)		
				3.70	3.80	D3				
				4.00	4.45	P3		16		P3 at 4.00m - 2,2/2,3,4,7
	4.50	28.40								
Stiff to very stiff brown high to very high strength gravelly very sandy silty CLAY	(0.50)		GT	4.50	4.60	D4				
	5.00	27.90								
Stiff to very stiff brown high to very high strength gravelly very sandy silty CLAY	(1.20)		GT	5.20	5.65	P4		46		P4 at 5.20m - 5,7/9,13,11,13
				5.50	5.60	D5				
				6.00	6.45	P5				25/04/2025: Hard Boring Sandstone 6.10m to 7.10m -1.0hr P5 at 6.00m - 7,10/51 for 75mm
	6.20	26.70								
Very dense orange/brown silty fine to medium SAND - completely weathered Sandstone	(0.90)		S1							
	7.10	25.80		7.10	7.55	P6				P6 at 7.10m - (50 for 40mm)
Very weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE	(0.40)		S1							25/04/2025: LCP hole completed at 7.10m. Water Nil. 200mm dia Casing at 7.00m. 12/05/2025: Rotary Drilling from 7.10m to 18.00 with air/mist and water flush.
	7.50	25.40								
Weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE Fi= NI/40/120	(2.10)		S2	7.10	9.00	C1	79	63	26	
	9.20	23.70								
Weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough.Fi= NI/50/250	(0.80)		S2							
	10.00	22.90								

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 20/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH3
Sheet: 2

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.9 m.AOD
Co-ordinates: Easting: 383311.9(m) Northing: 397265.9(m)
Dates: 25/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Continued Stratum. Weak orange/brown cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi= NI/50/250				9.00 12.00	C2	100	97	77	
				12.00	W1				
Fracture at 12.70m at 55 degrees									
HPD Pressuremeter Test at 13.00m				12.00 15.00	C3	100	97	60	
Thin Marl lens at 14.50m -20mm									
Thin Marl lens at 14.85m -20mm	(10.00)		S2						
Current bedding up to 40 degrees from 16.00m to 17.00m				15.00 18.00	C4	100	98	20	
Thin Marl lens at 17.90m -10mm to 30mm									13/05/2025: Water level 9.20m. Rotary Coring from 18.00m to 27.20m with air/mist and water flush.
				18.00 21.00	C6	100	90	53	
	20.00	12.90							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 20/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH3
Sheet: 3

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.9 m.AOD
Co-ordinates: Easting: 383311.9(m) Northing: 397265.9(m)
Dates: 25/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
20 Weak to moderately weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi= NI/50/250									
21 **HPD Pressuremeter Test at 20.30m** **Fracture at 20.50m at 40 degrees**									
22				21.00 24.10	C7	100	94	77	
23	(7.00)		S2						
24									
25				24.10 27.20	C8	100	100	77	
26									
27	27.00	5.90							14/05/2025: Water level at 9.20m depth. Rotary Coring from 27.20m to 39.20m with air/mist and water flush.
Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /60/250									
28	(3.00)		S3	27.20 30.20	C9	100	98	80	
29 **HPD Pressuremeter Test at 28.90m** **Very thin Marl lens at 29.60m -<5mm**									
30	30.00	2.90							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 20/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH3
Sheet: 4

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.9 m.AOD
Co-ordinates: Easting: 383311.9(m) Northing: 397265.9(m)
Dates: 25/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
			30.20 33.20	C10	100	100	70	
			33.20 36.20	C11	100	100	73	
(10.00)		S3						
			36.20 39.20	C12	100	100	80	
40.00	-7.10							

30 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /60/250

31

32

Very thin Marl lens at 32.10m -<5mm

33

34

35

36

37

HPD Pressuremeter Test at 37.50m

38

Thin Marl lens at 38.70m -10mm to 40mm

39

40

15/05/2025: Water level at 9.20m depth. Rotary Coring from 39.20m to 45.40m with air/mist and water flush.

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 20/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH3
Sheet: 5

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.9 m.AOD
Co-ordinates: Easting: 383311.9(m) Northing: 397265.9(m)
Dates: 25/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
40 Continued Stratum. Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /60/250				39.20 42.30	C13	100	100	87	
41									
42									
Thin Marl lens at 42.70m -10mm	(5.40)		S3						
43									
44				42.30 45.40	C14	100	100	81	
45	45.40	-12.50							22/05/2025: On completion of drilling at 45.40m depth. Water level at 9.20m depth. 50mm Groundwater monitoring standpipe installed to 25.00m depth with response zone from 9.00m to 25.00m
Exploratory Hole complete at 45.40m									
46									
47									
48									
49									
50									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 20/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH4
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.54 m.AOD
Co-ordinates: Easting: 383329.7(m) Northing: 397287.4(m)
Dates: 11/04/2025 to 17/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
CONCRETE	0.10	32.44	MG						
Brown sand and gravel with cobbles - MADE GROUND	(0.40)		MG						11/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
	0.50	32.04							
Dark brown sand and gravel with cinders - MADE GROUND	0.80	31.74	MG	0.60 0.80	D1				
Dark brown/brown gravelly sandy clay - MADE GROUND				0.90 1.00	D2				
				1.00 1.35	P1		16		P1 at 1.00m - 2,1/3,4,4,5
	(0.90)		MG						
	1.70	30.84		1.70 1.80	D3				
Medium dense dark brown/grey clayey silty SAND and GRAVEL	(0.50)		FG	2.00 2.45	P2		16		P2 at 2.00m - 2,2/3,3,4,6
	2.20	30.34							
Grey/brown gravelly sandy silty CLAY				2.50 2.60	D4				
	(0.80)		GT						
	3.00	29.54		3.00 3.45	U1		(33)		
Stiff to very stiff brown high to very high strength slightly gravelly sandy silty CLAY with silt partings				3.50 3.60	D5				
	(1.50)		LGT						
				4.00 4.45	P3		50		P3 at 4.00m - 3,6/10,10,13,17
	4.50	28.04		4.50 4.60	D6				
Dense to very dense orange/brown silty fine to medium SAND	(0.60)		GT						
	5.10	27.44		5.00 5.45	P4		50		P4 at 5.00m - 6,7/7,11,12,20
Very stiff brown very high strength gravelly very sandy CLAY									
	(0.80)		GT	5.50 5.12	D7				
	5.90	26.64							
Very dense orange/brown very silty fine to medium SAND - completely weathered Sandstone				6.00 6.45	P5		110		P5 at 6.00m - 10,12/16,25,28,41
	(1.46)		S1						11/04/2025: Hard Boring Sandstone 6.30m to 7.30m -1.0hr
	7.36	25.18		7.30 7.75	P6				P6 at 7.30m - (50 for 60mm)
Very weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE	(0.44)		S1						11/04/2023: LCP hole completed at 7.30m. Water Nil. 150mm dia Casing at 7.30m.
	7.80	24.74							
Weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE				7.40 8.90	C1	80	47		15/04/2025: Rotary Drilling from 7.40m to 14.90 with air/mist and water flush.
	(1.40)		S2						
	9.20	23.34							
Weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = NI/20/70	(0.80)		S2	8.90 10.40	C2	100	67		
	10.00	22.54							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 02/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH4
Sheet: 2

