PHASE II SITE INVESTIGATION REPORT OF LAND AT DALZELL STREET, MOOR ROW, CUMBRIA

Prepared for:-
Nigel Kay Homes Ltd
Hollowdyke Farm
Frizington
Cumbria
CA26 3QZ

GeoCon Site Investigations Ltd,
Arden House
Shepley Lane Industrial Estate
Marple
Stockport.
SK6 7JW

September 2024
Ref: GSI 2132 WG PII Report

Quality Assurance	
Project ID	GSI 2132
Project Name	Land at Dalzell Street, Moor Row
Report Type	Phase II Site Investigation
Report Reference	GSI 2132 WG PII Report
Appointed by	Nigel Kay Homes
Version	Version 2
Status	Final
Date of First Issue	September 2024
Revision Date	January 2025
Written by	*William Garner* For and on behalf of GeoCon Site Investigations Ltd William Garner B.Sc. (Hons) Engineering Geologist
Reviewed by	*Liam Daley* For and on behalf of GeoCon Site Investigations Ltd Liam Daley B.Sc. (Hons) Principal Engineering Geologist
Authorised by	*Ian Walker* For and on behalf of GeoCon Site Investigations Ltd Ian Walker B.Sc. (Hons) F.G.S Director

From herein after GeoCon Site Investigations Ltd will be referred to as GeoCon

Table of Contents

List of Tables

APPENDICES

Appendix	Information
A	Drawings
B	Rotary Open Hole Borehole Logs
C	Dynamic Sample Borehole Logs
D	TRL DCP Results
E	Chemical Testing Results
F	Geotechnical Testing Results
G	Gas and Groundwater Monitoring Results

1.0 INTRODUCTION

1.1 Instruction

1.1.1 GeoCon Site Investigations Ltd (GeoCon) have been commissioned by Nigel Kay Homes Ltd ("the client") to undertake a Phase II Geoenvironmental Site Investigation on land at Dalzell Street, Moor Row, Cumbria.

1.1.2 It is understood that a Phase II Site Investigation is required to assist with a planning application for a proposed residential development at the site.

1.1.3 This report is therefore provided to establish the potential for contamination at the site as a result of current and historic land uses both ono site and within influencing distance of the site, to understand the type nature and extent of contamination present, and, to identify the ground conditions and provide details of the engineering properties of the underlying soils and rocks encountered with subsequent recommendations on suitable foundation solutions for the proposed development; and, to establish the potential risks from historic shallow coal mining.

1.1.4 This report is written in accordance with the guidance set out in Land Contamination Risk Management (LCRM), Guiding Principles for Land Contamination (GPLC) 1 – 3, and the National Planning Policy Framework (NPPF).

1.2 Scope of Works

1.2.1 Prior to commencing the site works the proposed scope of investigation was as follows, however the proposed scope will be subject to change dependent upon site conditions, access, restrictions and obstructions. The actual works undertaken following the completion of the site works and any on site amendments are detailed in section 3.0.

- Coal Authority Permit Application
- Seven rotary open hole boreholes to a nominal depth of up to 45.00mbgl to investigate the presence of shallow coal, with an additional two locations as contingency in the event of encountering mining features / voids.
- Eighteen dynamic sample boreholes to a nominal depth of up to 5.00mbgl or refusal.
- One days TRL DCP tests to provide CBR values for the proposed access roads and car parking areas at the site.
- Insitu environmental and geotechnical sampling, and insitu geotechnical testing.
- Full supervision of all works by engineering geologist including sampling and detailed geotechnical descriptions to BS5930, EN ISO 14688-1 EN ISO 14688-2 and EN ISO 14689 of all strata types encountered within the exploratory holes.
- The installation of Eight gas and groundwater monitoring wells to a nominal depth of 3.00mbgl.
- Subsequent groundwater monitoring on six occasions over a three month period in accordance with CIRIA 665 commencing approximately one week after the completion of the ground investigation.
- A suite of chemical laboratory analysis.
- A suite of geotechnical laboratory analysis.

- Production of an interpretative report including Generic Quantitative Risk Assessment (GQRA) and updated Conceptual Site Model (CSM), and ground gas risk assessment, and geotechnical assessment and coal mining risk assessment.

1.3 Previous Investigations

1.3.1 A Phase I Preliminary Risk Assessment carried out by Geo Environmental Engineering in August 2022, referenced 2016-1961 which should be referred to in conjunction with this report.

1.4 Reliance and Limitations

1.4.1 This report has been prepared using published information and information provided by the Client and their professional advisers which has been made available to GeoCon at the time of writing only. GeoCon accepts no liability for any changes resulting from new information which has become available since this time.

1.4.2 This report is provided for the sole use of the client and their professional advisors and is confidential to them unless agreed otherwise in writing. This report may only be used and relied on once the work has been paid for in full.

1.4.3 GeoCon owes no duty of care and has no liability to any third party who is not authorised by GeoCon to use this report. Any unauthorised third parties using information contained in this report do so at their own risk.

1.4.4 This assessment has been carried out to determine the potential risks posed to future end users, along with other key receptors, resulting from potential contamination at the site, based on the proposed development. Should any revisions in the development proposals result in a change any assessment parameters detailed in this report, a re-assessment of the risk should be carried out.

1.4.5 Whilst this report may reference observations made regarding the presence of features/ issues such as invasive species, ACM, site drainage and evidence of structural abnormalities, this report does not constitute specialist surveys on these matters. Should further specialist surveys be carried out in this regard, the findings of these should be reported to GeoCon so that we may determine if this has any impact on the findings of this report.

1.4.6 The assessment and interpretation of the factual data obtained as part of this Phase II Site Investigation has been undertaken in accordance with standard consulting practice and with current national and international guidance.

1.4.7 This report presents the observations made during the Phase II Site Investigation and the factual data obtained. The conclusions and recommendations in this report are limited to those which can be made based on the findings of the survey and information provided by third parties. GeoCon assumes all third party data to be true and correct. No responsibility can be accepted by GeoCon for inaccuracies in the information provided by any other party.

1.4.8 This report is written in the context of an agreed scope of works and should not be used in a different context. Furthermore, new information, improved practices, and changes in legislation may require the reinterpretation of the report in whole or in part after its original issue. GeoCon reserve the right to alter their conclusions and recommendations in the light of further information that may become available. This report is provided for the sole use of the client and their professional advisers and is confidential to them unless agreed otherwise in writing.

1.4.9 Ground conditions can be variable and change rapidly, especially in areas of Made Ground, however it is assumed that the ground conditions encountered and observed are typical and representative of the site as a whole. Most specifically with regard to this limited investigation, the ground conditions have been determined from a limited number of exploratory holes formed across the site, therefore only a

small percentage of the total area of the site has been investigated. Interpolation between exploratory holes has enabled a general picture of the subsurface conditions to be produced. Conclusions drawn from the ground investigation should be read in this context. GeoCon cannot accept responsibility for any situations resulting from locally unforeseen ground conditions occurring between exploratory holes.

1.4.10 In addition, subsurface conditions including contaminant concentrations and groundwater levels may vary spatially with time. This factor should be given due consideration in the event that the information contained within this report is used after any significant period of time has elapsed.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

2.1.1 The site is located at Dalzell Street, Moor Row, Cumbria, at approximate National Grid Reference NGR: 300662, 514638.

2.1.2 A site location plan is presented as Drawing No. GSI 2132/01 in Appendix A.

2.2 Site Reconnaissance

2.2.1 A site reconnaissance was carried out on the 16th May 2024. Details from the site walkover are included in the site description below.

2.3 Site Description

2.3.1 The site is an irregular shaped piece of land with an approximate area of 4.00Ha.

2.3.2 The topography of the site varies, with agricultural land largely level in the west (with localised undulations present) with a steep slope down to the River Keekle in the east. The land south of the agricultural land is at a lower level, with a small steep bank present along the border of the fields extended down to historical levelled and flat land. A slight dip in elevation is present from Dalzell Street to the west in the triangular portion of the site, rising up to the level of the agricultural land to the east.

2.3.3 The site is currently occupied by derelict land of a former railway goods yard along the southern portion of the site, with access gates at the west and reinforced concrete present along the extents to the east. The hardstanding present in this area is a mix from access roadway and concrete floor slabs with rebar exposed from the relict foundations of structures no longer present. Woodland is present along the southern border and grass and shrubs have grown intersecting the areas of hardstanding. This area of the site is considered 'Brownfield land' (and referred to as such throughout this report), with evidence of historical levelling present in the form of a steep 2.00m embankment up to the agricultural land to the north.

2.3.4 The agricultural land to the north extends east to west and is described as an undeveloped field used for grazing. A small triangular shaped portion of grassed land is present at the site's western extent, adjacent the access route and Dalzell Street. This area of site is referred to as 'Greenfield land' throughout this report.

2.3.5 An approximate distribution of the surface covering is given below in Table 2.1: Site Surface Covering.

Table 2.1: Site Surface Covering

Type of Surface Cover	Distribution (%)
Soft Ground (grassed and landscaped areas)	75
Hardstanding	25
Roadways	-
Buildings	-
Water (ponds, streams)	-

2.3.6 The site is bound by fencing and a cycle path to the south, the River Keekle to the east, agricultural land to the north and northwest and Dalzell Street to the west.

2.3.7 Access to the site is via an access road off Dalzell Street. However, the brownfield portion of site is enclosed in security fencing with a locked gate at the western extent.

2.4 Surrounding Area

2.4.1 The current surrounding land use to the site is generally agricultural to the north and west, and beyond the river to the east. To the south is a historical railway utilised as a cycle path with the village of Moor Row beyond.

2.4.2 The topography of the surrounding area gradually falls to the north, with the River Keekle to the east forming a river valley.

2.5 Future Site Usage

2.5.1 It is currently proposed to develop the land into a residential estate consisting of construction of 60 2 storey residential properties complete with soft landscaping and construction of access roadways, as shown on the client provided drawing (ref: 22/07/1026-04c) and contained with Appendix A.

2.5.2 This assessment has been carried out with reference to this proposed development plan as provided by the client, any changes to the proposed development may result in this assessment requirement updating.

3.0 GROUND INVESTIGATION

3.1 General

3.1.1 The intrusive investigation was carried out between 24th June and 4th July 2024.

3.1.2 The specification and scope of works for the ground investigation has been provided by GeoCon.

3.1.3 The ground investigation has been carried out in accordance with BS5930 and the UK Specification for Ground Investigation Second Edition 2012.

3.1.4 All strata descriptions were undertaken in accordance with BS5930 Amendment 1; EN ISO 14688 -1; EN ISO 14688 -2; and EN ISO 14689.

3.1.5 The ground investigation was carried out to determine the geotechnical and geoenvironmental properties of the soils and rock beneath the site for a proposed residential development at the site.

3.1.6 The locations of the exploratory holes were specified by GeoCon and were positioned to gain key information beneath the site in relation to the proposed development.

3.1.7 All locations were checked against buried service location plans and then scanned with a Cable Avoidance Tool (CAT) and Genny prior to excavation, and a permit to dig was then issued. Each location was then continued by hand down to a minimum of 1.20mbgl to clear any buried services or other subsurface obstructions. All locations were then checked again with a Cable Avoidance Tool (CAT) at the base of the hand excavated inspection pit by GeoCon prior to commencement of drilling.

3.1.8 All access permissions were arranged by Client prior to the ground investigation commencing.

3.1.9 An exploratory hole location plan is presented in Appendix A as drawing number GSI 2132/02.

3.2 Rotary Open Hole Boreholes

3.2.1 Seven rotary open hole boreholes were drilled using a Massenza MI5 rotary drilling rig across the site to investigate the presence of shallow coal beneath the site. The locations are referenced RO1 to RO7. However, it is noted that due to refusal on dense cobbles, RO7 was relocated and titled RO7a and due to shallow buried concrete within the inspection pits within RO3 (this was relocated twice as RO3a and RO3b) and RO4 resulting in a final number of eleven rotary borehole locations.

3.2.2 The rotary open hole boreholes were advanced to a depth of 45.00mbgl and drilled utilising water flush drilling medium.

3.2.3 The rotary drilling rig was fitted with a gas detector prior to undertaking drilling works

3.2.4 The rotary open hole borehole Logs are presented in Appendix B.

3.3 Dynamic Sample Boreholes

3.3.1 Eighteen dynamic sample boreholes, site referenced DS01 to DS18, were drilled to depths of between 1.20 and 3.80mbgl. It is noted that due to shallow refusals in DS02 and DS17, these were relocated to DS02a and DS17a respectively, totalling twenty boreholes.

3.3.2 The Dynamic sample boreholes were drilled using a tracked Dynamic sample rig in order to facilitate geoenvironmental sampling and to gain an understanding of the environmental and geotechnical properties of the soils and rock beneath the site, and to facilitate the installation of gas and groundwater monitoring standpipes.

3.3.3 The dynamic sample boreholes were drilled using 100mm diameter barrel reducing in size with depth. to achieve the target depths.

3.3.4 All dynamic sample borehole logs are presented in Appendix C.

3.4 CBR Testing (by TRL DCP method)

3.4.1 A series of TRL DCP probe holes were undertaken along the lines of the proposed roads. The TRL DCP consists of an 8kg mass falling through 575mm onto an anvil, which drives a 20mm diameter 60° cone into the ground. The number of blows required to drive the cone through measured increments are recorded. The results of the TRL DCP tests are presented as graphs of the number of blows and CBR values versus depth.

3.4.2 The TRL DCP testing results are presented in Appendix D and testing locations presented on drawing GSI 2132/03 contained within Appendix A.

3.5 Sampling and Insitu Testing

3.5.1 The environmental and geotechnical sampling regime and insitu testing regime included the following:

- Environmental samples for subsequent chemical analysis were taken from each strata type, with a minimum of three samples taken from the upper 1.00 m, then at 1.00 m intervals in Made Ground with a minimum of one sample from the natural strata.
- Small disturbed samples taken from each strata type and then at 1.00 m intervals thereafter.
- Bulk disturbed samples taken at 1.00 m intervals to a depth of 5.00 mbgl, then 1.50 m intervals thereafter
- Insitu Standard Penetration Tests (SPTs) were carried out at 1.00 m intervals down to 5.00 mbgl and at 1.50 m intervals thereafter in granular soils to collate insitu strength information (relative density) for the soils beneath the site.

3.5.2 Soil samples were collected for environmental and geotechnical analysis by the engineering geologist on site based on physical and visual inspection in addition to standard sampling.

3.5.3 All samples were stored in pre-chilled cool-boxes prior to immediate dispatch to laboratory. Where there has been a delay in transporting the samples to the laboratory, samples have been kept in a cool dark storage unit inside cool boxes packed with ice, which is regularly replaced to maintain sample quality.

3.5.4 The environmental samples were subsequently transported to a chemical laboratory in plastic tubs, glass jars and soils vials. The geotechnical samples were subsequently transported to a geotechnical laboratory in prepared bulk bags and plastic tubs.

3.6 Installations and Backfill

3.6.1 Nine of the dynamic sample / rotary boreholes were installed with combined gas and ground water monitoring standpipes. The details of the gas and ground water monitoring standpipes are summarised below in Table 3.1: Gas and Groundwater Monitoring Installations:

Table 3.1: Gas and Groundwater Monitoring Installations

BH ID	Installation Depth (mbgl)	Response Zone (mbgl)	Installation Date	Strata	Comments
DS01	2.00	1.00 – 2.00	24/06/24	Natural	NA
DS04	2.00	1.00 – 2.00	24/06/24	Natural	NA
DS06	3.00	1.00 – 3.00	24/06/24	Natural	NA
DS12	2.00	1.00 – 2.00	25/06/24	Natural	NA
DS13	2.00	1.00 – 2.00	25/06/24	Made Ground	NA
DS16	2.00	1.00 – 2.00	26/06/24	Natural	NA
DS17a	1.80	1.00 – 1.80	26/06/24	Natural	NA
RO2	5.00	1.00 – 5.00	25/06/24	Natural	NA
RO7a	2.00	1.00 – 2.00	04/07/24	Natural	NA

3.6.2 Full details of the installations and backfill are presented on the relevant exploratory hole logs.

3.6.3 All monitoring standpipes are constructed using 50mm slotted pipe with a Geosock filter and gravel surround medium within the response zone, and 50mm plain pipe with a bentonite seal above the response zone (minimum 0.50m thick).

3.6.4 All remaining exploratory holes were backfilled with arisings and made level at the surface to a similar condition as prior to the work.

3.7 Groundwater

3.7.1 Where groundwater was encountered a waiting period of 20 minutes was allowed to monitor any change (rise or fall) in the levels of each groundwater strike.