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.54 m.AOD
Co-ordinates: Easting: 383329.7(m) Northing: 397287.4(m)
Dates: 11/04/2025 to 17/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Continued Stratum. Weak orange/brown cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi= NI/40/150									
				10.40 11.90	C3	67	60		
				11.90 13.40	C4	83	80	17	
Thin Marl lens at 12.90m - 30mm									
Thin Marl lens at 13.50m - 30mm									
Marl lens at 14.00m - 80mm				13.40 14.90	C5	73	60	10	
	(10.00)		S2						16/04/2025: Water level 9.10m. Rotary Coring from 14.90m to 32.90m with air/mist and water flush.
				14.90 16.40	C6	100	80	40	
				16.40 17.90	C7	100	83		
Thin Marl lens at 18.90m - 10mm				17.90 20.90	C8	87	80	43	
	20.00	12.54							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 02/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH4
Sheet: 3

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.54 m.AOD
Co-ordinates: Easting: 383329.7(m) Northing: 397287.4(m)
Dates: 11/04/2025 to 17/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION

Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
20 Weak to moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = NI/40/250								
			20.90 22.40	C9	100	87	47	
			22.40 23.90	C10	93	73	60	
(7.80)		S2						
			23.90 26.90	C11	100	97	77	
27.80	4.74							
28 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = NI/40/300								
			26.90 29.90	C12	83	70	60	
(2.20)		S3						
Thin Marl lens at 29.50m - <5mm								
30.00	2.54							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 02/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH4
Sheet: 4

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (150mm casing) + Rotary Rig with water and air/mist flush (412F core 72mm)

Ground Level: 32.54 m.AOD
Co-ordinates: Easting: 383329.7(m) Northing: 397287.4(m)
Dates: 11/04/2025 to 17/04/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
30 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough.				29.90 32.90	C13	100	93	47	
31									
32									17/04/2025: Water level at 9.10m depth. Rotary Coring from 32.90m to 36.10m with air/mist and water flush.
33	(6.10)		S3						
34				32.90 36.10	C14	100	100	47	
35									
36	36.10	-3.56							17/04/2025: On completion of borehole at 36.10m depth. Water level at 9.10m depth. 50mm Groundwater monitoring standpipe installed to 18.00m depth with response zone from 9.00m to 18.00m
Exploratory Hole complete at 36.10m									
37									
38									
39									
40									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 02/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH5
Sheet: 1

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.08 m.AOD
Co-ordinates: Easting: 383331.5(m) Northing: 397322.1(m)
Dates: 24/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
Light grey sandy gravel - MADE GROUND	0.10	31.98	MG						
Dark brown/grey clayey silty sand and gravel with brick fragments - MADE GROUND	(0.80)		MG	0.30 0.80	D1				24/04/2025: Inspection Pit excavated with hand tools to 1.00m depth.
				0.50 0.60	B1				
	0.90	31.18		0.80 1.35	D2				
Dark grey/brown clayey sand and gravel with brick fragments - MADE GROUND	(1.10)		MG	1.00 1.45	P1		4		P1 at 1.00m - 1,0/1,1,1,1
				1.60 1.70	D3				
	2.00	30.08							
Very loose brown and dark grey sandy silty clay and gravel with bricks at 3.30m - SUSPECT INFILLED CHANNEL	(1.40)		MG	2.00 2.45	P2		1		P2 at 2.00m - 1,0/0,0,1,0
				2.50 2.60	D4				
	3.40	28.68		3.30 3.75	P3		48		P3 at 3.30m - 4,5/9,12,12,15
Stiff to very stiff brown high to very high strength slightly gravelly sandy to very sandy silty CLAY	(1.50)		GT	3.50 3.60	D5				24/04/2025: Water struck at 3.40m depth. Water level 3.40m after 20mins
				4.00 4.45	U1				
				4.50 4.60	D6				
	4.90	27.18							
Dense to very dense orange/brown silty fine to medium SAND with sandstone fragments - completely weathered Sandstone	(1.40)		S1	5.00 5.12	P4				P4 at 5.00m - 14,16/102 for 210mm
				5.50 5.60	D7				24/04/2025: Hard Boring Sandstone 5.20m to 6.20m -0.5hr
				6.00 6.45	P5				P5 at 6.00m - 15,19/79 for 145mm
	6.30	25.78							24/04/2025: LCP hole completed at 6.20m. Water Nil. 200mm dia Casing at6.00m.
Very weak to weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE	(0.80)		S1						29/04/2025: Rotary Drilling from 6.20m to 10.60m with air/mist and water flush.
	7.10	24.98							
Weak weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE. Fi= NI/40/100				6.60 8.10	C1	73	47	13	
	(2.10)		S2						
				8.10 9.10	C2	100	60	20	
	9.20	22.88							
Weak to moderately weak orange/brown inferior cemented subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi=	(0.80)		S2						
	10.00	22.08		9.10 10.60	C3	100	93	30	

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 14/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH5
Sheet: 2

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.08 m.AOD
Co-ordinates: Easting: 383331.5(m) Northing: 397322.1(m)
Dates: 24/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
NI/40/100 Continued Stratum. Weak to moderately weak orange/brownsubhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi =- /70/250									06/05/2025: Water level 7.20m. Rotary Coring from 10.70m to 18.20m with air/mist and water flush.
				10.70 12.20	C4	97	90	33	
				12.00	W1				
Thin Marl lens at 12.90m -230mm									
HPD Pressuremeter Test at 13.90m				12.20 15.20	C5	100	100	77	
	(10.00)		S2						
				15.20 18.20	C6	100	100	80	
									07/05/2025: Water level at 7.20m depth. Rotary Coring from 18.20m to 25.90m with air/mist and water flush.
HPD Pressuremeter Test at 18.90m									
				18.20 20.90	C7	100	100	85	
	20.00	12.08							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 14/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH5
Sheet: 3

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.08 m.AOD
Co-ordinates: Easting: 383331.5(m) Northing: 397322.1(m)
Dates: 24/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
20 Weak to moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONE with random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /60/250									
Thin Marl lens at 20.10m - <5mm									
21									
22				20.90 22.90	C8	100	65	9	
Marl lens at 22.20m -180mm									
23									
	(7.00)		S2						
24				22.90 25.90	C9	100	90	73	
25									
26									08/05/2025: Water level at 8.70m depth. Rotary Coring from 25.90m to 34.90m with air/mist and water flush.
Thin Marl lens at 26.30m - 10mm									
	27.00	5.08							
27 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /50/300				26.10 28.70	C10	100	96	65	
HPD Pressuremeter Test at 27.20m									
28									
	(3.00)		S3						
29									
30	30.00	2.08							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 14/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH5
Sheet: 4

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.08 m.AOD
Co-ordinates: Easting: 383331.5(m) Northing: 397322.1(m)
Dates: 24/04/2025 to 22/05/2025

Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
30 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /50/300				28.80 31.90	C11	100	100	97	
31									
32 **Thin Marl lens at 32.00m - <5mm**				31.90 34.90	C12	100	93	87	
33									
34									
35	(10.00)		S3						09/05/2025: Water level at 8.70m depth. Rotary Coring from 34.90m to 43.80m with air/mist and water flush.
36 **HPD Pressuremeter Test at 36.10m**				34.90 37.70	C13	100	100	63	
37									
38									
39				37.70 40.70	C14	100	100	80	
40 **Thin Marl lens at 39.90m - <5mm**	40.00	-7.92							

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 14/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal

GeoAssist Limited

Exploratory Hole Record Sheet

Ref: BH5
Sheet: 5

Project: Plot E1 & E2 Great Jackson Street
Location: Manchetser

Consultant: Desimone Consulting Engineering
Client: Renaker Build Limited

Equipment: Dando LCP Rig (200mm casing) + Rotary Rig with water (T6H core 75mm) and air/mist flush (412F core 72mm and PW casing 140mm)

Ground Level: 32.08 m.AOD
Co-ordinates: Easting: 383331.5(m) Northing: 397322.1(m)
Dates: 24/04/2025 to 22/05/2025

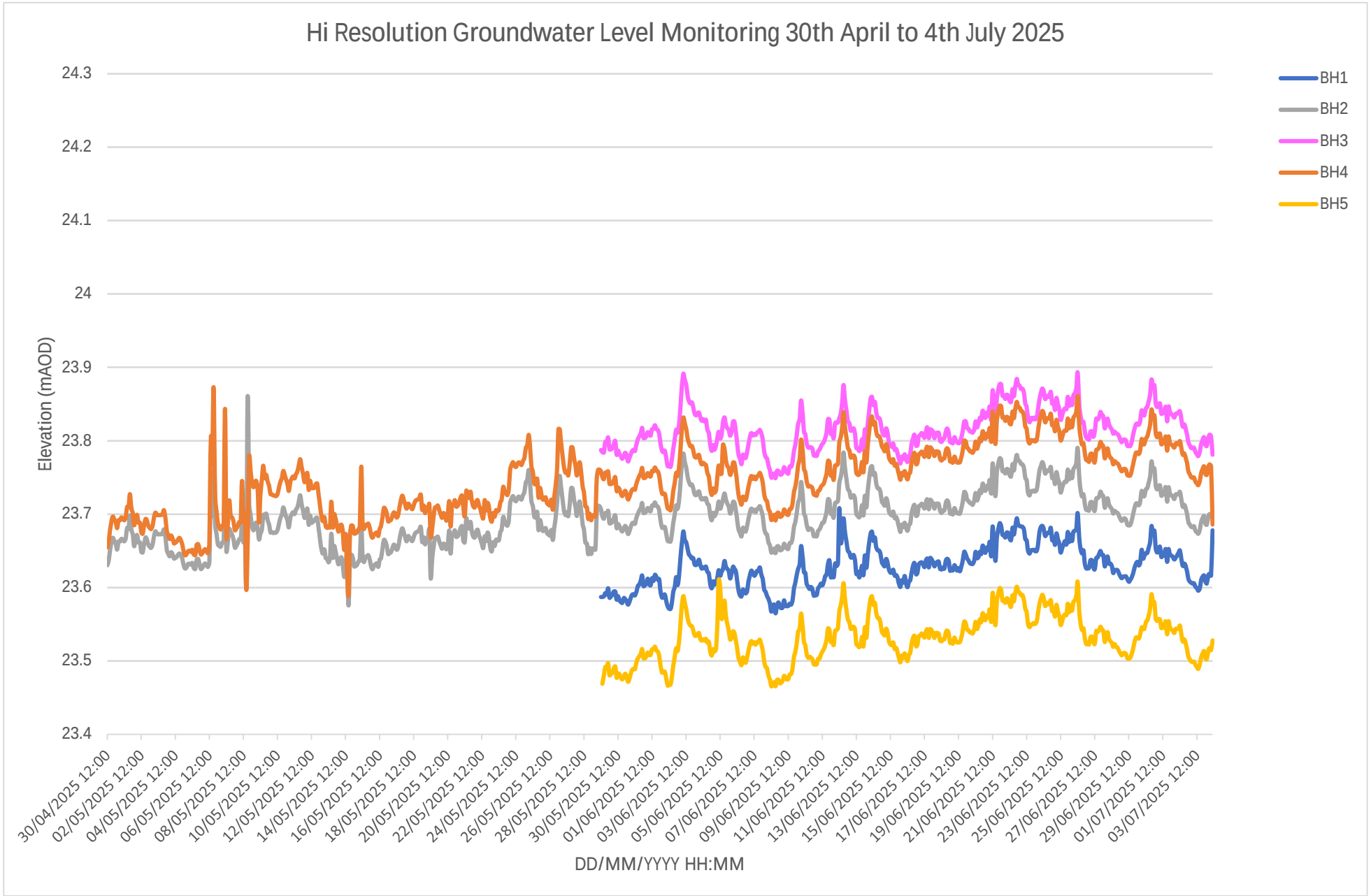
Lead Driller: M Benson Assistant Driller: M Walton
Site Geotechnical Engineer/Geologist: M Benson

STRATUM DESCRIPTION	Depth (Thick) (m)	Reduced Level (mAOD)	Strata Legend/ Standpipe Backfill	Samples/Tests/Core Records: Depth (m) from to	Ref.	Count N/(U) T %	S %	RQD %	Field Records
40 Moderately weak orange/brown subhorizontal bedded silty fine to medium grained SANDSTONEwith random rounded gravel bands and rare small rounded marl clasts and lenses. Subhorizontal fractures close planar rough. Fi = - /50/300									
41									
42	(3.80)		S3	40.70 43.80	C14	100	100	74	
43									
	43.80	-11.72							22/05/2025: On completion of drilling at 43.80m depth. 50mm Groundwater monitoring standpipe installed to 17.00m depth with response zone from 8.00m to 17.00m
Exploratory Hole complete at 43.80m									
44									
45									
46									
47									
48									
49									
50									

Remarks:

The groundwater conditions entered on the exploratory hole logs are those observed at the time of the drilling operations and the water level may not have reached equilibrium with the surrounding water level prior to the record being taken.
Standing groundwater levels will be subject to seasonal variation or changes in local drainage conditions and could be higher at certain times of the year particularly after periods of heavy rainfall.

Logged: M Richardson
Date: 14/05/2025
Checked: M Benson
Date: 01/08/2025
Site Ref: 6180/VTE
Scale 1:50 nominal


Hi Resolution Groundwater Level Monitoring 30th April to 4th July 2025
Elevation (mAOD)
24.3
24.2
24.1
24
23.9
23.8
23.7
23.6
23.5
23.4
BH1
BH2
BH3
BH4
BH5
30/04/2025 12:00
02/05/2025 12:00
04/05/2025 12:00
06/05/2025 12:00
08/05/2025 12:00
10/05/2025 12:00
12/05/2025 12:00
14/05/2025 12:00
16/05/2025 12:00
18/05/2025 12:00
20/05/2025 12:00
22/05/2025 12:00
24/05/2025 12:00
26/05/2025 12:00
28/05/2025 12:00
30/05/2025 12:00
01/06/2025 12:00
03/06/2025 12:00
05/06/2025 12:00
07/06/2025 12:00
09/06/2025 12:00
11/06/2025 12:00
13/06/2025 12:00
15/06/2025 12:00
17/06/2025 12:00
19/06/2025 12:00
21/06/2025 12:00
23/06/2025 12:00
25/06/2025 12:00
27/06/2025 12:00
29/06/2025 12:00
01/07/2025 12:00
03/07/2025 12:00
DD/MM/YYYY HH:MM

Site Reference:	**6180 VTE**
Project Site:	**Plot E1 & E2 Great Jackson Street**
Project Location:	**Manchetser**
Client:	**Renaker Build Limited**