3.8 Groundwater Monitoring

3.8.1 Groundwater monitoring to be carried out across the site on six occasions in conjunction with the gas monitoring regime, to establish the standing water levels beneath the site, and facilitate groundwater sampling.

3.9 Laboratory testing

3.9.1 Chemical laboratory testing was subsequently carried out on selected samples of soil. Further details of the chemical laboratory testing are given within section 5.0 – Chemical Testing and Results.

3.9.2 All chemical laboratory testing has been scheduled by GeoCon.

3.9.3 Geotechnical laboratory testing was subsequently carried out on selected samples of soil. Further details of the geotechnical laboratory testing are given within section 7.0 – Geotechnical Testing and Results.

3.9.4 All geotechnical laboratory testing has been scheduled by GeoCon.

3.10 Restrictions

3.10.1 No restrictions were encountered during this site investigation that would have prevented parts of the site being accessed and consequently resulting in any of the exploratory locations being abandoned.

4.0 GROUND CONDITIONS

4.1 Published Geology

4.1.1 The British Geological Survey shows the site to be underlain by the geological succession outlined below Table 4.1: Published Geology.

Table 4.1: Published Geology

Geology	Description /strata	BGS General Description (Lexicon)
Artificial	None recorded	-
Superficial	Till (Devensian)	*No BGS description available, generally consists of glacial clay with sands silts and gravels interbedded*
Bedrock	Brockram Breccia	Sharp and irregular unconformable contact with older rocks, usually Dinantian, Westphalian or Ordovician (Borrowdale Volcanic Group). In West Cumbria where Brockram overlies the Carboniferous Limestone
	Pennine Lower Coal Measures	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.

4.1.2 Surrounding the site are the Whitehaven Sandstone and the Eskett Limestone, Orebank Sandstone, First Limestone and Stainmore Formation.

4.1.3 The information within the Phase I Desk Study suggests that a Glacial Meltwater Channel within is present within the western site area (triangular shaped portion of site)

4.1.4 A review of the geology maps and Coal Authority documents indicate potential for coal in the southern extent of site, with the Coal Authority indicating the site could be affected by underground mining in four seams of coal at shallow to 170m depth, and last worked in 1918.

4.2 General

4.2.1 A generalised summary of the ground conditions encountered, depths to base, and thickness recorded from the exploratory hole records is presented below in Table 4.2: Summary of Ground Conditions.

Table 4.2: Summary of Ground Conditions

Geology / Strata	Depth (mbgl)				Thickness (m)		Locations encountered
	Top		Base		Min	Max	
	Min	Max	Min	Max			
Made Ground	0.00	-	0.70	1.80	0.70	1.80	DS09 to DS17a, RO2 TO RO4A
Topsoil	0.00	-	0.30	0.30	0.30	0.30	DS01 to DS08, DS18, RO1, RO5, RO6, RO7
Superficial	0.30	0.30	11.00	15.00	10.70	14.70	All locations, with exception of RO4, DS11, DS17
Bedrock	11.00	15.00	45.00	48.00	34.00+		RO1 to RO6
Intact Coal	36.00	44.30	39.00	45.50	1.20	3.00	RO2, RO3b
Groundwater	**Strike depth (mbgl)**		**Rest Level (mbgl)**		**Locations encountered**		
	Min	**Max**	**Min**	**Max**			
Seepage	1.00	2.10-	-	-	DS01, DS06, DS18		
Strike	-	-	-	-	-		

4.2.2 The general ground conditions encountered have been summarised below.

4.2.3 Detailed strata descriptions are presented on the rotary borehole logs and dynamic sample borehole logs, presented in Appendix B and C respectively.

4.3 Made Ground

4.3.1 Made Ground was encountered in DS09 to DS17a, RO2 to RO4A from ground level to depths of between 0.70 and 1.80mbgl. These locations all reside within the 'Brownfield land' portion of the site.

4.3.2 The Made Ground generally concrete hardstanding overlaying granular material generally described as dark grey sandy gravel of brick, ash, limestone and mudstone with rare, suspected clinker in some locations, with a thickness ranging between 0.70 and 1.80m.

4.4 Topsoil

4.4.1 Topsoil was encountered in DS01 to DS08, DS18, RO1, RO5, RO6, RO7 from ground level to depths of 0.30mbgl, and generally comprised grass over slightly sandy clay, with frequent rootlets.

4.5 Superficial Deposits (Till)

4.5.1 Natural cohesive deposits were encountered in DS04 to DS11, DS13, DS15 to DS18 and RO1 to RO7a directly beneath the topsoil and were proven to depths of between 11.00 and 15.00mbgl, and generally comprised firm to very stiff sandy gravelly clay with rare cobbles.

4.5.2 The clay is intersected by natural gravel deposits in RO1 to RO4a, RO6 to RO7a at depths from 1.00m to 3.00m extending to depths between 4.00 and 12.00mbgl. It is described of very dense compacted gravel and cobbles, with drilling progress noted as very slow.

4.5.3 These natural granular deposits also underly the topsoil in DS01, DS02a, DS03, DS12, however due to the dense nature of the gravels, these locations recorded refusal upon drilling, with other locations refusing on the horizon of this strata beneath the site.

4.6 Bedrock (Pennine Lower Coal Measures Formation)

4.6.1 Bedrock was encountered in RO1 to RO6 directly beneath the superficial material from depths of 11.00m to 15.00mbgl and was proven to depths of 45.00 and 48.00mbgl. The bedrock is described as a reddish-brown mudstone interbedded with sandstone and grey mudstone at depth, with RO1 also recording limestone between 15.00 and 20.00mbgl.

<u>Coal Seams</u>

4.6.2 Coal seams were encountered within the rotary open hole boreholes. Further details are given below:

- RO2: - 22.50 – 23.50mbgl, intact coal; no loss of drilling flush
- RO2: - 36.00 – 39.00mbgl, intact coal; no loss of drilling flush
- RO3b: - 44.30 – 45.50mbgl, intact coal; no loss of drilling flush

4.6.3 All coal seam depths are given on the relevant borehole logs.

4.6.4 All coal encountered was noted as being intact and no potential voids, loss of flush or dropping of drilling rods was observed.

4.7 Groundwater

4.7.1 Groundwater was encountered in three of the exploratory holes formed across the site:

- DS01 – seepage at 1.90mbgl.
- DS06 – seepage at 2.10mbgl.
- DS18 – seepage at 1.00mbgl.

4.8 Groundwater Monitoring

4.8.1 A groundwater monitoring regime was carried out at the site to establish the ground water levels beneath the site, which included monitoring on six occasions. Table 4.3: Groundwater Monitoring Results, below presents the details of the groundwater monitoring regime. All boreholes were purged and developed accordingly to prior to the groundwater monitoring.

Table 4.3: Groundwater Monitoring Results

Exploratory Hole ID	Base of Hole (mbgl)	Standing Water Level (SWL) (mbgl)					
		Date of Visit					
		10/07/24	23/07/24	07/08/24	21/08/24	05/09/24	17/09/24
DS01	2.00	1.82	1.80	1.82	1.31	1.16	1.23
DS04	2.00	DRY	DRY	DRY	DRY	1.38	1.54
DS06	3.00	DRY	2.51	1.63	1.31	1.50	1.34
DS12	2.00	DRY	1.65	1.46	1.12	0.97	0.93
DS13	2.00	DRY	DRY	DRY	DRY	DRY	1.05
DS16	2.00	1.63	0.80	0.95	0.52	0.56	0.49
DS17a	1.80	DRY	DRY	DRY	DRY	1.00	1.11
RO2	5.00	3.60	2.73	2.31	2.15	2.13	2.00
RO7a	2.00	0.70	0.75	0.75	0.75	NR	0.60

4.9 Obstructions

4.9.1 It should be noted that RO3 and RO3a could not be drilled due to a concrete obstruction within the Made Ground.

4.9.2 In the instance of RO7 and RO7a, due to the presence of very dense cobbles, the casing could not be progressed or the hole advanced further than the achieved depths.

4.10 Contamination

4.10.1 No visual or olfactory evidence of contamination was encountered or observed during this ground investigation, in particular no obvious visual or olfactory evidence of mobile contamination was observed during the ground investigation.

5.0 CHEMICAL TESTING AND RESULTS

5.1 General

5.1.1 All samples were sent to a UKAS accredited chemical testing laboratory, and MCERTS were used where available. The analytical strategy focussed on a general suite of potential contaminants and the analytical suites are summarised in Table 5.1: Summary of Chemical Testing Suite. Chemical results have been screened against current guideline values where applicable for a residential with plant uptake end use.

5.1.2 All chemical testing results are presented in Appendix E.

Table 5.1: Summary of Chemical Testing Suite

Testing	Comment	No. of soil samples analysed
General heavy metals and inorganics suite including: Arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, phenol, selenium, zinc, pH, and water soluble sulphate	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	12
Speciated PAH	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	12
TPH CWG	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	10
Asbestos Screen	General analysis of soils beneath the site to achieve general site coverage, and targeting former uses on site and off site within influencing distance	12

5.2 Chemical Testing Results - Soil

5.2.1 Only detectable concentrations of contaminants reported above the laboratory detection limits are presented in Table 5.2: Summary of Soil Chemical Testing Results. All other samples recorded contaminant concentrations below laboratory detection limits.

5.2.2 All chemical results have initially been compared against screening criteria for a residential end use with plant, utilising a worst case scenario of 1% SOM where appropriate in the chemical assessment below.

Table 5.2: Summary of Soil Chemical Testing Results

Determinand	No. Of samples analysed	Screening value (mg/kg) (where applicable)	Determinand concentration range (mg/kg)		No of Samples exceeding screening value
			Min	Max	
Arsenic	12	37	4.00	82.00	**4**
Cadmium	12	11	0.50	8.00	0
Copper	12	2400	14.00	333.00	0
Chromium	12	910	8.00	44.00	0
Hexavalent Chromium	12	6	BD	BD	0
Lead	12	210	11.00	341.00	**2**
Mercury	12	1.2	0.17	0.70	0
Nickel	12	180	8.00	114.00	0
Selenium	12	250	BD	4.00	0

Zinc	12	3700	15.00	626.00	0
Acenaphthene	12	210	BD	0.32	0
Acenaphthylene	12	170	BD	0.28	0
Anthracene	12	2400	BD	0.41	0
Benzo(a)anthracene	12	7.2	BD	7.40	**1**
Benzo(a)pyrene	12	2.2	BD	15.50	**1**
Benzo(b)fluoranthene	12	2.6	0.05	16.00	**1**
Benzo(ghi)perylene	12	320	0.05	14.00	0
Benzo(k)fluoranthene	12	77	0.07	5.97	0
Chrysene	12	15	0.06	7.50	0
Dibenzo(ah)anthracene	12	0.24	0.04	2.89	**1**
Fluoranthene	12	280	0.08	5.82	0
Fluorene	12	170	BD	0.09	0
Indeno(123-cd)pyrene	12	27	BD	13.60	0
Naphthalene	12	2.3	BD	0.51	0
Phenanthrene	12	95	BD	1.55	0
Pyrene	12	620	0.07	5.76	0
TPH (Aliphatic) Total	10	-	4	104	0
TPH (Aromatic) Total	10	-	7	437	0

BD = Below Detection

5.2.3 Twelve samples were analysed for asbestos screen. Three samples tested positive and are detailed as:

- DS11 at 0.50mbgl: Loose Fibres of Chrysotile, quantified at 0.001%.
- DS13 at 0.90mbgl: Loose insulation of Chrysotile, quantified at 0.002%
- DS15 at 0.30mbgl: Loose fibres of Chrysotile, quantified at <0.001%

6.0 GENERIC QUANTITATIVE RISK ASSESSMENT (GQRA)

6.1 Criteria for interpretation

6.1.1 The regime for contaminated land was set out in Part IIA of the Environmental Protection Act (EPA) 1990, as inserted by S.57 of The Environment Act 1995 and came into effect in England on 1st April 2000 as The Contaminated Land (England) Regulations 2000 (SI 2000/227). These regulations were subsequently updated with the provision of The Contaminated Land (England) Regulations 2006 (SI 2006/1380), which consolidated the previous regulations and amendments and added in provisions regarding radioactive contaminated land. These regulations came into force on 4th August 2006. This modified the wording for "Contaminated Land" under Part IIA of the EPA. Section 78A (2) defines contaminated land as "land which appears to be in such a condition, by reason of substances in, on or under the land, that:

- significant harm is being caused, or there is a significant possibility of significant harm being caused (SPOSH);

Human Health Receptors

6.1.2 An initial Generic Quantitative Risk Assessment (GQRA) for human health has been undertaken by comparison of the soil analytical results with published guidance criteria. These can be classified as Generic Assessment Criteria (GAC) or Soil Screening Values (SSV's) and are widely referred to by consultants, Regulatory Authorities and other professionals within the industry and include the following:

- Land Quality Management (LQM) Chartered Institute of Environmental Health (CIEH) have published a series of GACs / SSV's via the CLEA v1.06 software which are applicable to the UK for common determinands.
- Defra Category 4 Screening Levels 2014 (C4SL's) for assessment of land affected by contamination.
- ATRISK Soil SSV's (Soil Screening Values) at 1% SOM for a sand soil derived by Atkins in line with the Environment Agency 2009 guidance (SR2, SR3, SR4, SR7) using the CLEA v1.04 and CLEA v1.06 software.
- NHBC Technical Extra 15 – 2014.
- Current published Soil Guideline Values (SGVs) published by the Environmental Agency (EA).
- Contaminated Land: Applications in Real Environments (CL:AIRE) 'The Soil Generic Assessment Criteria for Human Health Risk Assessment' GAC's via the CLEA v1.06 software (updated version of the v1.04 update after the release of LQM GAC's).

6.1.3 It should be noted that the above guidance criteria are generally restricted with depth i.e. the values quoted with reference to human health are generally only applicable in the top 1.00m of soil and do not (dependant on the conceptual site model and conditions identified on site) necessarily identify significant harm.

6.2 Risk to Human Health

6.2.1 The majority of the chemical determinands analysed recorded levels below the relevant screening criteria for a residential end use with plant uptake with the exception of arsenic, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(ah)anthracene,

6.2.2 Concentrations of the above determinands are listed below in Table 6.1: Chemical Determinands Exceeding Screening Criteria.

Table 6.1: Chemical Determinands Exceeding Screening Criteria

Location ID	Depth Range (mbgl)	Determinand Concentration Result (mg/kg)
Arsenic - Screening Criteria = 37mg/kg		
DS11	0.50	82.00
DS13	0.90	56.00
DS16	0.60	59.00
DS17a	0.50	46.00
Lead - Screening Criteria = 210mg/kg		
DS11	0.50	341.00
DS16	0.60	229.00
Benzo(a)anthracene - Screening Criteria = 7.2mg/kg		
DS11	0.50	7.40
Benzo(a)pyrene - Screening Criteria = 2.2mg/kg		
DS11	0.50	15.50
Benzo(b)fluoranthene - Screening Criteria = 2.6mg/kg		
DS11	0.50	16.00
Dibenzo(ah)anthracene - Screening Criteria = 0.24mg/kg		
DS11	0.50	2.89

6.2.3 In addition to the above, Chrysotile asbestos was detected in the shallow made ground:

- DS11 at 0.50mbgl: Loose Fibres of Chrysotile, quantified at 0.001%.
- DS13 at 0.90mbgl: Loose insulation of Chrysotile, quantified at 0.002%
- DS15 at 0.30mbgl: Loose fibres of Chrysotile, quantified at <0.001%

6.2.4 Based on the above, contamination does appear to be present beneath the historically Brownfield part of the site within the Made Ground. This relates to the historical railway and goods yard and is referred to as Brownfield land portion of the site.

6.2.5 The area of site not within the confines of the former railway and goods yard (referred to as the Greenfield portion of the site) did not exceed any determinands from the chemical testing and no recorded instances of asbestos contamination.

6.2.6 It is understood that the proposed development comprises residential properties with private gardens and associated access road and driveways.

6.2.7 Therefore, a pollutant linkage is considered to be present and the risk to human end users are considered to be **low to moderate** at this stage.

6.2.8 Risks to construction workers are considered to be **low to moderate**. All construction workers should wear appropriate Personal Protective Equipment (PPE) including latex gloves and dust masks. Provisions should be made for water on site to 'damp down' any dust in dry conditions.

6.2.9 Risks to neighbours / general public are considered to be **low**. Provisions should be made for water on site to 'damp down' any dust in dry conditions.

6.2.10 In the area referred to as the 'Brownfield Land' portion of the site, any areas where site soils are to be exposed at the surface such as areas of landscaping will need remedial action.

6.2.11 Possible remedial options at this stage would be as follows:

1. Made Ground materials are removed from the brownfield portion of site and replaced with clean imported materials to provide a "cover system".
2. Alternative remediation of the site.