Ground Gas Readings

Date - Time	BH	CH4 (%)	CO2 (%)	O2 (%)	H2S (ppm)	CO (ppm)	LEL (%)	aP (mb)	Flw (l/h)	H2O (m)
15/04/2025	WS1	0	0.9	19.6	0	0	0	991	0.0	2.00
15/04/2025	WS2	0.0	1.1	19.0	0	0	0.0	991	0.0	Nil
15/04/2025	WS3	0.0	0.6	18.2	0	0	0.0	992	0.0	2.00
15/04/2025	WS4	0.0	1.2	17.8	0	0	0.0	992	0.0	3.95
15/04/2025	WS5	0.0	0.0	20.5	0	0	0.0	992	0.0	4.50
30/04/2025	WS1	0.0	0.6	19.9	0	0	<<<	1018	0.0	2.70
30/04/2025	WS2	0.0	1.3	19.4	0	0	<<<	1017	0.0	Nil
30/04/2025	WS3	0.0	0.1	20.3	0	0	0.0	1019	0.0	2.06
30/04/2025	WS4	0.0	0.7	19.0	0	0	<<<	1019	0.0	3.94
30/04/2025	WS5	0.0	0.0	20.7	0	0	<<<	1020	0.0	4.32
13/05/2025	WS1	0.0	1.3	18.8	0	0	0.0	1015	0.0	2.70
13/05/2025	WS2	0.0	1.7	18.7	0	0	0.0	1015	0.0	Nil
13/05/2025	WS3	0.0	0.1	20.3	0	0	0.0	1015	0.0	2.10
13/05/2025	WS4	0.0	0.0	20.6	0	0	0.0	1017	0.0	4.00
13/05/2025	WS5	0.0	1.1	18.9	0	0	0.0	1016	0.0	4.85
20/05/2025	WS1	0.0	1.3	19.4	0	0	0	1017	0.0	2.70
20/05/2025	WS2	0.0	1.8	18.6	0	0	0.0	1017	0.0	Nil
20/05/2025	WS3	0.0	0.3	20.1	0	0	0.0	1019	0.0	2.10
20/05/2025	WS4	0.0	0.3	20.4	0	0	<<<	1018	0.0	4.00
20/05/2025	WS5	0.0	0.6	20.1	0	0	0.0	1019	0.0	Nil
29/05/2025	WS1	0.0	0.8	19.7	0	0	0	1009	0.0	2.15
29/05/2025	WS2	0.0	2.0	18.4	0	0	0.0	1009	0.0	Nil
29/05/2025	WS3	0.0	0.4	19.1	0	0	0.0	1009	0.0	1.85
29/05/2025	WS4	0.0	0.5	16.2	0	0	0.0	1009	0.0	3.80
29/05/2025	WS5	0.0	3.7	13.7	0	0	0.0	1009	0.0	4.75
12/06/2025	WS1	0.0	1.1	19.6	0	0	0.0	1005	0.0	2.20
12/06/2025	WS2	0.0	1.3	19.4	0	0	0.0	1005	0.0	Nil
12/06/2025	WS3	0.0	1.6	10.7	0	0	0.0	1007	0.0	1.75
12/06/2025	WS4	0.0	0.9	12.5	0	0	0.0	1007	0.0	3.85
12/06/2025	WS5	0.0	0.8	19.1	0	0	0.0	1005	0.0	4.80
04/07/2025	WS1	0.0	0.0	21.0	0	0	0.0	1017	0.0	2.35
04/07/2025	WS2	0.0	0.0	20.9	0	0	0.0	1016	0.0	Nil
04/07/2025	WS3	0.0	0.1	20.6	0	0	0.0	1020	0.0	1.89
04/07/2025	WS4	0.0	0.8	20.0	0	0	0.0	1018	0.0	4.00
04/07/2025	WS5	0.0	0.1	20.7	0	0	0.0	1019	0.0	Nil
10/07/2025	WS1	0.0	0.0	20.9	0	0	0.0	1019	0.0	2.35
10/07/2025	WS2	0.0	0.1	20.8	0	0	0.0	1018	0.0	Nil
10/07/2025	WS3	0.0	0.1	20.5	0	0	0.0	1019	0.0	1.90
10/07/2025	WS4	0.0	0.0	20.8	0	0	0.0	1020	0.0	3.90
10/07/2025	WS5	0.0	0.1	20.7	0	0	0.0	1020	0.0	3.73

Site Reference:	**6180 VTE**
Project Site:	**Plot E1 & E2 Great Jackson Street**
Project Location:	**Manchetser**
Client:	**Renaker Build Limited**

Factual Data Summary										Interpretation& Risk Assessment					
BH Ref.	Response zone/strata	Evidence of Gas contamination	No of Monitoring occasions	Max. Recorded Methane	Max. Recorded Carbon Dioxide (%)	Min. Oxygen (%)	Max. Recorded Flow (l/hr)	Water Level (mbgl)	Atmospheric Pressure Range (mb)	Is Water Level within top 10% of the response zone?	Are readings considered representative	Explanation / Justification	Gas Screening Value (GSV) Methane*	Gas Screening Value (GSV) Carbon Dioxide*	Risk Classification & Characteristic Situation **
WS1	1.00 - 3.50 Made Ground over Clay	No	8	0.0	1.3	18.8	0.0	2.0	991-1019	No	Yes		0.000	0.001	**Very Low Risk Characteristic Situation 2****
WS2	1.00 - 4.50 Made Ground over Sand and Clay	No	8	0.0	2.0	18.4	0.0	0.0	991-1018	No	Yes		0.000	0.002	**Very Low Risk Characteristic Situation 1**
WS3	1.00 - 4.00 Made Ground over Clay	No	8	0.0	1.6	10.7	0.0	1.8	992-1020	No	Yes		0.000	0.002	**Very Low Risk Characteristic Situation 1**
WS4	1.00 - 4.50 Made Ground over Sand and Gravel and Clay	No	8	0.0	1.2	12.5	0.0	3.8	992-1020	No	Yes		0.000	0.001	**Very Low Risk Characteristic Situation 1**
WS5	1.00 - 5.00 Made Ground over Clay and Gravel	No	8	0.0	3.7	13.7	0.0	3.7	992-1020	No	Yes		0.000	0.004	**Very Low Risk Characteristic Situation 1**
Worst Case	1.00 - 5.00 Made Ground over Sand and Gravel and Clay	No	40	0.0	3.7	10.7	0.0	0.0	991-1020	No	Yes		0.000	0.004	**Very Low Risk Characteristic Situation 2****

*** Where no flow measured, GSV value is determined with an instrument minimum value of 0.1 l/hr**

**** Risk classification/Characteristic situation based on GSV and Methane >1% /CO2 >5% and other influencing factors**

TEST DATE AND CONDITIONS		
Date	18/11/2024	
Atmospheric Pressure	994	mB
Ambient Temperature	20.8	°C
Environics Serial No.	5089	

GFM436 Final Inspection & Calibration Check Certificate

GAS DATA LTD
Unit D
Earlplace Business Park
Fletchamstead Highway
Coventry
CV4 9XL
Tel 02476303311 Fax 02476307711

Customer	GeoAssist Ltd
Certificate Number	125689
Order Number	340279

Serial Number	13237
Software Version	G436-00.0027/0010

Recalibration DUE Date
18/11/25

Instrument Checks					
Keyboard	✓		Display Contrast	✓	
Pump Flow In	500	*Accept > 200 cc/min*	Pump Flow @ -200mB	300	*Accept > 200 cc/min*
Clock Set / Running	✓		Labels Fitted	✓	

Gas Checks						
	CH_4		CO_2		O_2	
Sensor	Instrument Gas Readings %	True Gas Value %	Instrument Gas Readings %	True Gas Value %	Instrument Gas Readings %	True Gas Value %
	59.6	60	39.7	40	20.9	20.9
	Accept ±3.0		*Accept ±3.0*		*Accept ±0.5*	
	5.0	5	5.0	5	6.0	6
	Accept ±0.3		*Accept ±0.3*		*Accept ±0.3*	
Zero Reading 100% N2	0.0	0	0.0	0	0.0	0
	Accept ±0.0		*Accept ±0.0*		*Accept ±0.1*	