6.2.12 Based on the above, it is recommended that a remediation strategy is commissioned for the site and the proposed remedial design is agreed with the Local Planning Authority.

6.2.13 A watching brief should be maintained during construction to ensure that any unsuitable materials are removed at the time.

6.2.14 Should any erroneous materials or previously unidentified contamination be encountered during construction then further sampling and analysis may be required.

6.2.15 The above recommendations should be agreed in principle with the Local Planning Authority prior to development to avoid any delays or complications at a later stage.

6.3 Risk to Controlled Waters

Groundwater

6.3.1 The Environmental Agency aquifer classification scheme indicates that the superficial aquifer designation for the site is classed as Secondary (Undifferentiated) aquifer and the bedrock aquifer designation for the site is classed as Principal aquifer and Secondary A aquifer.

6.3.2 There are no licensed groundwater abstraction points within 500m of the site.

6.3.3 There are no public drinking water abstractions within 2000m of the site.

6.3.4 The site is not located within 500m Source Protection Zones (SPZ).

6.3.5 Therefore, based on the above information, the results of the soil testing, the generally permeable geology beneath the site, and considering that natural attenuation, dilution and dispersion will take place, the risks to groundwater and drinking waters are considered to be **very low** at this stage.

Surface Water

6.3.6 The nearest surface watercourse to the site is River Keekle located along the eastern boundary of the site, flowing to the southeast.

6.3.7 Due to close proximity of the water course, it is recommended that a silt trap is utilised to prevent any construction activities from negatively impacting the River. Any works within proximity to the river will also require a permit from the Environment Agency.

6.3.8 Therefore, based on the above information, the results of the soil testing, the distance of the surface water receptor to the site, and considering that natural attenuation, dilution and dispersion will take place, the risks to surface waters are considered to be **very low** at this stage.

6.4 Ground Gas Risk Assessment

General

6.4.1 Two Historic Landfill Sites are recorded within 250m of the site. They are identified 80m east and 160m east, however due to the changes in topography and being intersected by the River Keekle, these are not considered to be impacting the site.

6.4.2 The site is indicated by the Coal Authority to be potentially underlain by shallow coal, with mine workings known in the wider site surroundings including mine entries.

6.4.3 Historical tanks are noted in the Phase I report as being present in the former goods and railway yard, with Made Ground proven to 1.80mbgl in this area of site.

6.4.4 The development site is located within a Radon Affected Area, as between 10% and 30% of properties are above the action level. Consequently, in accordance with BR211 full radon protection measures are necessary.

6.4.5 Gas monitoring has been carried out at the above site on six occasions over a three-month period to assess the risks to the proposed commercial development from potential hazardous ground gasses.

6.4.6 Ground gas monitoring standpipes have been installed at a depth ranging between 2.00 and 5.00mbgl mbgl with response zones placed within the Made Ground and natural deposits (where the Made Ground was less than 1.00m thick) beneath the site.

6.4.7 It is considered that hazardous ground gasses if present would migrate vertically upwards through the permeable sands beneath the site into the proposed development.

6.4.8 Where groundwater levels exceeded the response zone of the installations, the wells were developed following monitoring to allow for generation of ground gases within the headspace.

Results

6.4.9 The monitoring period has been carried between 10th July 2024 and 17th September 2024.

6.4.10 The following ground gas risk assessment has been carried out in accordance with CIRIA 665, BS 8485 and NHBC NF94.

6.4.11 The full results of the gas monitoring regime are presented Appendix G, and are summarised below.

6.4.12 Where possible, monitoring has been carried out under a minimum of two occasions where low and falling atmospheric pressure were present together.

6.4.13 Methane concentrations ranged below detection levels of <0.1% v/v; carbon dioxide concentrations ranged between 0.20 and 14.1% v/v; oxygen concentrations ranged between 0.60 and 15.1% v/v; and steady flows were recorded between 0.0 and 1.70l/hr during the monitoring period.

6.4.14 Gas concentrations recorded were fairly consistent with respect to each monitoring location during the monitoring period.

6.4.15 Based on these recorded values, utilising the peak flow a maximum Gas Screening Values (GSVs) for methane were calculated at 0.0001l/hr; and a maximum GSV for carbon dioxide were calculated at 0.237l/hr.

6.4.16 Hydrogen sulphide concentrations were recorded at <1 ppm.

6.4.17 Carbon monoxide concentrations were recorded between <1 ppm.

Conclusions and Recommendations

6.4.18 Based on the above information to date, and considering the elevated CO2 (>5.00%) depleted oxygen and elevated GSV's, this site has been categorised as falling under Characteristic Situation (CS) 2 - Low risk.

6.4.19 BS 8485 2015 recommends a point system for protection measures. The proposed development would class as building type A, and therefore this development would require a total of 3.5 points. BS 8485:2015 provides details of the different options that can be used in order to make up the required points which include a combination of a structural barrier, ventilation measures and gas resistant membrane.

6.4.20 The development site is located within a Radon Affected Area, as between 10% and 30% of properties are above the action level. Consequently, in accordance with BR211 full radon protection measures are necessary, as part of the gas protection measures.

6.4.21 Professional advice should be sought from a suitably qualified structural engineer as to the appropriateness of any gas protection scheme to the intended construction. All gas protection measures should be designed by a competent person, and they should refer to BS 8485 and BRE 414.

6.4.22 It is recommended that the above conclusions should be agreed with the local Planning Authority to gain their approval prior to commencing with the construction of the new development.

6.4.23 Following the installation of any gas resistant membranes the local authority may require verification to prove the membrane has been installed correctly.

6.4.24 With regards hydrogen sulphide: Information taken directly from the HSE (Health & Safety Executive) Online provides the following:

- 0.0047 ppm is the recognition threshold of human smell, the concentration at which 50% of humans can detect the characteristic odour of hydrogen sulphide.
- 10-20 ppm is the borderline concentration for eye irritation.
- 50-100 ppm leads to eye damage.
- At 150-250 ppm the olfactory nerve is paralyzed after a few inhalations, and the sense of smell disappears, often together with awareness of danger.
- 320-530 ppm leads to pulmonary edema with the possibility of death.
- 530-1000 ppm causes strong stimulation of the central nervous system and rapid breathing, leading to loss of breathing.
- Concentrations over 1000 ppm cause immediate collapse with loss of breathing, even after inhalation of a single breath.

6.4.25 CIRIA 665 provides occupational exposures limits for hydrogen sulphide of 10ppm for short term exposure and 5ppm for long term exposure.

6.4.26 Based on the above, the risks from hydrogen sulphide are considered to be **very low**.

6.4.27 Therefore, based on the above results, no protection is considered necessary against hydrogen sulphide.

6.4.28 With regards carbon monoxide: Information provided by the World Health Organisation (WHO) provides air quality guidelines for Europe 2000, which provides time weighted average exposures that have been determined in such a way that the carboxyhaemoglobin (COHb) level of 2.5% is not exceeded. These are as follows:

- 87ppm for 15 minutes
- 52ppm for 30 minutes
- 26ppm for one hour
- 9ppm for eight hours

6.4.29 In addition, recommended WHO European guidelines for indoor air quality is as follow:

- 6ppm for twenty-four hours so as not to exceed 2% COHb for chronic exposure.

6.4.30 CIRIA 665 provides occupational exposures limits for carbon monoxide of 200ppm for short term exposure and 30ppm for long term exposure.

6.4.31 Based on the above, the risks from carbon monoxide are considered to be **very low**.

6.4.32 Therefore, based on the above results, no protection is considered necessary against carbon monoxide.

6.5 Plants and Native grasses

6.5.1 Any plants that may be grown at the site in areas of landscaping may potentially be at risk from phytotoxic elements in any artificial soils beneath the site. Guideline screening values are currently available for copper, nickel and zinc which are considered to be the most harmful to plant life.

6.5.2 All three chemical Determinands recorded levels below the relevant phytotoxic screening criteria. In addition, all plant growth appeared normal during the site walkover. Given the above and the generally low potential for contamination and the results of the wider soil analysis, the risks to plants and native grasses are considered to be very low.

6.6 Buried Services and Utilities

6.6.1 Any organic contamination present in the soils or groundwater beneath the site would pose a risk of premature failure to below ground services via chemical reaction. Based on the chemical analysis carried out during this ground investigation, the risks to buried services and pipelines are considered to be **low**.

6.6.2 It is the responsibility of the utility providers to confirm the risk status and determine what materials should be used in the provision of any newly proposed buried services and utilities based on the results of the chemical analysis with this report and suitability of those soils for the utility providers' equipment, if required by each utility provider. A copy of this report should therefore be provided to the utility contractors.

6.7 Updated Conceptual Site Model (CSM)

6.7.1 Following the results of the site investigation and above assessment, an updated Conceptual Site Model (CSM) has been produced overleaf as Table 6.3: Updated Conceptual Site Model (CSM).

Table 6.3: Updated Conceptual Site Model (CSM)

Potential Sources	Contaminants of Concern	Potential Pathway	Potential Receptor	Potential Pollutant Linkage	Probability	Consequence	Risk Classification	Action / Mitigation / Justification
Made Ground both on site and within influencing distance of the site Current and former land uses both on site and within influencing distance of the site	Heavy metals, sulphates and inorganics PAH's Asbestos Mobile organic contamination Leachable contamination	Ingestion Inhalation Dermal Contact	**Human health** Including current site users, future site users	Considered potentially active	Low likelihood	Medium	**Low to Moderate**	Contamination has been identified within the former goods yard and railway (Brownfield Land portion of site) therefore remedial measures will be required in this area of the site only, with the remainder of the site classed as greenfield land with no further action required. Remediation strategy required for part of the site identified as 'Brownfield Land' in drawing GSI 2132/03.
			Human health Construction workers	Considered potentially active	Low likelihood	Medium	**Low to Moderate**	Construction personnel to adhere to standard PPE guidelines and hygienic site practices to control risk. Remediation strategy required for part of the site identified as 'Brownfield Land' in drawing GSI 2132/03.
			Human health Neighbouring residents	Considered potentially active	Unlikely	Medium	**Low**	Contamination has been identified at the site; therefore dust control measures and soils containment should be used during construction to minimise risk to neighbouring residents / the general public.
Landfill sites Potentially infilled Land (ponds, quarries, reservoirs etc) Made Ground Natural organic soils Coal mining Fuel Stations (on and off-site sources)	Hazardous ground gases including CO_2, CH_4 CO, H_2S Vapours	Inhalation Explosion	**Human health** Including current site users, future site users, neighbouring residents and constructions workers **Buildings** Confined Spaces	Considered potentially active	Low likelihood	Severe	**Low** (CS2, Full Radon))	Gas monitoring indicated CS2 – Low risk scenario, with some gas protection measures required. Full radon protection measures are required in the construction of new dwellings.

Potential Sources	Contaminants of Concern	Potential Pathway	Potential Receptor	Potential Pollutant Linkage	Probability	Consequence	Risk Classification	Action / Mitigation / Justification
Made Ground on site Current and former land uses on site	Heavy metals, sulphates and inorganics PAH's Mobile organic contamination Leachable contamination	Lateral and vertical migration and leaching of contaminants into local groundwater	**Underlying Aquifer** (Potable water)	Considered potentially active	Unlikely	Mild	**Very low**	Given the limited contamination encountered on the site and much of the site being greenfield land, it is unlikely the site is impacting these receptors. No further action.
Made Ground on site Current and former land uses on site	Heavy metals, sulphates and inorganics PAH's Mobile organic contamination Leachable contamination	Lateral and vertical migration and leaching of contaminants into surface water bodies via permeable strata and features.	Local **water courses** and associated flora and fauna	Considered potentially active	Unlikely	Mild	**Very low**	Limited contamination has been identified at the site, however, given the distance to the receptor and the location of impacted materials it is unlikely that this will affect the surface watercourse. Silt traps are to be utilised during construction to prevent any runoff impacting the adjacent watercourse.
Made Ground beneath the site Current and former site uses	Phytotoxic elements	Plant uptake	**Plants and vegetation**	Considered potentially active	Unlikely	Mild	**Very low**	Results of the site investigation confirm that all determinands analysed recorded levels below the relevant phytotoxic screening levels. No further action required.

7.0 GEOTECHNICAL TESTING AND RESULTS

7.1 In-situ Testing

7.1.1 In-situ Standard Penetration Tests (SPTs) were undertaken in accordance with BS1377 (1990) within the window sample boreholes. A summary of the insitu testing is given below in Table 7.1: Insitu Geotechnical Testing:

Table 7.1: Insitu Geotechnical Testing

Strata	Depth Range (mbgl) vs SPT N Value	Locations Encountered
Made Ground	1.20 – 2.00: N = 50 - 50	DS13, DS14
Clay	1.20 – 4.00: N = 13 – 50	DS04 – DS11, DS13, DS15
Gravels	Please just put the range for each soil type e.g. 1.20 – 3.00: N = 24 – 50	DS01-DS03, DS12, RO6

NR = Not Recorded In This Strata

7.2 Laboratory Testing

7.2.1 A programme of geotechnical laboratory testing was undertaken in accordance with BS1377 (1990) 'Methods of tests for soils for civil engineering purposes. All samples were sent to a UKAS accredited geotechnical testing laboratory. The geotechnical testing regime has been summarised below in Table 7.2: Geotechnical Laboratory Analysis.

Table 7.2: Geotechnical Laboratory Analysis

BS 1377 Test Number	Test Description	Quantity Analysed
BS 1377 1990: Part 2. Clause 3.2	Moisture content	15
BS 1377 1990: Part 2. Clause 4.3, 5.3 & 5.4	Atterberg Limits	15
BS 1377 1990: Part 3. Clause 5.3 & BRE CP2/79	BRE SD 1	8

7.2.2 The results of the geotechnical testing are presented in Appendix F.

Plasticity Index

7.2.3 Atterberg limit testing was carried out on selected samples of cohesive soils taken from the site to establish the plasticity index of the clay beneath the site. The result of this testing is presented below in Table 7.3: Atterberg Limits Testing Results.

Table 7.3: Atterberg Limits Testing Results

Test	Range
Moisture Content (%)	8.3 – 22
Liquid Limit (%)	23 – 42
Plastic Limit (%)	12 – 25
Plasticity Index (%)	8 – 20
Modified plasticity index (%)	7 - 16

7.2.4 Based on these results the clay beneath the site can be classed as low to intermediate plasticity.

7.2.5 Chapter 4.2 'Building near Trees' of the NHBC standards indicates that from the testing results, the modified plasticity index is between 7 and 16% and therefore, the clay beneath the site is of low volume change potential.

BRE SD 1

7.2.6 Eight soil samples were analysed for BRE SD 1 reduced suite to assess the risk to buried concrete at the site, which includes total sulphate, water soluble sulphate, pH and total sulphur. The results of the testing are summarised below in Table 7.4: Summary of BRE SD 1 Results.

Table 7.4: Summary of BRE SD 1 Results

Test	Soil Test - Results Range
Total sulphate (%)	0.02 – 0.03
Water soluble sulphate (mg/l)	10 – 28
Total sulphur (%)	0.01 – 0.05
pH	4.86 – 8.24
Total Potential Sulphate (%)	0.03 – 0.18
Potential amount of Oxidisable Sulphate Present (%)	0.01 – 0.15

7.2.7 Design/mix of buried concrete should be undertaken in accordance with the "Aggressive Chemical Environment for Concrete" (ACEC) classification, of BRE Special Digest 1:2005 (Concrete in Aggressive Ground).

7.2.8 The above results indicate that pyrite is unlikely to be present within the soils beneath the site.

8.0 GEOTECHNICAL ASSESSMENT

8.1 General

8.1.1 It is understood that the proposed development will comprise the construction of a residential housing estate with gardens, soft landscaping and access roadways.

8.1.2 At this stage GeoCon have not been provided with any loadings for the proposed development.

8.1.3 The recommendations given below assume that ground levels intended for the redevelopment will be similar to those existing at present. If ground levels are subject to significant change as part of the proposed development, then the recommendations in this report may require reinterpretation.

8.2 Geotechnical Model

8.2.1 Eighteen dynamic sample and seven rotary cored boreholes were advanced across the site on a basis of targeting proposed structures and as a general coverage assessment of the site as a whole.

8.2.2 The ground conditions encountered within the exploratory holes are summarised below in Table 8.1.

Table 8.1: Summary of Ground Conditions

Stratum	Depth Range to Base of Stratum (mbgl) (Thickness Range)	Relative Density / Undrained Shear Strength	Notes
Made Ground and Topsoil			
Made Ground	0.70 to 1.80m (0.70 to 1.80m)	SPT 'N' values recorded: 1.20: N = 50 - 50	Made Ground was encountered in all locations within the 'Brownfield' portion of the site. It is generally described as reinforced concrete forming a mix of access roadways and relict floor slabs of demolished structures overlying gravels of brick, ash, limestone, mudstone and rare suspected clinker.
Topsoil	0.30 to 0.30m (0.30m)	Not recorded	Topsoil was encountered in all locations within the 'Greenfield' portion of the site.
Natural Strata			
Till Cohesive deposits	11.00 to 15.00m (10.70 to 14.70m)	Strength from Field Description Firm to hard Strength from In-situ Field Testing SPT 'N' values recorded: 1.20: N = 13 - >50 1.50: N = >50 2.00: N = 21 - >50 3.00: N = 28 - >50 4.00: N = >50	Cohesive deposits were encountered beneath the topsoil / made ground in all locations, with exception of RO6. The eastern half of site has deep clay deposits described as a firm to very stiff / hard brown mottled grey slightly gravelly very sandy clay overlying a very stiff reddish-brown sandy clay at depth. Moisture Contents: 8.3 - 22% Liquid Limits: 23 - 42% Plastic Limits: 15 - 25% Plasticity Indices*: 8 - 20% Consistency Index: 0.9 – 1.4 The Atterberg Limit tests indicate that the cohesive soil is of low to intermediate plasticity, of low volume change potential (NHBC classification), and on the basis of the consistency index has a stiff to very stiff consistency. A number of samples had natural moisture contents lower than the plastic limit of the clay sample being analysed; this suggests that these

			samples were in a desiccated condition when analysed.
Till Granular	4.00 to 12.00m (2.70 to 11.00m)	Strength from Field Description Medium dense to very dense Strength from In-situ Field Testing SPT 'N' values recorded: 1.20: N = 24 - 50 2.00: N = 50 3.00: N = 50	Very dense gravel and cobbles were encountered in DS01 – DS03, DS12, RO1 – RO4a, RO6 to RO7a, directly beneath the Made Ground / Topsoil. This is prominent in the western half of the site, and is indicative of a glacial meltwater channel identified in the Environmental Database discussed in the Phase I report. This stratum is extremely dense throughout its extent and recorded very slow drilling and refusals within the dynamic sampler boreholes.
Bedrock	45.00 to 48.00m+ (34.00m+)	Not Recorded	In rotary holes, the encountered bedrock is described as a reddish brown and grey mudstone; with interbedded sandstone and limestone noted in RO1 and RO6 overlying reddish brown mudstone at depth. Intact coal was encountered in two locations within the bedrock
Intact Coal	22.50 to 23.50m 36.00 to 39.00m (RO2) 44.30 to 45.00m (RO3b)	Not Recorded	Intact coal was encountered in RO2 and RO3b at the site's southern extents. Review of geological records and SI information indicate a downthrow to the west with no other shallow coal encountered across the site except for RO2. No loss of flush was observed. No elevated ground gas emissions were recorded during drilling through bedrock deposits.
* - Corrected for fines content in accordance with NHBC Chapter 4.2.			

NR = Not Recorded In This Strata

8.2.3 Groundwater was encountered as seepages within DS01, DS06 and DS18 only at 1.00 to 2.10mbgl during the site work. Standing water levels have been recorded during the monitoring period between 0.70 (RO7a) and 3.40m (RO2) with some locations being recorded as dry on selected visits.

8.3 Coal Mining Risk Assessment

8.3.1 The initial remit for the Intrusive Coal Mining Risk Assessment (CMRA) was based on the recommendations given in the Preliminary CMRA within the Phase I report.

8.3.2 As the site lies within an area in which coal is believed to exist at, or very close to, the surface, an intrusive Coal Mining Risk Assessment has been carried out at the site, to determine whether the development is at risk from shallow coal workings.

8.3.3 The recommendations given below assume that ground levels intended for the redevelopment will be similar to those existing at present. If ground levels are subject to change as part of the proposed development, then the recommendations in this report may require reinterpretation.

8.3.4 Shallow coal is defined as coal present at depths equal to or less than 30.00m from existing site levels.

8.3.5 No visual signs of mining related subsidence or mining features were noted during the walkover and site investigation location

8.3.6 Pennine Lower Coal Measures Formation comprising mudstone, siltstone and sandstones was encountered from 11.00 to 48.00 mbgl. Coal seams were encountered in RO2 from 22.50 to 23.50 (1.00m thick), and 36.00 to 39.00mbgl (3.00m thick); and in RO3b between 44.30 to 45.50 (1.20m thick). No other coal was encountered during the site investigation at any other location.

8.3.7 No sudden loss of flush or dropping of the drill string or loss of flush were encountered.

8.3.8 No elevated gas concentrations were recorded from the drilling rig during the works.

8.3.9 Therefore, considering the above, each seam has been assessed individually.

8.3.10 A general rule of thumb is ten times seam thickness of solid rock cover above the seam is considered suitable protection and thus does not present a geotechnical risk. The seam thickness used is increased from the actual seam thickness encountered to include for access and spine roads, ergo an arbitrary thickness of 3.00m with x10 seam thickness giving a generic cover of 30.00m is used as a starting point for risk assessment. However, it is noted that the Coal Authority state that no shallow spine roads are present beneath the site and no evidence of subsidence was noted on site or any voids or mine workings.

8.3.11 RO2 encountered intact coal between 22.50 and 23.50mbgl. At this depth and this thickness, the seam has potential to have been worked in the wider area and therefore could present a potential risk to development in this location. However, given the seam thickness, lack of spine roads or other mining features at shallow depths, the lack of presence of coal elsewhere on the site (with exception of RO3b where it is encountered at 44.30mbgl, indicating a dip of approximately 20 degrees to the west), absence of mine entries within 100m of the site and absence of any other shallow mining evidence, it is considered a low risk to the development.

8.3.12 RO2 between 36.00 and 39.00mbgl. At this depth there is 24.00m of solid rock cover above the seam and the additional 12.00m of Till (clay) above. Therefore, the risk from this seam is considered to be very low geotechnical risk.

8.3.13 RO3b between 44.30 and 45.50mbgl. At this depth there is 31.30m of solid rock cover above the seam. Therefore, the risk from this seam is considered to be very low geotechnical risk.

8.4 Foundations

Shallow Foundations

8.4.1 The Made Ground in its current setting would not be suitable for the construction of shallow foundations due to the risk of unacceptable total and differential settlement occurring. These soils are present in a weak and variable condition such that excessive total and or differential settlement could occur under moderately light surface loading.

8.4.2 Where Made Ground is either not present or present only at shallow depths, it would be possible to adopt strip or spread foundations in the underlying cohesive soils, which generally consists of stiff sandy clay. It is considered that this material will provide a suitable bearing stratum, provided that the foundations are placed within a single soil type, and generally described as being present in a firm (or higher) insitu condition. It is considered that strip or spread foundations constructed within this material at a minimum depth of 1.20mbgl could be designed assuming an allowable increase in load given below in Table 8.2. In the area of DS13 where the made ground is deeper, foundations will require to be at least 2.00mbgl.

Table 8.2: Allowable increase in stress

Foundation Parameter	Strip Footings (m)			Spread Foundation (m)		
Foundation Width (m)	0.60	1.00	1.50	1.00	2.00	3.00
Foundation Depth (m)	1.20			1.20		
Allowable Increase in Stress (kN/m^2)	130	120	110	200	180	170

8.4.3 The allowable increase in stress given above assumes a factor of safety of 3 against general shear failure, with cohesion of 65kN/m^2 at the foundation depths. Settlements at the above loading intensities should remain within tolerable limits (<25mm) for the type of structure proposed provided that the underlying soils are carefully inspected immediately final trimming has taken place. Should any soft or weak material be encountered they should be locally removed and replaced with lean-mix concrete or compacted granular soil.

8.4.4 Once excavated, the formation may be subject to heave, which may result in settlement when the new foundation loads are applied. The designer should ensure that any settlement would remain within serviceable limits for the new and existing structures.

8.4.5 Foundation depths may need to be increased where they are within influencing distance of trees. Heave precautions may also be required. Advice on these issues is given in NHBC Standards Chapter 4.2.

8.4.6 Where granular soils are present, such as the area of DS01, DS02 RO6, on the basis of strip or spread foundations with a minimum width of 1.00m and constructed at minimum depths of 1.20mbgl, an allowable increase in stress of 140kN/m² should be achievable, with a factor of safety against general shear failure of in excess of 3. Settlements at these loading intensities should remain within tolerable limits (<25mm) for the type of structure proposed provided that the underlying soils are carefully inspected immediately after final trimming has taken place. Should any very loose, cohesive or weak material be encountered they should be locally removed and replaced with lean-mix concrete or compacted granular soil. In addition, if the excavations are required to stand open for any period of time then a blinding layer of lean-mix concrete should be placed in the excavation bases. This expedient will reduce loosening of the sub-grade due to the ingress of surface water.

8.4.7 It is recommended that foundations are placed in one soil type to avoid any differential settlement. If this is not possible due to the varying presence of granular and cohesive soils, then foundations would need to be locally deepened and placed within either soil type (as long as it is all the same soil type for each plot) or suitably reinforced if spanning across soil types. Foundations would need to be designed by a suitably structural engineer.

8.4.8 In addition, if the excavations are required to stand open for any period of time then a blinding layer of lean-mix concrete should be placed in the excavation bases. This expedient will reduce loosening of the sub-grade due to the ingress of surface water.

8.5 Floor Slabs

8.5.1 In accordance with NHBC Standards 2010 (Chapters 4.2, 5.1 and 5.2); BS 8103-1; and based on proven ground conditions it is recommended that suspended floors are used at this site due to the potential for heave / shrinkage from the underlying cohesive soils immediately beneath the site.

8.6 Concrete

8.6.1 A review of the pH and sulphate concentrations indicates that all concrete used in the foundations at this site should be designed to “Design Sulphate Class” DS-1, and the “Aggressive Chemical Environment for Concrete” (ACEC) class AC-1.

8.7 Groundwater and Excavations

8.7.1 Groundwater is unlikely to represent a particular problem to the construction of the proposed development at this site. However, it should be recognized that slight seepages and minor water entries may combine in any long trench excavations to create a significant volume of water which may cause local problems during the construction phase. Any minor groundwater seepages or significant standing water within excavations made upon this site may be removed by using a simple form of de-watering. Such a system could include the excavation of sumps from which the water could be pumped. Advice on Groundwater Control is given in CIRIA Report No 515 – Groundwater Control Design and Practice.

8.7.2 Foundation excavations should be feasible using conventional plant.

8.7.3 The stability of the excavation faces cannot be guaranteed, thus temporary support to the excavation faces may become necessary. Alternatively, subject to space constraints, excavations could be battered back to a suitable angle of repose. However, if there is a requirement to protect nearby structures or services, appropriate supports may still be required. Advice on excavation support is given in CIRIA Report No 97 – Trenching Practice.

8.8 Road Pavement

8.8.1 Any new pavements will require assessment of the existing sub grade in terms of its California Bearing Ratio (CBR) to facilitate the actual pavement design.

8.8.2 Twelve TRL-DCP testing locations were completed to obtain equivalent CBR% and are contained in Appendix D. Further CBR testing may be required if site levels are changed or to further support roadway designs.

8.9 Sustainable Drainage

8.9.1 In accordance with National Planning and Policy Framework (NPPF) the Planning Authority are likely to insist that surface water drainage from any new-build or redevelopment complies with current design practices for Sustainable Urban Drainage (SUD's) construction of separate drainage systems for foul and surface water. Surface water shall be required to be attenuated reducing the discharge of water from the site requiring treatment and disposal. A 20% reduction in surface water discharge rates off the site is to be expected – allowing for the 1 in 100 year storm event and allowing for climate change.

8.9.2 Infiltration testing was undertaken by a third party, prior to GeoCon's involvement in the project, to inform the Flood Risk Assessments and Drainage Strategy as part of the outline planning application. The infiltration testing failed and the reports concluded that soakaways were not possible.

8.10 Existing structures

8.10.1 Any existing structures and foundations if found should be grubbed up and replaced with a suitable engineered granular backfill and should be compacted in layers.

9.0 OTHER POTENTIAL DEVELOPMENT CONSIDERATIONS

9.1 Waste Soils Characterisation

9.1.1 Any excavation works may potentially produce waste soils for which appropriate waste management will be required. Any soils requiring removal and disposal from site would require appropriate classification testing prior to disposal and the results would need to be confirmed with the landfill operator. Isolated hotspots if encountered may need to be taken off as Non-Hazardous or Hazardous waste. Any off-site disposal of soil requires careful management and due consideration of appropriate legislation, guidance and Duty of Care responsibilities.

9.1.2 A Hazardous Waste Assessment should be carried out on any materials requiring removal and disposal from site. Waste Acceptance Criteria (WAC) testing may also be required and the results of the Hazardous Waste Assessment and WAC testing (if appropriate) should be presented to the landfill operator for their confirmation of waste category.

9.2 Imported Fill

9.2.1 Any imported fill will be subject to specific quality requirements, particularly in any proposed areas of landscaping. Allowance should be made for the testing of imported fill materials prior to emplacement to ensure suitability should the materials be delivered with no testing certification.

9.3 Construction Activities

9.3.1 Due consideration should be given to the suppression of noise, dust and vibration emissions from the site during construction.

9.4 Material Re-Use

9.4.1 Any site won soils / materials may be available for reuse across the site subject to the appropriate classification, analysis and engineered solution.

9.4.2 Any natural topsoil or Made Ground topsoil may be suitable for reuse across the site in any proposed landscaped areas subject to appropriate chemical testing.

10.0 CONCLUSION

Environmental

10.1.1 Following completion of the refined Conceptual Site Model, it is indicated that future end users of the site are potentially at **Low to Moderate** risk in the area identified as Brownfield Land and **Very Low** risk in the area identified as Greenfield Land with regards to being affected by contamination in soils and / or groundwater beneath this site.

10.1.2 Risks to construction workers from the site are considered to be **Low to Moderate** at this stage, with PPE requirements and safe working practices required for construction workers.

10.1.3 Risks to neighbouring residents from the site are considered to be **Low** at this stage.

10.1.4 The risks of hazardous ground gasses affecting the site are considered Characteristic Situation 2 (**Low Risk**), with gas protection measures required as per BS8485. The development site is also located within a Radon Affected Area, as between 10% and 30% of properties are above the action level. Consequently, in accordance with BR211 **full radon protection measures** are necessary, as part of the gas protection measures.

10.1.5 Professional advice should be sought from a suitably qualified structural engineer as to the appropriateness of any gas protection scheme to the intended construction. All gas protection measures should be designed by a competent person and they should refer to BS 8485 and BRE 414.

10.1.6 The risks to Controlled Waters are considered to be **Very Low** at this stage. Silt traps are recommended during construction to protect the adjacent watercourse from construction run-off.

10.1.7 The risks to surface waters are considered to be **Very Low** at this stage.

10.1.8 Risks to plants and native grasses are considered to be **Very Low** at this stage.

10.1.9 A Phase III Remediation Strategy is required for the Brownfield Land portion of site to address the potential risk within the historical goods yard.

Geotechnical

10.1.10 The site is not considered to be affected shallow coal mining, as discussed in detail in Section 8.3. Therefore, risks from shallow coal mining are considered to be **Very Low** at this stage.

10.1.11 The proposed residential development should consider shallow strip foundations with suspended floors, as discussed in detail in Section 8.4.

10.1.12 All concrete used in the foundations at this site should be designed to “Design Sulphate Class” DS-1, and the “Aggressive Chemical Environment for Concrete” (ACEC) class AC-1.

Recommendations

10.1.13 The findings of the investigation should be submitted to the Coal Authority and Local Planning Authority for approval.

10.1.14 No further action required with regards to Coal Mining concerns and associated risks.

10.1.15 A Phase III Remediation Strategy is required to address the risk from soil contamination in the area defined as ‘Brownfield Land’ portion of the site only (As per drawing GSI 2132/03, contained within Appendix A).