Optional Gas Checks						
Applied Gas & Range		Concentration Tested @ (ppm)	Instrument Readings *(ppm)*			
Gas Type	Range (*ppm*)		Zero Reading		Instrument Gas Reading	
H2S	5000	*1500*	0	*Accept ±0.0*	1500	*Accept ±5.0%*
CO	2000	*1000*	0	*Accept ±0.0*	1001	*Accept ±5.0%*
Hexane	*2.0%*	2.0%	0	*Accept ±0.0*	1.99	*Accept ±10.0%*

Cross Gas Effects									
Applied Gas *(ppm)*		Instrument Readings *(ppm)*							
Gas Type	Concentration	Toxic 1:	H2S	Toxic 2:	CO	Toxic 3:	HEX		
H2S	*1500*	1500		0		0			
CO	*1000*	80		1001		0			
Hexane	*2.0%*	0		0		1.99			

Pressure Checks			
Atmospheric Pressure [AP] *(mB)*			
Current Atmospheric Pressure (mB)		Instrument Atmospheric Pressure Reading (mB)	
AP Open Ports		994	*Accept ±2.0*
AP Port (Internal)	*+800 mB*	800	*Accept ±5.0*
	+1200mb	1200	*Accept ±5.0*

Flow Checks					
Borehole Flow			Differential Pressure		
Applied Reading *(l/h)*	Instrument Reading *(l/h)*		Applied Pressure *(Pa)*	Instrument Reading *(Pa)*	
-30	-30.1	*Accept ±3.0*	-355	-360	*Accept ±50*
-3	-3.0	*Accept ±1.0*	-16	-16	*Accept ±6.0*
0	0.0	*Accept ±0.0*	0	0	*Accept ±0.5*
3	3.0	*Accept ±0.5*	16	16	*Accept ±3.0*
30	30.3	*Accept ±3.0*	377	386	*Accept ±50*
60	60.0	*Accept ±6.0*	1158	1158	*Accept ±130*
90	91.4	*Accept ±9.0*	2284	2360	*Accept ±250*

Temperature Checks		
Calibration Temperature Applied Temperature °C	Instrument Temperature Reading °C	
-10	-10.0	*Accept ±2.0*
0	0.0	*Accept ±1.0*
30	30.0	*Accept ±1.0*
60	60.0	*Accept ±1.0*
100	100.0	*Accept ±1.0*

Technician:	Date Tested:
Jack Rutland	*18/11/2024*

The instrument identified by the serial number stated above has been tested by Gas Data personnel for calibration accuracy on the date and under the ambient conditions stated. Gas Data Ltd internal BS EN ISO9001:2015, BS EN ISO14001:2015, BS EN ISO45001:2018 compliant workshop procedures were followed to apply known calibration test gases, gas flow rates, pressures and temperatures of the values stated. The results displayed on the instrument at each stage are recorded above.

Gas Data Ltd is certified to BS EN ISO9001:2015, BS EN ISO14001:2015, BS EN ISO45001:2018.

Appendix C

C1 i2 Analytical Laboratory Test Results Soils

C2 Analysis of Soils Results with Assessment Criteria

C3 i2 Analytical Laboratory Test Results Water

C4 Analysis of Water Results with Assessment Criteria

GeoAssist Ltd
Unit 4, Sheffield Street
Heaton Norris
Stockport
Cheshire
SK4 1RU

[redacted]

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404

[redacted]

Analytical Report Number : 25-019125

Project / Site name:	Plot E1 & E2 Great Jackson Street	**Samples received on:**	15/04/2025
Your job number:	6180 VTE	**Samples instructed on/ Analysis started on:**	15/04/2025
Your order number:	2250414	**Analysis completed by:**	29/04/2025
Report Issue Number:	1	**Report issued on:**	29/04/2025
Samples Analysed:	10 soil samples		

[redacted]

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514272	514273	514274	514275	514276
Sample Reference				WS1	WS1	WS2	WS3	WS3
Sample Number				ES2	ES3	ES2	ES1	ES2
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.80	2.60	0.80	0.50	1.50
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	33.3	< 0.1	47.8	65.1	< 0.1
Moisture Content	%	0.01	NONE	8.6	17	9.5	10	6.3
Total mass of sample received	kg	0.1	NONE	0.6	0.1	0.5	0.5	0.1
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	KWB	-	KWB	KWB	-
Analysis completed	N/A	N/A	N/A	25/04/2025	-	25/04/2025	25/04/2025	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.8	8.2	8.3	9.2	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.146	0.033	0.068	0.086	0.022
Sulphide	mg/kg	1	MCERTS	19	8.3	2.2	< 1.0	< 1.0
Total Sulphur	mg/kg	50	MCERTS	1100	840	390	470	95
Total Sulphur	%	0.005	MCERTS	0.112	0.084	0.039	0.047	0.009
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	1.2	< 0.05	< 0.05	2.6	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	0.06	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	5.6	< 0.05	0.1	3.6	< 0.05
Fluorene	mg/kg	0.05	MCERTS	3.3	< 0.05	< 0.05	2.3	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	24	0.16	0.69	16	< 0.05
Anthracene	mg/kg	0.05	MCERTS	7.2	< 0.05	< 0.05	4	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	42	0.1	0.95	20	< 0.05
Pyrene	mg/kg	0.05	MCERTS	35	0.1	0.95	17	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	18	< 0.05	0.38	7.4	< 0.05
Chrysene	mg/kg	0.05	MCERTS	18	< 0.05	0.4	8	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	20	< 0.05	0.42	8.8	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	9.6	< 0.05	0.2	3.7	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	18	< 0.05	0.39	7.7	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	9.6	< 0.05	0.17	3.4	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.5	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	9.9	< 0.05	0.22	3.8	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	225	< 0.80	4.88	109	< 0.80

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514272	514273	514274	514275	514276
Sample Reference				WS1	WS1	WS2	WS3	WS3
Sample Number				ES2	ES3	ES2	ES1	ES2
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.80	2.60	0.80	0.50	1.50
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	29	4.5	12	9	3.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	420	74	95	150	22
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	1.1	0.95	0.77	0.31
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	1.4	0.8	0.7	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	0.4	< 0.2	0.4	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	31	15	18	6.8
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	28	41	78	8.9
Lead (aqua regia extractable)	mg/kg	1	MCERTS	400	14	69	100	6.5
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	< 0.3	0.3	2	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	37	16	18	4.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	30	23	22	12
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	350	68	72	120	8.4
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-	-	-	-	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-	-	-	-	44
TPHCWG - Aliphatic >EC35 - EC40 $_{EH_CU_1D_AL}$	mg/kg	10	NONE	-	-	-	-	< 10
TPHCWG - Aliphatic >EC5 - EC40 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	-	-	-	-	44
TPHCWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	-	-	-	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	-	-	-	-	0.016
TPHCWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.02	MCERTS	-	-	-	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	-	-	-	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	-	-	-	-	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	-	-	-	-	< 10
TPHCWG - Aromatic >EC35 - EC40 $_{EH_CU_1D_AR}$	mg/kg	10	NONE					< 10
TPHCWG - Aromatic >EC5 - EC40 $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	-	-	-	-	< 10
TPH Total >EC5 - EC40 $_{EH_CU+HS_1D_TOTAL}$	mg/kg	10	NONE	-	-	-	-	44

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514272	514273	514274	514275	514276
Sample Reference				WS1	WS1	WS2	WS3	WS3
Sample Number				ES2	ES3	ES2	ES1	ES2
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.80	2.60	0.80	0.50	1.50
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
VOCs								
Chloromethane	µg/kg	5	MCERTS	-	-	-	-	-
Chloroethane	µg/kg	5	MCERTS	-	-	-	-	-
Bromomethane	µg/kg	5	MCERTS	-	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	5	MCERTS	-	-	-	-	-
1,1-Dichloroethene	µg/kg	5	MCERTS	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	-	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	-	-	-	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	-
Chloroform	µg/kg	5	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	7	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	5	MCERTS	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	-	-	-	-	-
Benzene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	6	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	10	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	5	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	5	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	-	-	-	-	-
Toluene	µg/kg	5	MCERTS	-	-	-	-	13
1,1,2-Trichloroethane	µg/kg	6	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	5	MCERTS	-	-	-	-	-
Dibromochloromethane	µg/kg	5	MCERTS	-	-	-	-	-
Tetrachloroethene	µg/kg	5	MCERTS	-	-	-	-	-
1,2-Dibromoethane	µg/kg	5	MCERTS	-	-	-	-	-
Chlorobenzene	µg/kg	5	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	-	-	-	-	< 8.0
Styrene	µg/kg	5	MCERTS	-	-	-	-	-
Bromoform	µg/kg	5	MCERTS	-	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	-	-	-	-	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromobenzene	µg/kg	5	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
2-Chlorotoluene	µg/kg	5	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	5	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
tert-Butylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
sec-Butylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	MCERTS	-	-	-	-	-
p-Isopropyltoluene	µg/kg	5	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	MCERTS	-	-	-	-	-

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514272	514273	514274	514275	514276
Sample Reference				WS1	WS1	WS2	WS3	WS3
Sample Number				ES2	ES3	ES2	ES1	ES2
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.80	2.60	0.80	0.50	1.50
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
1,2-Dichlorobenzene	µg/kg	5	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	5	MCERTS	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	5	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	-	-	-	-	-
SVOCs								
Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	NONE	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514277	514278	514279	514280	514281
Sample Reference				WS3	WS4	WS4	WS5	WS5
Sample Number				ES3	ES1	ES2	ES2	ES3
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				2.00	0.30	1.30	0.80	1.60
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	23.8	< 0.1
Moisture Content	%	0.01	NONE	10	9.1	9.8	9.4	12
Total mass of sample received	kg	0.1	NONE	0.1	0.5	0.1	0.6	0.1
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	-	KWB	-	KWB	-
Analysis completed	N/A	N/A	N/A	-	25/04/2025	-	25/04/2025	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.4	10.4	8.1	8.7	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	%	0.005	MCERTS	0.048	0.514	0.026	0.08	0.032
Sulphide	mg/kg	1	MCERTS	4.7	4.7	< 1.0	6.3	< 1.0
Total Sulphur	mg/kg	50	MCERTS	630	2100	140	680	97
Total Sulphur	%	0.005	MCERTS	0.063	0.209	0.014	0.068	0.01
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	2	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.6	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.05	0.16	0.16	11	0.07
Fluorene	mg/kg	0.05	MCERTS	0.2	0.13	0.14	9.2	0.08
Phenanthrene	mg/kg	0.05	MCERTS	0.18	1.2	1.1	72	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.3	0.24	18	0.29
Fluoranthene	mg/kg	0.05	MCERTS	0.32	2.2	1.2	92	1.6
Pyrene	mg/kg	0.05	MCERTS	0.77	2.2	1.1	84	1.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.93	0.44	44	0.5
Chrysene	mg/kg	0.05	MCERTS	< 0.05	1	0.5	38	0.53
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1.2	0.64	49	0.52
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.45	0.14	20	0.24
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.1	0.47	44	0.45
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.47	0.21	18	0.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.12	< 0.05	4	0.06
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.55	0.17	20	0.18
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.51	12.2	6.54	527	7.21

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514277	514278	514279	514280	514281
Sample Reference				WS3	WS4	WS4	WS5	WS5
Sample Number				ES3	ES1	ES2	ES2	ES3
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				2.00	0.30	1.30	0.80	1.60
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.5	6.3	2.1	28	3.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	38	120	64	430	90
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58	0.61	0.2	2	0.37
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	1.1	0.6	1.3	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3	< 0.2	1.1	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	16	8.7	22	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	19	7.9	130	7.1
Lead (aqua regia extractable)	mg/kg	1	MCERTS	39	43	6.1	170	7.2
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.4	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	13	4.4	36	9.4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18	18	10	46	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	27	62	13	210	26
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	-	-
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	0.059	-	-	-	-
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	0.32	-	-	-	-
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	7.9	-	-	-	-
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	54	-	-	-	-
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	520	-	-	-	-
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	9600	-	-	-	-
TPHCWG - Aliphatic >EC35 - EC40 $_{EH_CU_1D_AL}$	mg/kg	10	NONE	1500	-	-	-	-
TPHCWG - Aliphatic >EC5 - EC40 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	12000	-	-	-	-
TPHCWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	< 0.010	-	-	-	-
TPHCWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	< 0.010	-	-	-	-
TPHCWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.02	MCERTS	< 0.020	-	-	-	-
TPHCWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	8.1	-	-	-	-
TPHCWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	21	-	-	-	-
TPHCWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	170	-	-	-	-
TPHCWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	3700	-	-	-	-
TPHCWG - Aromatic >EC35 - EC40 $_{EH_CU_1D_AR}$	mg/kg	10	NONE	830				
TPHCWG - Aromatic >EC5 - EC40 $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	4700	-	-	-	-
TPH Total >EC5 - EC40 $_{EH_CU+HS_1D_TOTAL}$	mg/kg	10	NONE	16000	-	-	-	-

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514277	514278	514279	514280	514281
Sample Reference				WS3	WS4	WS4	WS5	WS5
Sample Number				ES3	ES1	ES2	ES2	ES3
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				2.00	0.30	1.30	0.80	1.60
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
VOCs								
Chloromethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Chloroethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Bromomethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	-	-
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	-	-	-
Chloroform	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	-	-	-	-
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	-	-	-	-
Trichloroethene	µg/kg	10	MCERTS	< 10	-	-	-	-
Dibromomethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	-	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	-	-	-	-
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	-	-	-	-
Styrene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Bromoform	µg/kg	5	MCERTS	< 5.0	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Bromobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street
Your Order No: 2250414

Lab Sample Number				514277	514278	514279	514280	514281
Sample Reference				WS3	WS4	WS4	WS5	WS5
Sample Number				ES3	ES1	ES2	ES2	ES3
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				2.00	0.30	1.30	0.80	1.60
Date Sampled				14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Butylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	NONE	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
514272	WS1	ES2	0.8	Brown loam and clay with brick and stones
514273	WS1	ES3	2.6	Brown clay
514274	WS2	ES2	0.8	Brown loam with gravel and stones
514275	WS3	ES1	0.5	Brown loam and clay with stones
514276	WS3	ES2	1.5	Brown sand
514277	WS3	ES3	2	Brown sandy loam with gravel
514278	WS4	ES1	0.3	Brown loam with gravel
514279	WS4	ES2	1.3	Brown sand with gravel
514280	WS5	ES2	0.8	Brown sand with gravel and stones
514281	WS5	ES3	1.6	Brown clay and sand

Analytical Report Number : 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 25-019125
Project / Site name: Plot E1 & E2 Great Jackson Street