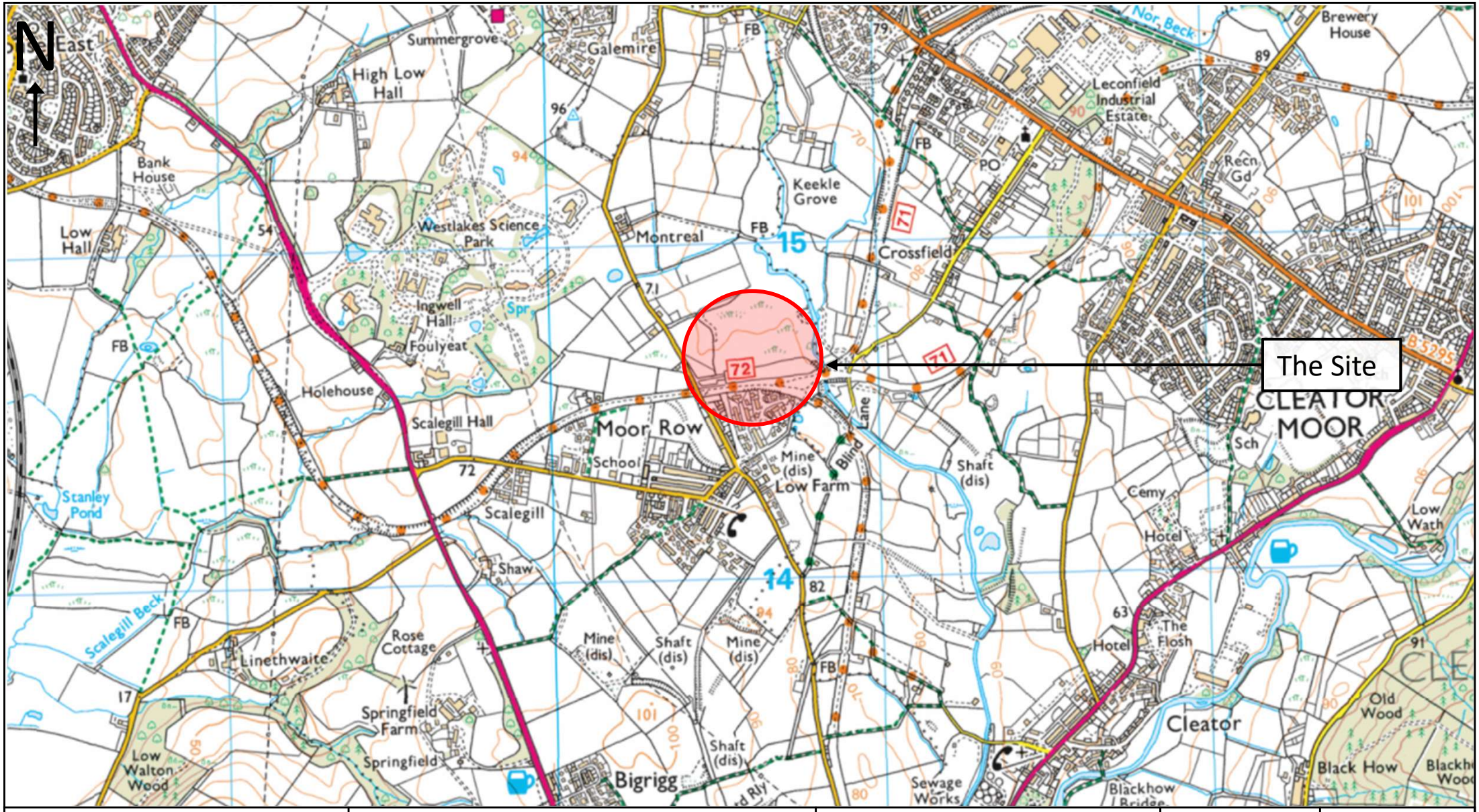
10.1.16 Verification of gas protection membranes and any cover systems will then later be required, during the construction process, to close off planning conditions.

11.0 REFERENCES

- *Atkins: AtRisk Soil Screening Values and Water Screening Values.*
- *Bowles, J. E. (1996): Foundation analysis and design, McGraw-Hill, New York.*
- *British Geological Survey (BGS): 1:50'000 geological maps of the area.*
- *British Geological Survey (BGS): Open geoscience online mapping tool.*
- *BS 5930: Code of Practice for Site Investigation Amendment 2.*
- *BS 10175: Code of Practice for the Investigation of Potentially Contaminated Sites.*
- *BRE 211 Radon: Guidance on protective measures for new buildings.*
- *BRE 365: Soakaway Design.*
- *BRE 410 (2004): Working platforms for tracked plant: Good practice guide to the design, installation, maintenance and repair of ground-supported working platforms, BRE Press, Garston.*
- *Cheshire Brine Subsidence Compensation Board: Cheshire Salt Search.*
- *CIRIA 552: Contaminated Land Risk Assessment; A Guide to Good Practice 2001.*
- *CIRIA 665: Assessing the Risks Posed by Hazardous Ground Gases for Buildings 2007.*
- *CIRIA 758D: Abandoned Mine Workings Manual.*
- *Coal Authority: Coal authority mining report and Cheshire brine subsidence report.*
- *Contaminated Land: Applications in Real Environments (CL:AIRE): 'The Soil Generic Assessment Criteria for Human Health Risk Assessment' GAC's.*
- *David Norbury: Soil and Rock Descriptions in Engineering Practice.*
- *Defra C4SL's: Development of Category 4 Screening Levels for assessment of land affected by contamination Department of the Environment: DOE industry profiles.*
- *EN ISO 14688-1: Geotechnical investigation and testing -- Identification and classification of soil -- Part 1: Identification and description.*
- *EN ISO 14688-2: Geotechnical investigation and testing -- Identification and classification of soil -- Part 2: Principles for a classification.*
- *EN ISO 14689: Geotechnical investigation and testing -- Identification and classification of rock -- Part 1: Identification and description.*
- *Environment Agency (EA): EA Online & What's in my back yard.*
- *Environment Agency (EA): Soil Guideline Values (SGVs).*
- *Environment Agency (EA): Waste Management Paper WM3.1 June 2018 edition "Guidance on the Classification and Assessment of Waste"*
- *HazWasteOnline*
- *International Society of Rock Mechanics (ISRM): Commission on Testing Methods (1985) Suggested Method for Determining Point Load Strength, Int. J. Rock Mech. Min. Sci. and Geomech. Abstr. 22, 1985, pp.51-60.*
- *Land Contamination Risk Management (LCRM), Guiding Principles for Land Contamination (GPLC) 1 – 3.*
- *Land Quality Management (LQM): Generic Screening Criteria (GACs).*
- *Landmark: Envirocheck report and Envirocheck analysis online historical mapping tool.*
- *National Planning Policy Framework (NPPF).*
- *Ordnance survey: OS Landranger map for the area; OS open data online mapping tool.*
- *R&D Publication CLR 8: Assessment of risks to human health from land contamination.*
- *R&D Publication CLR 10: The Contaminated Land Exposure Model (CLEA).*
- *R&D Publication CLR 11: Model Procedure for the Management of Contaminated Land DEFRA 2004.*
- *Stroud M.A: The standard penetration test in insensitive clays, Proceedings of the European Symposium on Penetration Testing, Stockholm, 1975, Vol 2,pp 367 – 75.*
- *UK Specification for Ground Investigation Second Edition 2012.*

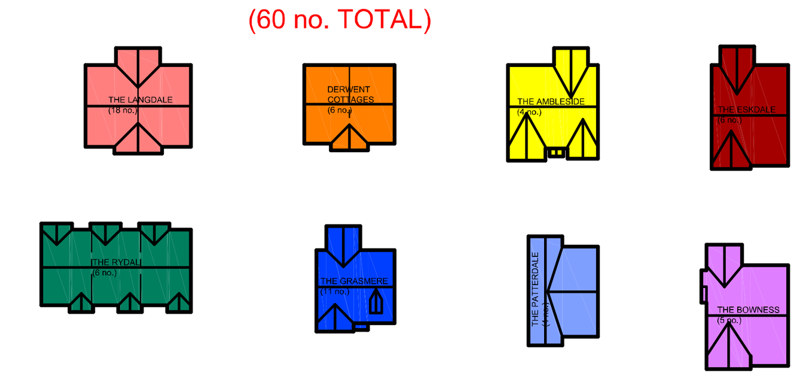
APPENDIX A

DRAWINGS



GEOCON	GeoCon Site Investigations Ltd GeoCon Suite, Arden House, Shepley Lane Industrial Estate, Hawk Green, Marple, Stockport. Greater Manchester SK6 7JW Tel: 0161 713 0714 Email: info@geoconsiteinvestigations.com Web: www.geoconsiteinvestigations.com	**PROJECT DETAILS** GSI 2132: LAND OFF DALZIELL ST, MOOR ROW	**DRAWING NUMBER** GSI 2132/01	**SCALE** N.T.S
		TITLE SITE LOCATION PLAN	DATE JULY 2024	DRAWN BY WG

LEGEND - DWELLING TYPES
(60 no. TOTAL)



No.	Date	Revision	Initial
C	04/12/24	Minor amends to align with LPA comments.	GB
B	26/11/24	Minor amends to road layout to align with HA comments.	GB
A	01/05/24	Dwelling type on plots 5 & 12 changed. Dwelling type on plot 26 handed.	GB

ALPHA DESIGN

Architectural Services
Member of the Chartered Institute of Architectural Technologists

Tel: 01900 829199 email: gb@adcumbria.co.uk

Project

RESIDENTIAL DEVELOPMENT,
DALZELL STREET,
MOOR ROW

Client

NIGEL KAY HOMES LTD.

Drawing

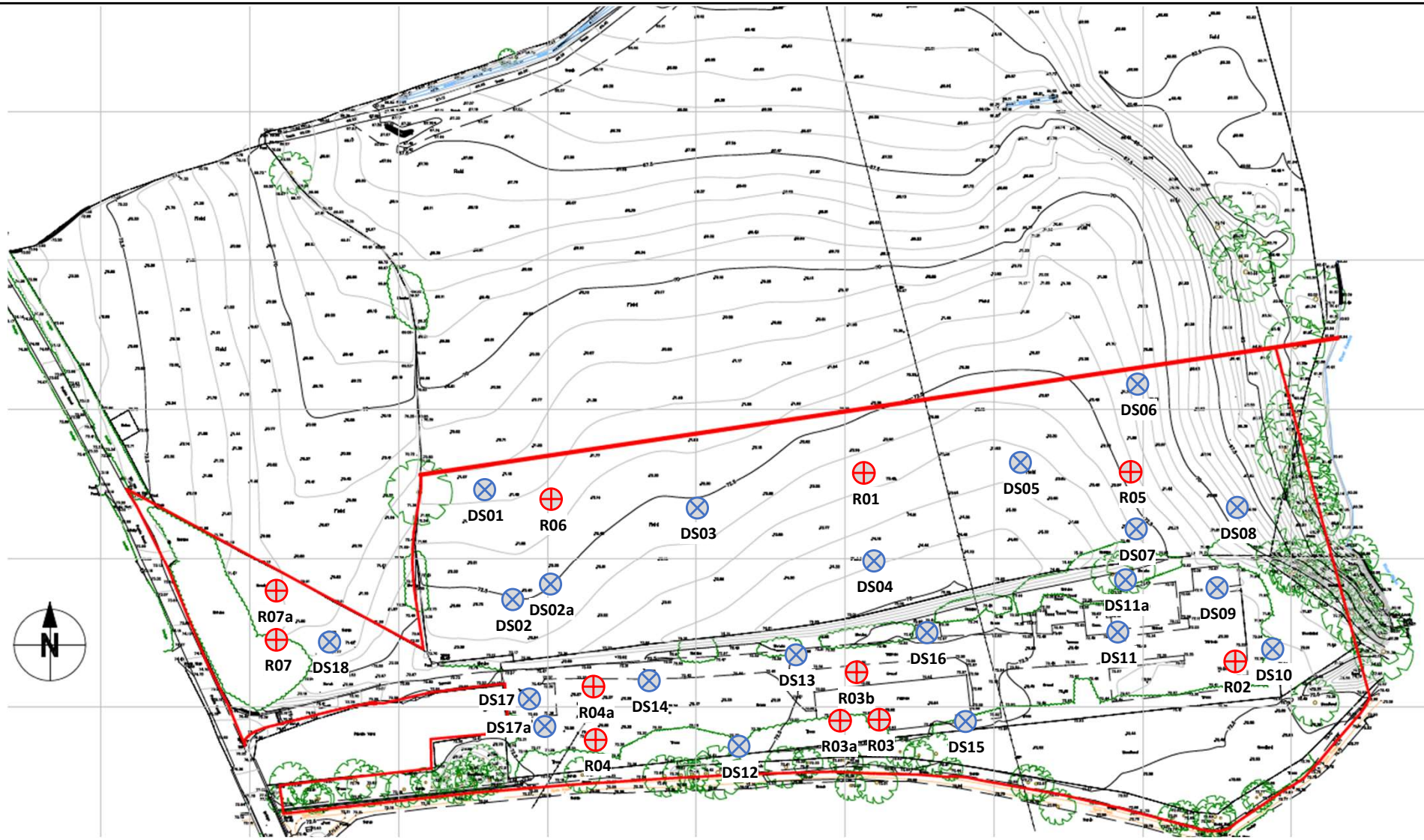
PROPOSED SITE PLAN

Scale 1:1000 @ A1 (L) Drawn GB

Checked Date APRIL 2024

Drawing No.

22/07/1026 - 04 c)

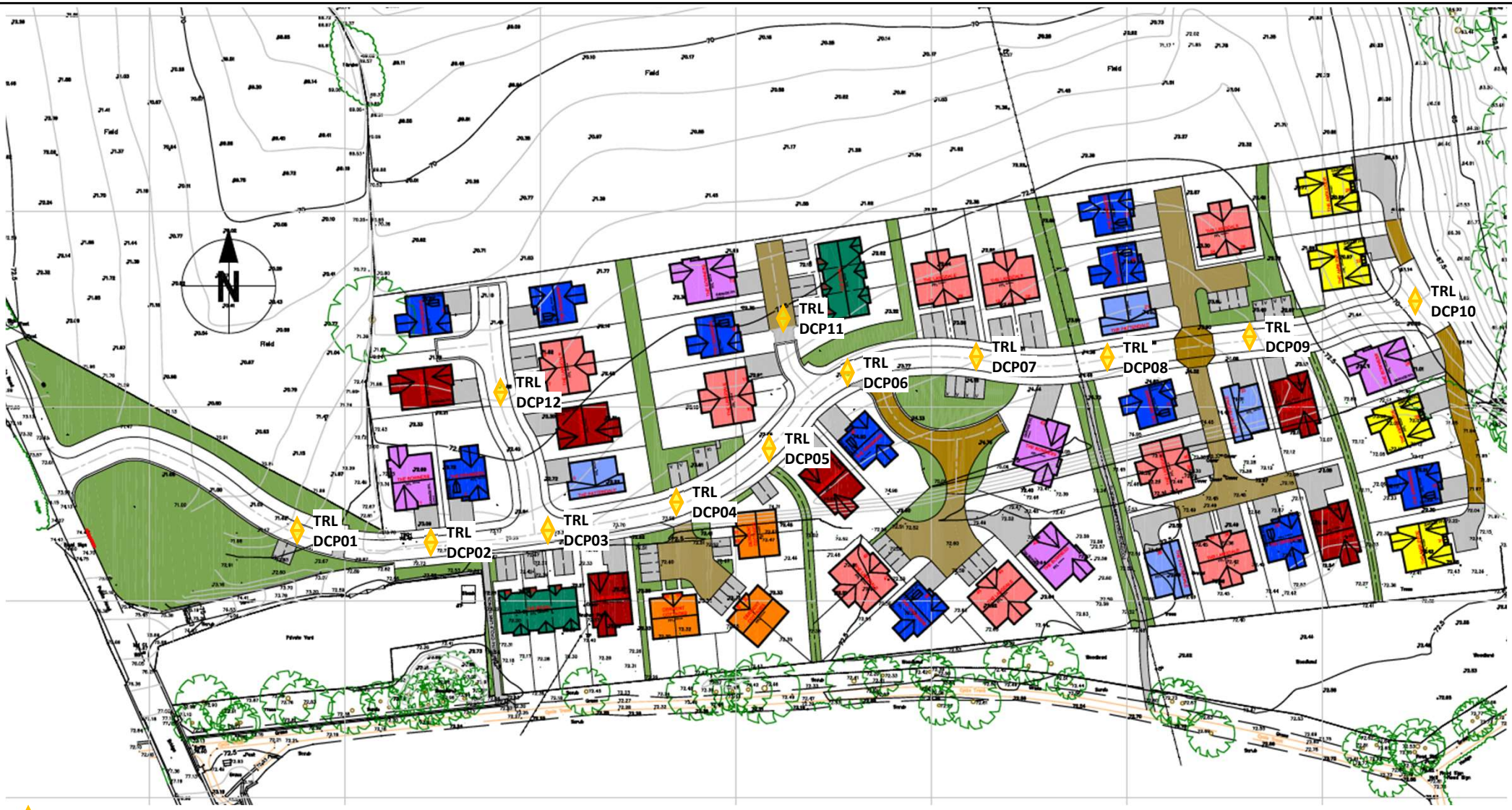


Rotary Open Hole (RO)

Dynamic Sample Borehole (DS)

GeoCon Site Investigations Ltd
GeoCon Suite, Arden House,
Shepley Lane Industrial Estate,
Hawk Green, Marple,
Stockport. Greater Manchester
SK6 7JW
Tel: 0161 713 0714
Email: info@geoconsiteinvestigations.com
Web: www.geoconsiteinvestigations.com

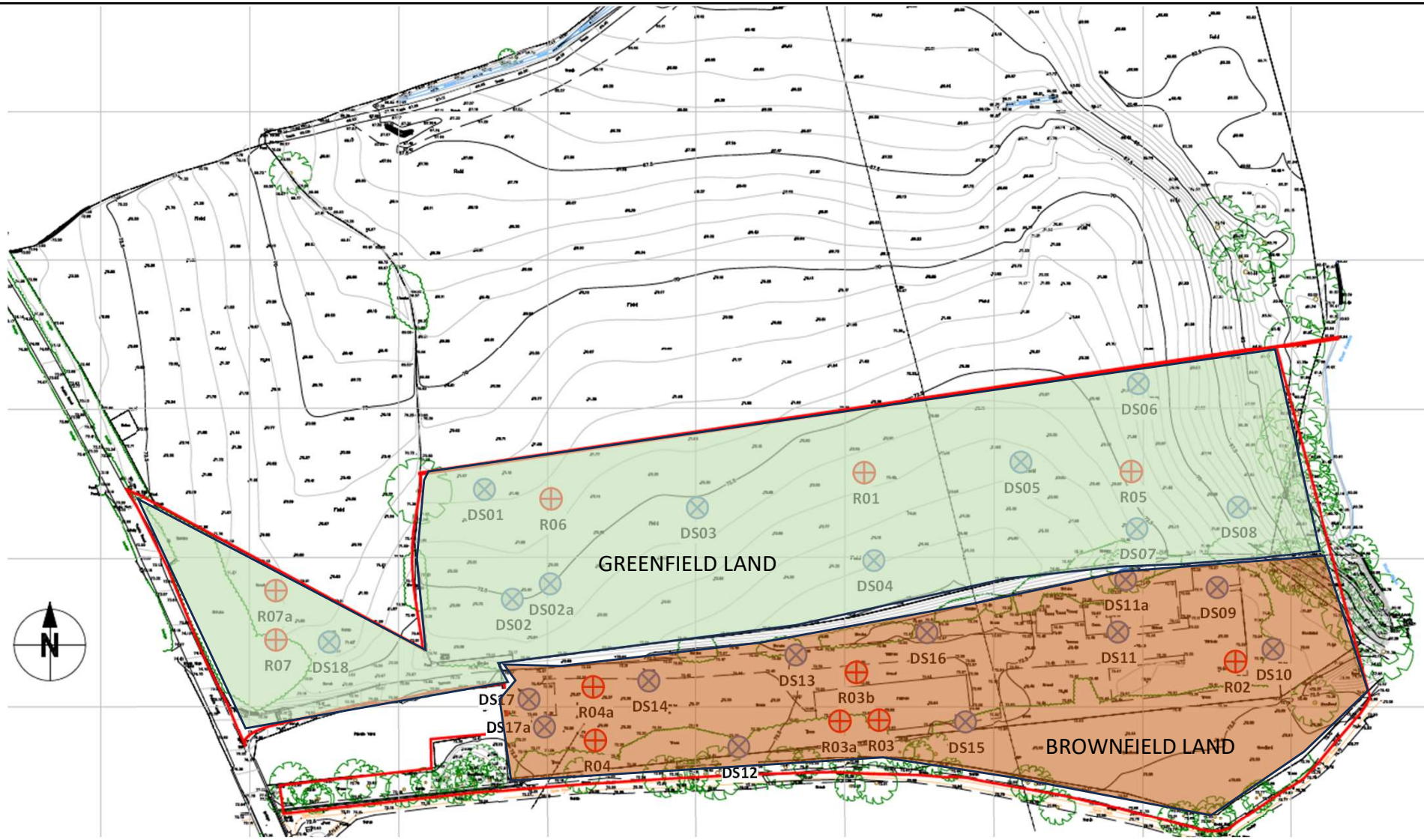
PROJECT DETAILS	DRAWING NUMBER	SCALE
GSI 2132: LAND OFF DALZIELL ST, MOOR ROW	GSI 2132/02	N.T.S
TITLE	**DATE**	**DRAWN BY**
EXPLORATORY HOLE PLAN	JULY 2024	WG



TRL DCP (CBR) Locations

GeoCon Site Investigations Ltd
GeoCon Suite, Arden House,
Shepley Lane Industrial Estate,
Hawk Green, Marple,
Stockport. Greater Manchester
SK6 7JW
Tel: 0161 713 0714
Email: info@geoconsiteinvestigations.com
Web: www.geoconsiteinvestigations.com

PROJECT DETAILS	DRAWING NUMBER	SCALE
GSI 2132: LAND OFF DALZIELL ST, MOOR ROW	GSI 2132/03	N.T.S
TITLE	**DATE**	**DRAWN BY**
DCP TEST LOCATIONS OVERLAY ON PROPOSED DEVELOPMENT PLAN	JULY 2024	WG



⊕ Rotary Open Hole (RO)

⊗ Dynamic Sample Borehole (DS)

GeoCon Site Investigations Ltd
GeoCon Suite, Arden House,
Shepley Lane Industrial Estate,
Hawk Green, Marple,
Stockport. Greater Manchester
SK6 7JW
Tel: 0161 713 0714
Email: info@geoconsiteinvestigations.com
Web: www.geoconsiteinvestigations.com

PROJECT DETAILS	DRAWING NUMBER	SCALE
GSI 2132: LAND OFF DALZIELL ST, MOOR ROW	GSI 2132/04	N.T.S
TITLE	**DATE**	**DRAWN BY**
SITE DESIGNATION PLAN	JULY 2024	WG

APPENDIX B

ROTARY OPEN HOLE BOREHOLE LOGS

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO1
Project ID: GSI 2132	Date: 24-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone and sandstone.	(TOPSOIL)	
						(2.70)	Reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone and shale.	TILL	
						3.00			
						(5.70)	Brown sandy GRAVEL & COBBLES of mudstone and sandstone. 3.00 - 8.70 Slow progress.	TILL	
						8.70			
							Reddish brown CLAY	TILL	

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO1**
Project ID: GSI 2132	Date: 24-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 2 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						(6.30)	Reddish brown CLAY *(continued)*	TILL	
						15.00			
						(5.00)	Brown LIMESTONE 15.00 - 45.00 Water added.	PLCM	
						20.00			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO1
Project ID: GSI 2132	Date: 24-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 3 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE with interbedded grey SANDSTONE	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO1**
Project ID: GSI 2132	Date: 24-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 4 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						(25.00)	Reddish brown MUDSTONE with interbedded grey SANDSTONE *(continued)*	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO1**
Project ID: GSI 2132	Date: 24-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 5 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE with interbedded grey SANDSTONE *(continued)*	PLCM	
						45.00			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO2
Project ID: GSI 2132	Date: 25-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 5

SAMPLES & TESTS			STRATA							
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.25	MADE GROUND: Dark grey CONCRETE.	MG	
						0.70	MADE GROUND: Dark grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of ash, clinker, shale and limestone.	MG	
						0.80	MADE GROUND: Red BRICK	MG	
						(0.50) 1.30	Brown sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of limestone and mudstone.	TILL	
						(2.70) 4.00	Brown sandy GRAVEL & COBBLES of mudstone and sandstone. 1.30 - 4.00 Slow progress between.	TILL	
						(7.00)	Reddish brown gravelly CLAY.	TILL	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 36.00 and 39.00mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO2
Project ID: GSI 2132	Date: 25-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 2 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						11.00	Reddish brown gravelly CLAY. *(continued)*	TILL	
						(11.50)	Reddish brown MUDSTONE. 11.00 - 45.00 Water added.	PLCM	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 36.00 and 39.00mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO2
Project ID: GSI 2132	Date: 25-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 3 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	
						22.50			
						(1.00)	Black intact COAL.	PLCM	
						23.50			
							Reddish brown MUDSTONE.	PLCM	
						(12.50)			

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 36.00 and 39.00mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO2
Project ID: GSI 2132	Date: 25-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 4 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	
						36.00			
							Black intact COAL.	PLCM	
						(3.00)			
						39.00			
							Grey SANDSTONE.	PLCM	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 36.00 and 39.00mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO2
Project ID: GSI 2132	Date: 25-06-24, 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 5 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						(6.00)	Grey SANDSTONE. *(continued)*	PLCM	
						45.00			

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 36.00 and 39.00mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.10	MADE GROUND: Grey CONCRETE (Reinforced)	MG	
						0.25	MADE GROUND: Grey angular coarse GRAVEL of limestone.	MG	
						(0.60)	MADE GROUND: Dark grey slightly sandy GRAVEL with rare cobbles. Gravel is angular to subangular fine to coarse of ash, clinker, limestone and brick. Cobbles are angular of brick.	MG	
						0.85			
						1.10	Reddish brown clayey slightly gravelly fine SAND. Gravel is angular to subangular fine to coarse of mudstone.	TILL	
							Concrete obstruction		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Concrete obstruction encountered within hand pit and 1.10mbgl. Location terminated, backfilled with arisings and relocated approximately 8.00m westwards and named RO3a.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3a**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						(0.60) 0.60	MADE GROUND: Brown sandy GRAVEL with frequent cobbles. Gravel is angular to subangular fine to coarse of limestone and brick. Cobbles are angular to subangular of brick and limestone. 0.00 - 0.60 Slow progress.	MG	
							Obstruction.		

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Dense limestone cobbles obstruction encountered within hand pit and 0.60mbgl. Location terminated, backfilled with arisings and relocated approximately 10.00m north and named RO3b.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3b**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m)	Co-Ordinates	
Contractor				Sheet: 1 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	MADE GROUND: Grass over brown clayey slightly sandy GRAVEL with frequent rootlets. Gravel is angular to subangular fine to coarse of limestone, brick and concrete.	MG	
						0.70	MADE GROUND: Dark grey sandy GRAVEL with rare cobbles. Gravel is angular to subangular fine to coarse of ash, clinker, brick and limestone. Cobbles are angular of brick.	MG	
						(2.30)	Brown sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone and sandstone. Cobbles are angular of mudstone.	TILL	
						3.00			
						(5.10)	Brown GRAVEL and COBBLES of mudstone and sandstone. 3.00 - 8.10 Slow progress.	TILL	
						8.10			
							Reddish brown garvelly CLAY.	TILL	

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 44.30 and 45.50mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3b**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 2 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						(3.90)	Reddish brown garvelly CLAY. *(continued)*	TILL	
						12.00	Reddish brown MUDSTONE. 12.00 - 48.00 Water added.	PLCM	

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 44.30 and 45.50mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3b**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 3 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*		
						(32.30)		PLCM	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 44.30 and 45.50mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3b**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 4 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 44.30 and 45.50mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO3b**
Project ID: GSI 2132	Date: 27-06-24 27-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 5 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	
						44.30			
						(1.20)	Black intact COAL.	PLCM	
						45.50			
							Reddish brown MUDSTONE.		
						(2.50)		PLCM	
						48.00			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Coal encountered between 44.30 and 45.50mbgl, no loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO4**
Project ID: GSI 2132	Date: 28-06-24 28-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.10	MADE GROUND: Grass over very soft dark brown sandy slightly gravelly CLAY with frequent rootlets. Gravel is angular to subangular fine to coarse of limestone, brick and mudstone.	MG	
						0.50		MG	
						(0.60)	MADE GROUND: Greyish brown sandy GRAVEL with frequent cobbles. Gravel is angular to subangular fine to coarse of limestone, brick, concrete and mudstone. Cobbles are angular of brick.	MG	
						1.10	MADE GROUND: Dark grey sandy GRAVEL. Gravel is angular to subangular fine to coarse of brick and mudstone.	MG	
							Concrete obstruction.		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Concrete obstruction encountered within hand pit and 1.10mbgl. Location terminated, backfilled with arisings and relocated approximately 8.00m north and named RO4a.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO4a**
Project ID: GSI 2132	Date: 28-06-24 28-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 5

SAMPLES & TESTS			STRATA							
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.40	MADE GROUND: Brownish grey slightly sandy GRAVEL with rare cobbles. Gravel is angular to subangular fine to coarse of limestone, brick and wood. Cobbles are subrounded of limestone.	MG	
						0.70	MADE GROUND: Dark grey slightly sandy GRAVEL with rare cobbles. Gravel is angular to subangular fine to coarse of ash, clinker, limestone and quartzite. Cobbles are subangular of limestone.	MG	
						1.00	Brown clayey gravelly fine SAND with rare cobbles. Gravel is angular to subrounded fine to coarse of limestone and sandstone. Cobbles are subangular of mudstone.	TILL	
						(1.10) 2.10	Brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone.	TILL	
						(4.90) 7.00	Brown GRAVEL and COBBLES of mudstone and sandstone. 2.10 - 7.00 Slow progress.	TILL	
						(1.00) 8.00	Brown CLAY.	TILL	
							Reddish brown MUDSTONE. 8.00 - 45.00 Water added.	PLCM	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO4a**
Project ID: GSI 2132	Date: 28-06-24 28-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 2 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO4a**
Project ID: GSI 2132	Date: 28-06-24 28-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 3 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*		
						(37.00)		PLCM	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO4a**
Project ID: GSI 2132	Date: 28-06-24 28-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 4 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO4a**
Project ID: GSI 2132	Date: 28-06-24 28-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 5 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	
						45.00			

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO5
Project ID: GSI 2132	Date: 01-07-24 01-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	TOPSOIL: Grass over dark brown sandy gravelly CLAY with rootlets. Gravel is angular to subrounded fine to medium of mudstone.	(TOPSOIL)	
						(0.90)	Brown sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone and sandstone.	TILL	
						1.20	Brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone and sandstone.	TILL	
						(12.30)			

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO5
Project ID: GSI 2132	Date: 01-07-24 01-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 2 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						13.50	Brown gravelly CLAY. Gravel is angular to subangular fine to coarse of mudstone and sandstone. *(continued)*	TILL	
						(6.50)	Brown interbedded LIMESTONE and SANDSTONE. 13.50 - 45.00 Water added.	PLCM	
						20.00			

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO5
Project ID: GSI 2132	Date: 01-07-24 01-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 3 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE with interbedded grey SANDSTONE.	PLCM	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO5**
Project ID: GSI 2132	Date: 01-07-24 01-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 4 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						(25.00)	Reddish brown MUDSTONE with interbedded grey SANDSTONE. *(continued)*	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO5**
Project ID: GSI 2132	Date: 01-07-24 01-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 5 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE with interbedded grey SANDSTONE. *(continued)*	PLCM	
						45.00			

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered or loss of flush. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO6
Project ID: GSI 2132	Date: 02-07-24 02-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	TOPSOIL: Grass over dark brown sandy sligtly gravelly CLAY with rootlets. Gravel is angular to subrounded fine to coarse of mudstone and sandstone.	(TOPSOIL)	
						(0.70) 1.00	Brown sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone, shale and sandstone.	TILL	
						(11.00)	Brown sandy GRAVEL and COBBLES of mudstone and sandstone. 1.00 - 12.00 Slow progress.	TILL	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered, 80% flush recovery between 1.20 and 12.00m. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO6
Project ID: GSI 2132	Date: 02-07-24 02-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 2 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						12.00	Brown sandy GRAVEL and COBBLES of mudstone and sandstone. *(continued)*	TILL	
							Reddish brown MUDSTONE. 12.00 - 45.00 Water added.	PLCM	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered, 80% flush recovery between 1.20 and 12.00m. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO6
Project ID: GSI 2132	Date: 02-07-24 02-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 3 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*		
						(33.00)		PLCM	

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered, 80% flush recovery between 1.20 and 12.00m. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO6
Project ID: GSI 2132	Date: 02-07-24 02-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 4 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered, 80% flush recovery between 1.20 and 12.00m. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO6
Project ID: GSI 2132	Date: 02-07-24 02-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 5 of 5

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
							Reddish brown MUDSTONE. *(continued)*	PLCM	
						45.00			

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. No coal encountered, 80% flush recovery between 1.20 and 12.00m. Upon completion exploratory hole backfilled with grout bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used: Massenza M15	Logged By: WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				RO7
Project ID: GSI 2132	Date: 03-07-24 03-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	TOPSOIL: Grass over soft dark brown sandy slightly gravelly CLAY with rootlets. Gravel is angular to subangular fine to medium of sandstone and mudstone.	(TOPSOIL)	
						(0.60) 0.90	Brown very sandy CLAY.	TILL	
						(4.60) 5.50	Brown sandy GRAVEL and Cobbles of mudstone and sandstone. 0.90 - 5.50 Slow progress.	TILL	
							Obstruction.		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Obstruction encountered at 5.50mbgl. Location terminated, backfilled with arisings and relocated approximately 5.00m east and named RO7a.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