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Soils Risk Assessment

Site Reference: 6180 VTE
Project Site: Plot E1 & E2 Great Jackson Street
Project Location: Manchetser
Client: Renaker Build Limited

i2 Reference	Commercial	WS1-ES2	WS1-ES3-ES3	WS2-ES2	WS3-ES1	WS3-ES2	WS3-ES3	WS4-ES1	WS4-ES2	WS5-ES2	WS5-ES3
Customer Sample Ref:	C4SL / S4UL	0.80	2.60	0.80	0.50	1.50	2.00	0.30	1.30	0.80	1.60
	SOM 1% GAC	14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025	14/04/2025
Determinand	LQM II										
Arsenic	640	29	4.5	12	9	3.9	2.5	6.3	2.1	28	3.7
Boron (water-soluble)	240000	1.6	1.4	0.8	0.7	0.5	0.6	1.1	0.6	1.3	0.6
Cadmium	410	1.1	0.4	0.2	0.4	0.2	0.2	0.3	0.2	1.1	0.2
Chromium*	8600	22	31	15	18	6.8	12	16	8.7	22	13
Chromium VI	49	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	68000	120	28	41	78	8.9	13	19	7.9	130	7.1
Cyanide(Total)	-	1	1	1	1	1	1	1	1	1	1
Cyanide(free)**	34	1	1	1	1	1	1	1	1	1	1
Lead	2300	400	14	69	100	6.5	39	43	6.1	170	7.2
Mercury	58	0.7	0.3	0.3	2	0.3	0.3	0.3	0.3	0.4	0.3
Nickel	980	28	37	16	18	4.5	11	13	4.4	36	9.4
pH	-	8.8	8.2	8.3	9.2	9.1	8.4	10.4	8.1	8.7	8.4
Phenols(Mono)	3200	1	1	1	1	1	1	1	1	1	1
Selenium	12000	1	1	1	1	1	1	1	1	1	1
SO4(Total)	-	0.146	0.033	0.068	0.086	0.022	0.048	0.514	0.026	0.08	0.032
Sulphide	-	19	8.3	2.2	1	1	4.7	4.7	1	6.3	1
Sulphur(Free)	-	1100	840	390	470	95	630	2100	140	680	97
Thiocyanate	-	0	0	0	0	0	0	0	0	0	0
Zinc	730000	350	68	72	120	8.4	27	62	13	210	26
Acenaphthene	100000	5.6	0.05	0.1	3.6	0.05	0.05	0.16	0.16	11	0.07
Acenaphthylene	100000	0.21	0.05	0.05	0.06	0.05	0.05	0.05	0.05	1.6	0.05
Anthracene	540000	7.2	0.05	0.05	4	0.05	0.05	0.3	0.24	18	0.29
Benzo(a)Anthracene	-	18	0.05	0.38	7.4	0.05	0.05	0.93	0.44	44	0.5
Benzo(a)Pyrene SM	77	18	0.05	0.39	7.7	0.05	0.05	1.1	0.47	44	0.45
Benzo(b)Fluoranthene	-	20	0.05	0.42	8.8	0.05	0.05	1.2	0.64	49	0.52
Benzo(ghi)Perylene	-	9.9	0.05	0.22	3.8	0.05	0.05	0.55	0.17	20	0.18
Benzo(k)Fluoranthene	-	9.6	0.05	0.2	3.7	0.05	0.05	0.45	0.14	20	0.24
Chrysene	-	18	0.05	0.4	8	0.05	0.05	1	0.5	38	0.53
Dibenzo(ah)Anthracene	-	2.5	0.05	0.05	0.05	0.05	0.05	0.12	0.05	4	0.06
Fluoranthene	23000	42	0.1	0.95	20	0.05	0.32	2.2	1.2	92	1.6
Fluorene	71000	3.3	0.05	0.05	2.3	0.05	0.2	0.13	0.14	9.2	0.08
Indeno(123-cd)Pyrene	-	9.6	0.05	0.17	3.4	0.05	0.05	0.47	0.21	18	0.2
Naphthalene	1100	1.2	0.05	0.05	2.6	0.05	0.05	0.13	0.05	2	0.05
Phenanthrene	23000	24	0.16	0.69	16	0.05	0.18	1.2	1.1	72	1.2
Pyrene	54000	35	0.1	0.95	17	0.05	0.77	2.2	1.1	84	1.3
PAH(total)	-	225	0.8	4.88	109	0.8	1.51	12.2	6.54	527	7.21
Asbestos	Not-detected	Not-detected	-	Not-detected	Not-detected	-	-	Not-detected	-	Not-detected	-
TPH (C6-C8 aliphatic)	7800	-	-	-	-	0.01	0.059	-	-	-	-
TPH (C8-C10 aliphatic)	2000	-	-	-	-	0.01	0.32	-	-	-	-
TPH (C10-C12 aliphatic)	9700	-	-	-	-	1	7.9	-	-	-	-
TPH (C12-C16 aliphatic)	59000	-	-	-	-	2	54	-	-	-	-
TPH (C16-C21 aliphatic)	1600000	-	-	-	-	8	520	-	-	-	-
TPH (C21-C35 aliphatic)	1600000	-	-	-	-	44	9600	-	-	-	-
TPH (C5-C7 aromatic)	26000	-	-	-	-	0.01	0.01	-	-	-	-
TPH (C7-C8 aromatic)	56000	-	-	-	-	0.016	0.01	-	-	-	-
TPH (C8-C10 aromatic)	3500	-	-	-	-	0.02	0.02	-	-	-	-
TPH (C10-C12 aromatic)	16000	-	-	-	-	1	8.1	-	-	-	-
TPH (C12-C16 aromatic)	36000	-	-	-	-	2	21	-	-	-	-
TPH (C16-C21 aromatic)	28000	-	-	-	-	10	170	-	-	-	-
TPH (C21-C35 aromatic)	28000	-	-	-	-	10	3700	-	-	-	-
Benzene	2.4	-	-	-	-	0.005	0.005	-	-	-	-
Toluene	7.5	-	-	-	-	0.013	0.005	-	-	-	-
EthylBenzene	260	-	-	-	-	0.005	0.005	-	-	-	-
M/P Xylene	310	-	-	-	-	0.008	0.008	-	-	-	-
O Xylene	330	-	-	-	-	0.005	0.005	-	-	-	-

All Units mg/kg unless otherwise stated — Indicates Exceedance of Applicable Level

*Criteria Assumes Chromium III

**Criteria is derrived considering acute effects on 1-2yo Female Receptor ingesting a single dose of 3g of soil

**Criteria is derrived considering Total TPH (C10 to C35) is formed entirley of a 50:50 Aliphatic and Aromatic Split C8-C10 range

Basis of Assessment Criteria: EA 2005 WAC (Human Health Value) C4SL
LQM S4UL Atrisk 06

GeoAssist Limited

Appendix C2

6180 VTE Soils Risk Assessment

UKAS TESTING
4041

Environmental Science

GeoAssist Ltd
Unit 4, Sheffield Street
Heaton Norris
Stockport
Cheshire
SK4 1RU

[redacted]

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404

[redacted]

Analytical Report Number : 25-028351

Project / Site name:	Plot E1 & E2 Great Jackson Street	**Samples received on:**	30/05/2025
Your job number:	6180 VTE	**Samples instructed on/ Analysis started on:**	30/05/2025
Your order number:	2250529	**Analysis completed by:**	10/06/2025
Report Issue Number:	1	**Report issued on:**	10/06/2025
Samples Analysed:	3 water samples		

[redacted]

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

UKAS TESTING
4041

Analytical i2 Environmental Science

Analytical Report Number: 25-028351
Project / Site name: Plot E1 & E2 Great Jackson Street