GeoCon Site Investigations Ltd
Arden House, Shepley Lane Industrial Estate,
Hawk Green, Marple, Stockport.
SK6 7JW
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

ROTARY OPEN HOLE BOREHOLE LOG

GEOCON

Project				BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**RO7a**
Project ID: GSI 2132	Date: 03-07-24 04-07-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	TOPSOIL: Grass over soft dark brown sandy slighlty gravelly CLAY with rootlets. Gravel is angular to subrounded fine to medium of sandstone and mudstone.	(TOPSOIL)	
						0.50		TILL	
						(0.50)	Brown clayey gravelly fine to medium SAND. Gravel is angular to subrounded fine to coarse of mudstone and sandstone.	TILL	
						1.00	Brown very sandy slightly gravelly CLAY with rare cobbles of mudstone.		
						(2.30)	Brown sandy GRAVEL and COBBLES of mudstone and sandstone. 1.00 - 3.30 Slow progress.	TILL	
						3.30	Obstruction		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Obstruction encountered at 3.30mbgl. Location terminated and backfilled with arisings.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used Massenza M15	Logged By WG

APPENDIX C

DYNAMIC SAMPLE BOREHOLE LOGS

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS01**
Project ID: GSI 2132	Date: 24-06-24 24-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone.	(TOPSOIL)	
0.40	ES2						Dense brown silty gravelly fine to medium SAND. Gravel is angular to subangular fine to coarse of sandstone and mudstone.		
0.40	D3								
0.80	ES4								
0.80	D5					(1.50)		TILL	
1.20		N38							
			1			1.80			
1.90	D6					2.00	Very dense brown slightly sandy GRAVEL with rare cobbles. Gravel is angular to subrounded fine to coarse of sandstone and mudstone. Cobbles are subrounded of sandstone.	TILL	
2.00		N50/ 275 mm							

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Water seepage at 1.90mbgl. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 1.00 and 2.00mbgl.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS02**
Project ID: GSI 2132	Date: 24-06-24 24-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.10	ES1					0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone and sandstone.	(TOPSOIL)	
0.50 0.50	ES2 D3					(0.60) 0.90	Firm to stiff reddish brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone.	TILL	
1.00 1.00 1.20	ES4 D5	N50/ 255 mm				1.20	Very dense brown sandy GRAVEL with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone.	TILL	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS02a**
Project ID: GSI 2132	Date: 24-06-24 24-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to coarse of mudstone.	(TOPSOIL)	
						(0.70) 1.00	Firm to stiff reddish brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone.	TILL	
1.20						1.20	Very dense brown sandy GRAVEL with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone.	TILL	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS03**
Project ID: GSI 2132	Date: 24-06-24 24-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.25	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to coarse of mudstone and sandstone.	(TOPSOIL)	
0.40 0.40	ES2 D3					(0.75)	Firm reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone.	TILL	
0.90 0.90 1.20 1.20	ES4 D5 D6	N50/ 180 mm				1.00 1.20	Brown sandy GRAVEL with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone and sandstone.	TILL	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS04**
Project ID: GSI 2132	Date: 24-06-24 24-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone.	(TOPSOIL)	
0.40	ES2								
0.40	D3					(1.00)	Firm reddish brown mottled grey sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone and sandstone.	TILL	
0.80	ES4								
0.80	D5					1.30			
1.20		N24							
1.40	D6					(0.70)	Stiff brown gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone.	TILL	
						2.00	1.90 Becomes very stiff		
2.00	D7								
2.00		N50/ 160 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 1.00 and 2.00mbgl.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS05**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to coarse of mudstone and sandstone	(TOPSOIL)	
0.50	ES2					(1.00)	Firm reddish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone and limestone.	TILL	
0.50	D3								
1.00	ES4								
1.00	D5					1.30			
1.20		N35					Stiff brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse of limestone and mudstone.		
1.40	D6								
2.00	D7								
2.00		N26				(2.50)		TILL	
3.00	D8						3.00 Becomes very stiff		
3.00		N28							
3.80	D9					3.80			
4.00		N50/ 285 mm							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To	Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 3.80mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS06**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS				STRATA					
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.10	ES1					0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone and sandstone.	(TOPSOIL)	
0.40	ES2						Firm reddish brown slightly sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subangular fine to coarse of mudstone. Cobbles are angular of mudstone.		
0.40	D3								
0.70	ES4								
0.70	D5					(1.70)	0.60 Becomes mottled grey	TILL	
1.20		N21							
1.70	D6					2.00			
2.00		N21					Firm reddish brown very sandy CLAY.		
2.10	D7					(1.00)		TILL	
						3.00			
3.00	D8								
3.00		N50/ 245 mm							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 2.10mbgl. Exploratory hole terminated at 3.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 1.00 and 3.00mbgl.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS07**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.25	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to coarse of mudstone. and sandstone.	(TOPSOIL)	
0.40	ES2					(0.95)	Very stiff reddish brown slightly sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone and limestone. Cobbles are rubangular of mudstone.	TILL	
0.40	D3					1.20			
0.80	ES4								
0.80	D5								
1.20	D6								
1.20		N50/ 200 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS08**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.25	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone.	(TOPSOIL)	
0.50	ES2						Stiff reddish brown slightly sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone and sandstone. Cobbles are subangular of mudstone.		
0.50	D3								
0.90	ES4								
0.90	D5					(1.75)		TILL	
1.20	D6								
1.20		N23							
						2.00	1.80 Becomes very sandy		
2.00	D7								
2.00		N50/ 250 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS09**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.30	Grass over very soft dark brown sandy slightly gravelly CLAY with abundant rootlets. Gravel is angular to subangular fine to medium of mudstone and limestone.	(TOPSOIL)	
0.40	ES2								
0.40	D3					(0.90)	Firm reddish brown slightly sandy slightly gravelly CLAY with frequent cobbles. Gravel is angular to subrounded fine to coarse of mudstone and limestone. Cobbles are subangular of mudstone.	TILL	
0.80	ES4								
0.80	D5								
1.20	D6					1.20			
1.20		N50							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS10**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.30	ES1					(0.90)	MADE GROUND: Grey slightly sandy GRAVEL with rare cobbles. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular of limestone.	MG	
0.30	D2								
0.60	ES3								
0.60	D4					0.90			
1.00	ES5					1.20	Firm brown mottled grey slightly sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subrounded of mudstone and limestone. Cobbles are subangular of limestone.	TILL	
1.00	D6								
1.20	D7								
1.20		N50/ 90 mm							

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS11**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.40	MADE GROUND: Grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of limestone.	MG	
0.50	D2								
0.50	ES3					0.80	MADE GROUND: Dark grey sandy GRAVEL. Gravel is angular to subangular fine to coarse of ash, shale, clinker and limestone.	MG	
0.80	D4								
0.80	ES5					1.20	Firm brown slightly sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subangular fine to coarse of mudstone and limestone. Cobbles are subangular of mudstone	TILL	
1.20	D6								
1.20		N50/ 260 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS12**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS				STRATA					
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.10	ES1					0.20	MADE GROUND: Grass over brown clayey sandy GRAVEL with frequent rootlets. Gravel is angular to subangular fine to coarse of limestone.	MG	
0.30 0.30	ES2 D3					(0.80)	MADE GROUND: Dark grey clayey slightly sandy GRAVEL. with rare cobbles. Gravel is angular to subrounded fine to coarse of ash, clinker and limestone. Cobbles are subangular of limestone.	MG	
0.70 0.70	ES4 D5					1.00			
1.10 1.10 1.20	ES6 D7	N24				(1.00)	Medium dense brown silty fine SAND.	TILL	
						2.00			
2.00 2.00	D8	N50/ 280 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Ground water not encountered. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 1.00 and 2.00mbgl.

All dimensions in metres Scale 1:62.5	Client Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS13**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.10	ES1					0.20	MADE GROUND: Brownish grey clayey sandy GRAVEL. Gravel is angular to subangular fine to coarse of limestone.	MG	
						0.30	MADE GROUND: Grey CONCRETE.	MG	
0.40	ES2								
0.40	D6					(0.70)	MADE GROUND: Dark grey clayey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of ash, clinker and limestone.	MG	
0.90	ES3					1.00			
0.90	D7						Grey brown sandy GRAVEL. Gravel is angular to subangular fine to coarse of limestone.	(POSSIBLE MADE GROUND)	
1.20	ES4								
1.20	D8					(0.80)			
1.20		N50/ 230 mm				1.80			
						2.00	Stiff brown sandy slightly gravelly CLAY with frequent cobbles. Gravel is angular to subangular fine to coarse of mudstone and limestone. Cobbles are angular of mudstone.	TILL	
1.90	ES5								
1.90	D9								
2.00		N50/ 230 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 1.00 and 1.80mbgl.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS14**
Project ID: GSI 2132	Date: 25-06-24 25-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.20	MADE GROUND: Grey angular to subangular fine to coarse GRAVEL of limestone.	MG	
0.30	ES1					(0.60)	MADE GROUND: Brownish grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of limestone. 0.60 Becomes clayey	MG	
0.50	ES2					0.80			
0.50	D3								
0.90	ES4					1.20	MADE GROUND: Dark grey slightly sandy GRAVEL with frequent cobbles. Gravel is angular to subrounded fine to coarse of ash, clinker and slate. Cobbles are angular of slate.	MG	
0.90	D5								
1.20	D6								
1.20		N50/ 260 mm							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT &Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon completion exploratory hole backfilled with bentonite. Genny. Service inspection pit excavated to 1.20mbgl. No groundwater encountered

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS15**
Project ID: GSI 2132	Date: 26-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.10	MADE GROUND: Grey CONCRETE.	MG	
0.30	ES1					(0.60)	MADE GROUND: Brown slightly sandy gravel with rare cobbles. Gravel is angular to subangular of mudstone, brick and sandstone. Cobbles are angular of brick	MG	
0.30	D2					0.70			
0.60	ES3					0.80	Brown fine SAND.	(POSSIBLE MADE GROUND)	
0.60	D4								
0.90	ES5					1.20	Stiff reddish brown slightly sandy gravelly CLAY with rare cobbles. Gravel is anguar to subangular fine to coarse of mudstone. Cobbles are angular of mudstone.	TILL	
0.90	D6								
1.20	D7								
1.20		N50/ 240 mm							

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS16**
Project ID: GSI 2132	Date: 26-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.10	MADE GROUND: Brownish grey slightly sandy GRAVEL with rootlets. Gravel is angular to subangular fine to coarse of limstone and shale.	MG	
0.20	ES1					0.50	MADE GROUND: Grey GRAVEL. Gravel is angular to subangular fine to coarse of limestone	MG	
0.60	ES2								
0.60	D4					0.90	MADE GROUND: Dark grey slightly sandy GRAVEL with rare cobbles. Gravel is angular to subangular fine to coarse of ash, clinker and mudstone. Cobbles are angular of clinker.	MG	
1.00	ES3								
1.00	D5								
1.20		N13				(1.10)	Firm reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of mudstone. 1.30 Becomes stiff with rare cobbles of mudstone.	TILL	
1.50	D6								
						2.00			
2.00	D7								
2.00		N50/ 120 mm							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 1.00 and 1.80mbgl.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS17**
Project ID: GSI 2132	Date: 26-06-24 26-06-24	Ground Level (m)	Co-Ordinates	
Contractor				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
						0.10	MADE GROUND: Grey CONCRETE.	MG	
						0.15	MADE GROUND: Red BRICK	MG	
						0.30	MADE GROUND: Brownish grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of limestone and shale.	MG	
						(0.60)			
						0.90	MADE GROUND: Dark grey sandy GRAVEL. Gravel is angular to subangular fine to coarse of brick, clinker, ash and shale.	TILL	
						1.20			
1.20		N50/ 240 mm					Stiff brown slightly sandy gravelly CLAY with rare cobbles. Gravel is angular to subrounded fine to coarse of mudstone. Cobbles are subangular of mudstone.		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 1.20mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS17a**
Project ID: GSI 2132	Date: 26-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.20	ES1					0.30	MADE GROUND: Grass over clayey slightly sandy GRAVEL with frequent rootlets. Gravel is angular to subangular fine to medium of limestone.	MG	
0.50	ES2					0.70	MADE GROUND: Dark grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of ash, limestone and shale.	MG	
0.50	D4					0.80	Brown clayey fine SAND.	TILL	
0.90	ES3						Very stiff reddish brown sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subangular fine to coarse of mudstone.		
0.90	D5								
1.20	D6					(1.00)		TILL	
1.20		N50/ 235 mm							
1.80	D7					1.80			
1.80		N50/ 245 mm							

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth	From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater not encountered. Exploratory hole terminated at 2.00mbgl due to SPT refusal. Upon Completion exploratory hole installed with 50mm diameter standpipe, with a response zone between 0.80 and 1.80mbgl.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

GeoCon Site Investigations Ltd
Suite 2 Maple House, 39 Stockport Road,
Marple, Stockport.
SK6 6BD.
Tel: 0161 713 0174
Email: info@geoconsiteinvestigations.com
Website: www.geoconsiteinvestigations.com

DYNAMIC SAMPLE BOREHOLE LOG

GEOCON

Project				DYNAMIC SAMPLE BOREHOLE No
Land off Dazell Street, Moor Row, Cumbria				**DS18**
Project ID: GSI 2132	Date: 26-06-24 26-06-24	Ground Level (m):	Co-Ordinates:	
Contractor:				Sheet: 1 of 1

SAMPLES & TESTS			STRATA						
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Geology	Instrument & Backfill
0.10	ES1					0.30	Grass over dark soft brown sandy slightly gravelly CLAY with frequent rootlets. Gravel is angular to subangular fine to medium of mudstone.	(TOPSOIL)	
0.40	ES2					0.50	Brown clayey slightly gravelly fine SAND. Gravel is angular to subangular fine to medium of mudstone and sandstone.	TILL	
0.40	D4		1				Stiff reddish brown very sandy slightly gravelly CLAY with rare cobbles. Gravel is angular to subangular fine to coarse of mudstone. Cobbles are subrounded of mudstone.		
0.70	ES3					(1.00)		TILL	
0.70	D5								
1.00	D6								
1.20		N50/ 195 mm							
1.50		N50/ 155 mm				1.50			

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Depth

Chiselling			Water Added	
From	To	Hours	From	To

GENERAL REMARKS

Location cleared of buried services using CAT & Genny. Service inspection pit excavated to 1.20mbgl. Groundwater encountered at 1.00mbgl. Exploratory hole terminated at 1.50mbgl due to SPT refusal. Upon Completion exploratory hole backfilled with bentonite.