Your Order No: 2250529

Lab Sample Number				564626	564627	564628
Sample Reference				BH01	BH03	BH05
Sample Number				W1	W1	W1
Water Matrix				Ground water	Ground water	Ground water
Depth (m)				12	12	12
Date Sampled				29/05/2025	29/05/2025	29/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
General Inorganics						
pH (L099)	pH Units	N/A	ISO 17025	7.7	7.5	7.4
Total Cyanide	µg/l	10	ISO 17025	43	-	-
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	1.6	2.7
Free Cyanide	µg/l	10	ISO 17025	< 10	-	-
Free Cyanide (Low Level)	µg/l	1	NONE	-	< 1.0	< 1.0
Thiocyanate as SCN	µg/l	200	ISO 17025	< 200	< 200	< 200
Sulphate as SO_4	mg/l	0.045	ISO 17025	172	32.9	109
Total Sulphur	mg/l	0.015	NONE	57.32	10.95	36.33
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Total Phenols						
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	-	-
Total Phenols (Monohydric) Low Level	µg/l	1	NONE	-	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.37	0.21	0.43
Barium (dissolved)	µg/l	0.06	ISO 17025	170	120	120
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.04	< 0.02	0.06
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.9	0.4
Copper (dissolved)	µg/l	0.5	ISO 17025	2.2	1.1	6.7
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1	0.7	5.3
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	1.4
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	0.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.2	1.5	3.4

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

UKAS TESTING
4041

Analytical i2 Environmental Science

Analytical Report Number: 25-028351
Project / Site name: Plot E1 & E2 Great Jackson Street

Your Order No: 2250529

Lab Sample Number				564626	564627	564628
Sample Reference				BH01	BH03	BH05
Sample Number				W1	W1	W1
Water Matrix				Ground water	Ground water	Ground water
Depth (m)				12	12	12
Date Sampled				29/05/2025	29/05/2025	29/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Boron (dissolved)	µg/l	10	ISO 17025	100	25	87
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons						
TPH - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 $_{HS+EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC35 - EC40 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC40 $_{HS+EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 $_{HS+EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC35 - EC40 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC40 $_{HS+EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH Total (>EC5 - EC40) $_{HS+EH_1D_TOTAL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
VOCs						
Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

4041

Analytical Report Number: 25-028351
Project / Site name: Plot E1 & E2 Great Jackson Street

Your Order No: 2250529

Lab Sample Number				564626	564627	564628
Sample Reference				BH01	BH03	BH05
Sample Number				W1	W1	W1
Water Matrix				Ground water	Ground water	Ground water
Depth (m)				12	12	12
Date Sampled				29/05/2025	29/05/2025	29/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

4041

Analytical Report Number: 25-028351
Project / Site name: Plot E1 & E2 Great Jackson Street

Your Order No: 2250529

Lab Sample Number				564626	564627	564628
Sample Reference				BH01	BH03	BH05
Sample Number				W1	W1	W1
Water Matrix				Ground water	Ground water	Ground water
Depth (m)				12	12	12
Date Sampled				29/05/2025	29/05/2025	29/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
SVOCs						
Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

4041

Analytical Report Number : 25-028351
Project / Site name: Plot E1 & E2 Great Jackson Street

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029-PL	W	NONE
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or Volatile Organic Compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method based on USEPA 8260	L073B	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Free cyanide in water	Determination of free cyanide in water by distillation followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide in water by distillation followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE
Thiocyanate in water	Determination of thiocyanate in water by colorimetry using discrete analyser. Accredited matrices: SW, PW, GW	In-house method based on SMWW 4500-CN-M	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Sulphur in water	Determination of total sulphur in water by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	NONE

4041

Analytical Report Number : 25-028351
Project / Site name: Plot E1 & E2 Great Jackson Street

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Free cyanide (low level) in water	Determination of free cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide (low level) in water	Determination of total cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#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 e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Groundwater Risk Assessment

Site Reference: **6180 VTE**
Project Site: **Plot E1 & E2 Great Jackson Street**
Project Location:
Client: **Renaker Build Limited**

SAL Reference	Assessment	564626	564627	564628
Customer Sample Ref:	Criteria	BH01 - W1	BH03 - W1	BH05 - W1
		12.00	12.00	12.00
Determinand		29/05/2025	29/05/2025	29/05/2025
Arsenic	50	0.37	0.21	0.43
Boron (water-soluble)	2000	100	25	87
Cadmium	5	0.04	0.02	0.06
Chromium	250	0.4	0.9	0.4
Chromium VI	5	5	5	5
Copper	28	2.2	1.1	6.7
Cyanide(Total)	50	43	1.6	2.7
Cyanide(free)	50	10	1	1
Lead	250	0.2	0.2	0.2
Mercury	1	0.05	0.05	0.05
Nickel	200	1	0.7	5.3
pH	9	7.7	7.5	7.4
Phenols(Mono)	300	10	1	1
Selenium	10	0.6	0.6	1.4
SO4(Total)	400000	172000	32900	109000
Sulphide	-	5	5	5
Sulphur(Free)	-	57320	10950	36330
Thiocyanate	-	200	200	200
Zinc	500	3.2	1.5	3.4
Acenaphthene	-	0.01	0.01	0.01
Acenaphthylene	-	0.01	0.01	0.01
Anthracene	0.4	0.01	0.01	0.01
Benzo(a)Anthracene	-	0.01	0.01	0.01
Benzo(a)Pyrene	0.7	0.01	0.01	0.01
Benzo(b/k)Fluoranthene	-	0.02	0.02	0.02
Benzo(ghi)Perylene	-	0.01	0.01	0.01
Chrysene	-	0.01	0.01	0.01
Dibenzo(ah)Anthracene	-	0.01	0.01	0.01
Fluoranthene	1	0.01	0.01	0.01
Fluorene	-	0.01	0.01	0.01
Indeno(123-cd)Pyrene	-	0.01	0.01	0.01
Naphthalene	13.2	0.01	0.01	0.01
Phenanthrene	-	0.01	0.01	0.01
Pyrene	-	0.01	0.01	0.01
PAH(total)	-	0.16	0.16	0.16
TPH (C8-C10 aliphatic)	-	1	1	1
TPH (C10-C12 aliphatic)	-	10	10	10
TPH (C12-C16 aliphatic)	-	10	10	10
TPH (C16-C21 aliphatic)	-	10	10	10
TPH (C21-C35 aliphatic)	-	10	10	10
TPH (C7-C8 aromatic)	-	1	1	1
TPH (C8-C10 aromatic)	-	1	1	1
TPH (C10-C12 aromatic)	-	10	10	10
TPH (C12-C16 aromatic)	-	10	10	10
TPH (C16-C21 aromatic)	-	10	10	10
TPH (C21-C35 aromatic)	-	10	10	10
TPH (C35-C40 aromatic)	-	10	10	10
Hardness expressed as CaCO3	-	-	-	-
Total Organic Carbon TOC (mg/l)	-	-	-	-
	-			
Benzene	30	1	1	1
Toluene	50	1	1	1
Ethylbenzene	30	1	1	1
p & m-xylene	-	1	1	1
o-xylene	30	1	1	1
MTBE (Methyl Tertiary Butyl Ether)	-	3	3	3
	-			

All Units µg/l unless otherwise stated

##	Indicates Exceedance of Water Assessment Criteria
##	Limit of detection gretaer than Target Value

RBDTGSTV 2010 EQS or EQS2 UK WSR01 WHO2006