All dimensions in metres Scale 1:62.5	Client: Nigel Kay Homes Ltd	Method / Plant Used	Logged By

APPENDIX D

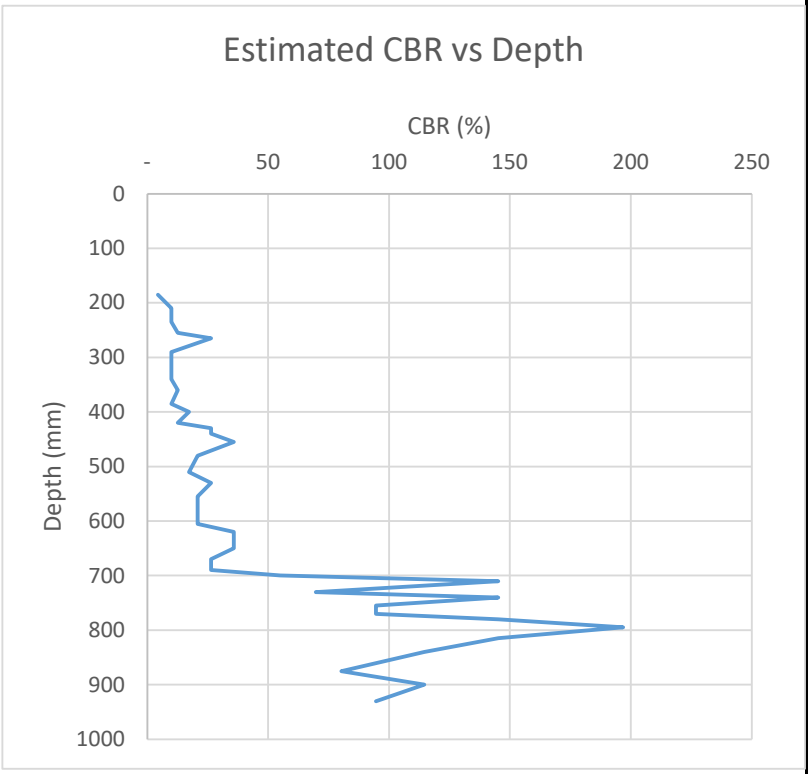
TRL DCP TESTING RESULTS

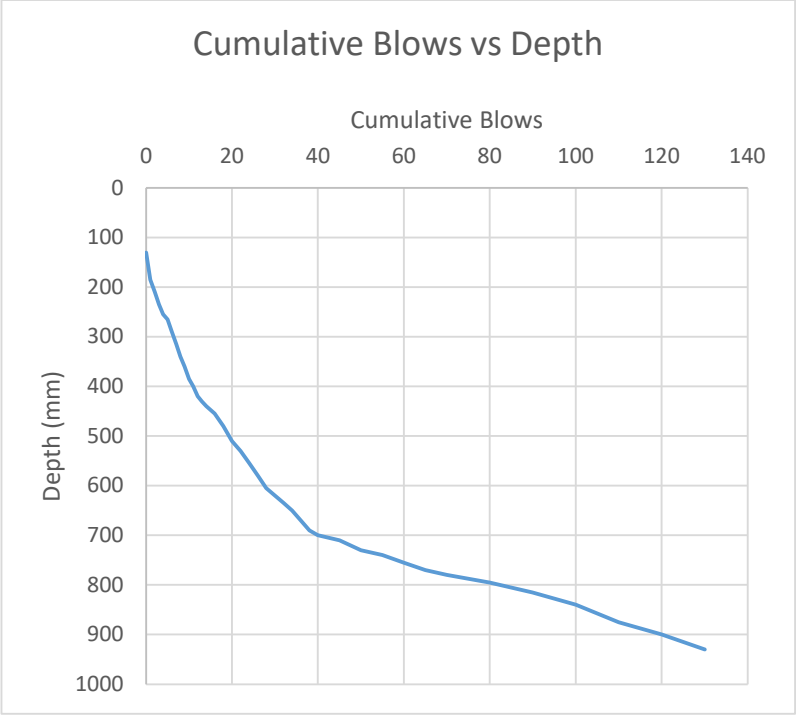
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 01
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	130	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
130	0	0	0	0		
185	1	55	1	55	55.00	4
210	2	80	1	25	25.00	10
235	3	105	1	25	25.00	10
255	4	125	1	20	20.00	13
265	5	135	1	10	10.00	26
290	6	160	1	25	25.00	10
315	7	185	1	25	25.00	10
340	8	210	1	25	25.00	10
360	9	230	1	20	20.00	13
385	10	255	1	25	25.00	10
400	11	270	1	15	15.00	17
420	12	290	1	20	20.00	13
430	13	300	1	10	10.00	26
440	14	310	1	10	10.00	26
455	16	325	2	15	7.50	36
480	18	350	2	25	12.50	21
510	20	380	2	30	15.00	17
530	22	400	2	20	10.00	26
555	24	425	2	25	12.50	21
580	26	450	2	25	12.50	21
605	28	475	2	25	12.50	21
620	30	490	2	15	7.50	36
635	32	505	2	15	7.50	36
650	34	520	2	15	7.50	36
670	36	540	2	20	10.00	26
690	38	560	2	20	10.00	26
700	40	570	2	10	5.00	55
710	45	580	5	10	2.00	>100
730	50	600	5	20	4.00	70
740	55	610	5	10	2.00	>100
755	60	625	5	15	3.00	95
770	65	640	5	15	3.00	95
780	70	650	5	10	2.00	>100
795	80	665	10	15	1.50	>100
815	90	685	10	20	2.00	>100
840	100	710	10	25	2.50	>100
875	110	745	10	35	3.50	80
900	120	770	10	25	2.50	>100
930	130	800	10	30	3.00	95



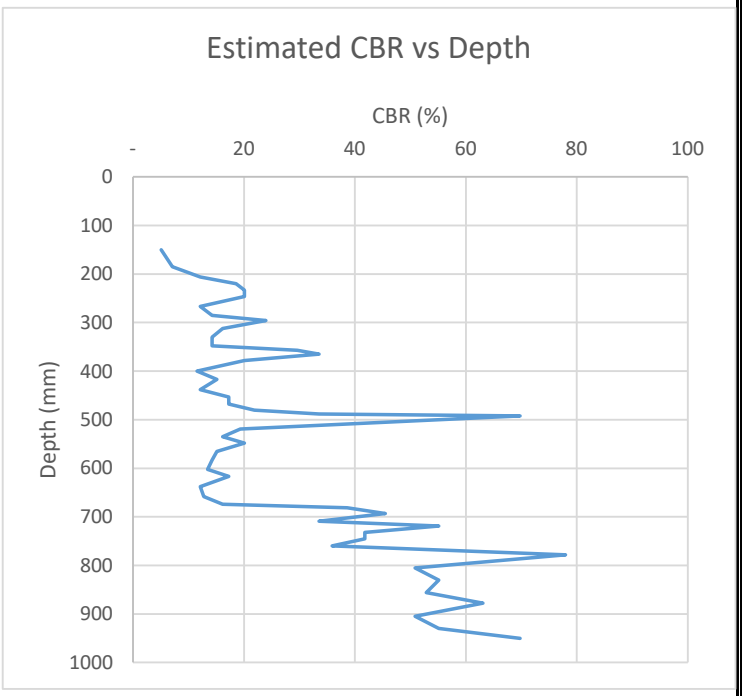


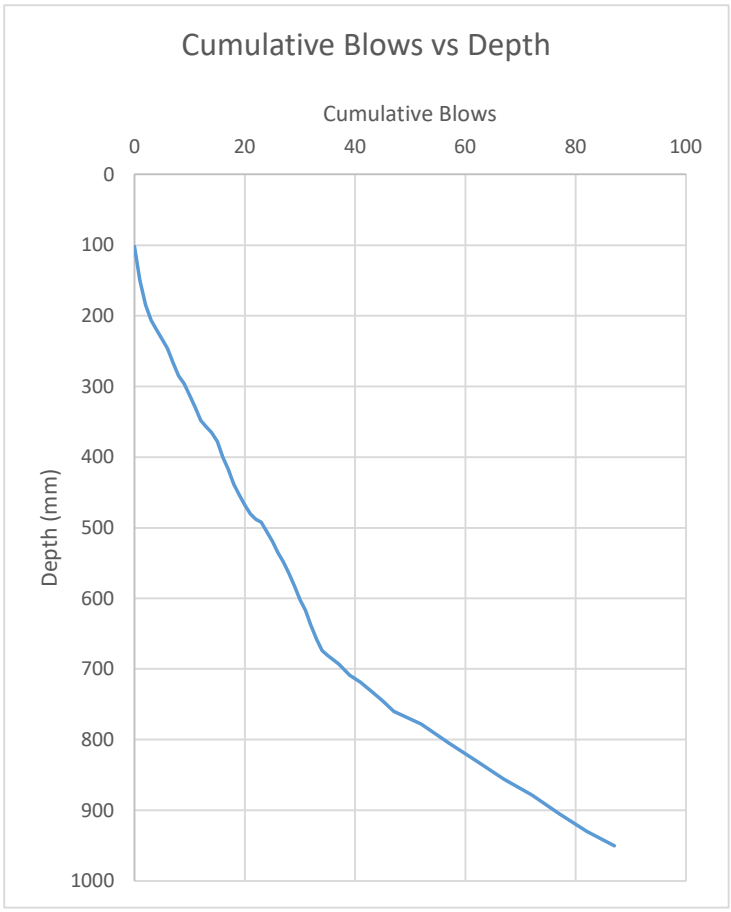
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 01**
Client:	Nigel Kay Homes Ltd	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 02
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	102	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
102	0	0	0	0		
150	1	48	1	48	48.00	5
185	2	83	1	35	35.00	7
206	3	104	1	21	21.00	12
220	4	118	1	14	14.00	19
233	5	131	1	13	13.00	20
246	6	144	1	13	13.00	20
267	7	165	1	21	21.00	12
285	8	183	1	18	18.00	14
296	9	194	1	11	11.00	24
312	10	210	1	16	16.00	16
330	11	228	1	18	18.00	14
348	12	246	1	18	18.00	14
357	13	255	1	9	9.00	30
365	14	263	1	8	8.00	34
378	15	276	1	13	13.00	20
400	16	298	1	22	22.00	12
417	17	315	1	17	17.00	15
438	18	336	1	21	21.00	12
453	19	351	1	15	15.00	17
468	20	366	1	15	15.00	17
480	21	378	1	12	12.00	22
488	22	386	1	8	8.00	34
492	23	390	1	4	4.00	70
519	25	417	2	27	13.50	19
535	26	433	1	16	16.00	16
548	27	446	1	13	13.00	20
565	28	463	1	17	17.00	15
583	29	481	1	18	18.00	14
602	30	500	1	19	19.00	13
617	31	515	1	15	15.00	17
638	32	536	1	21	21.00	12
658	33	556	1	20	20.00	13
674	34	572	1	16	16.00	16
681	35	579	1	7	7.00	39
693	37	591	2	12	6.00	45
709	39	607	2	16	8.00	34
719	41	617	2	10	5.00	55
732	43	630	2	13	6.50	42
745	45	643	2	13	6.50	42
760	47	658	2	15	7.50	36
778	52	676	5	18	3.60	78
805	57	703	5	27	5.40	51
830	62	728	5	25	5.00	55
856	67	754	5	26	5.20	53
878	72	776	5	22	4.40	63
905	77	803	5	27	5.40	51
930	82	828	5	25	5.00	55
950	87	848	5	20	4.00	70





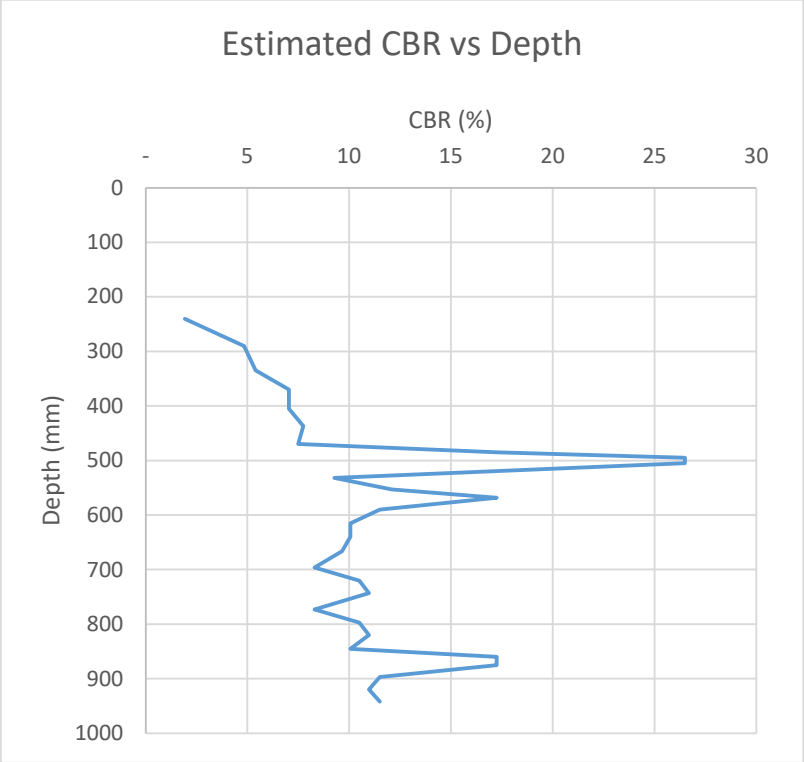
Project Name:	Land off Dazell Street, Moor Row, Cumbria	**Test reference:**	
Project ID:	GSI 2132	**TRL DCP 02**	
Client:	Nigel Kay Homes Ltd		

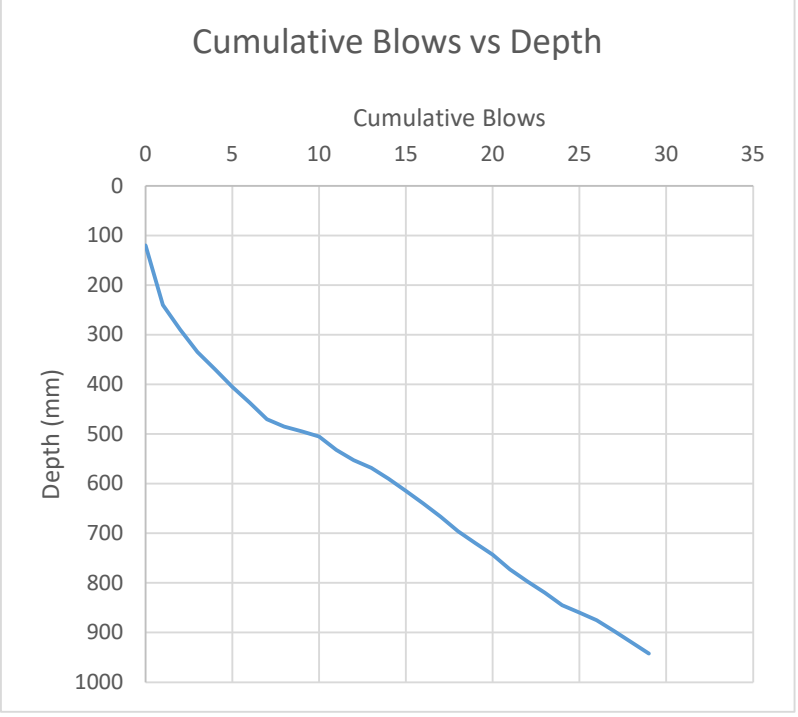
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 03
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	120	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
120	0	0	0	0		
240	1	120	1	120	120.00	2
290	2	170	1	50	50.00	5
335	3	215	1	45	45.00	5
370	4	250	1	35	35.00	7
405	5	285	1	35	35.00	7
437	6	317	1	32	32.00	8
470	7	350	1	33	33.00	7
485	8	365	1	15	15.00	17
495	9	375	1	10	10.00	26
505	10	385	1	10	10.00	26
532	11	412	1	27	27.00	9
553	12	433	1	21	21.00	12
568	13	448	1	15	15.00	17
590	14	470	1	22	22.00	12
615	15	495	1	25	25.00	10
640	16	520	1	25	25.00	10
666	17	546	1	26	26.00	10
696	18	576	1	30	30.00	8
720	19	600	1	24	24.00	10
743	20	623	1	23	23.00	11
773	21	653	1	30	30.00	8
797	22	677	1	24	24.00	10
820	23	700	1	23	23.00	11
845	24	725	1	25	25.00	10
860	25	740	1	15	15.00	17
875	26	755	1	15	15.00	17
897	27	777	1	22	22.00	12
920	28	800	1	23	23.00	11
942	29	822	1	22	22.00	12





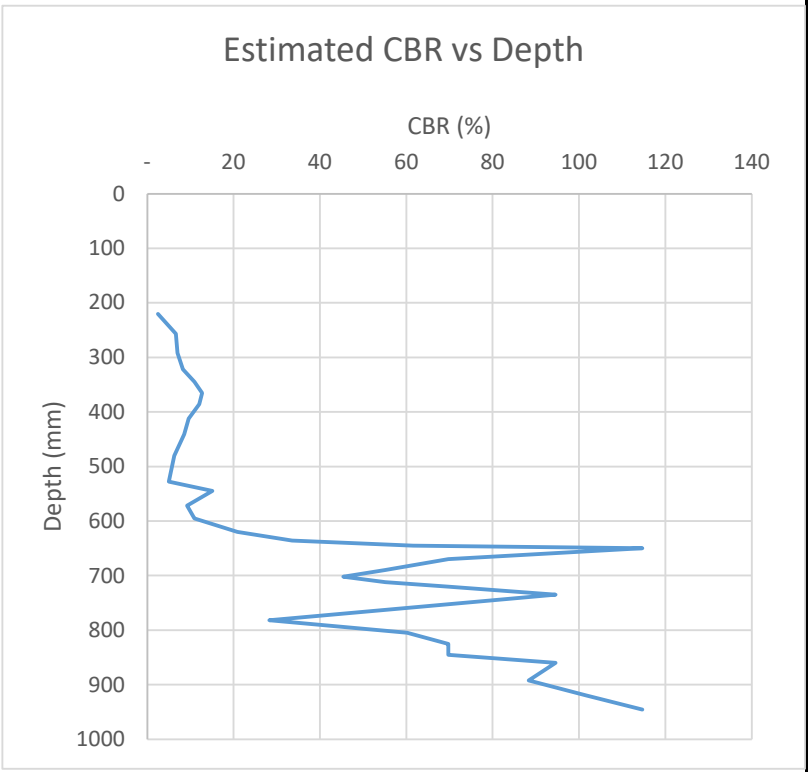
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 03**
Client:	Nigel Kay Homes Ltd	

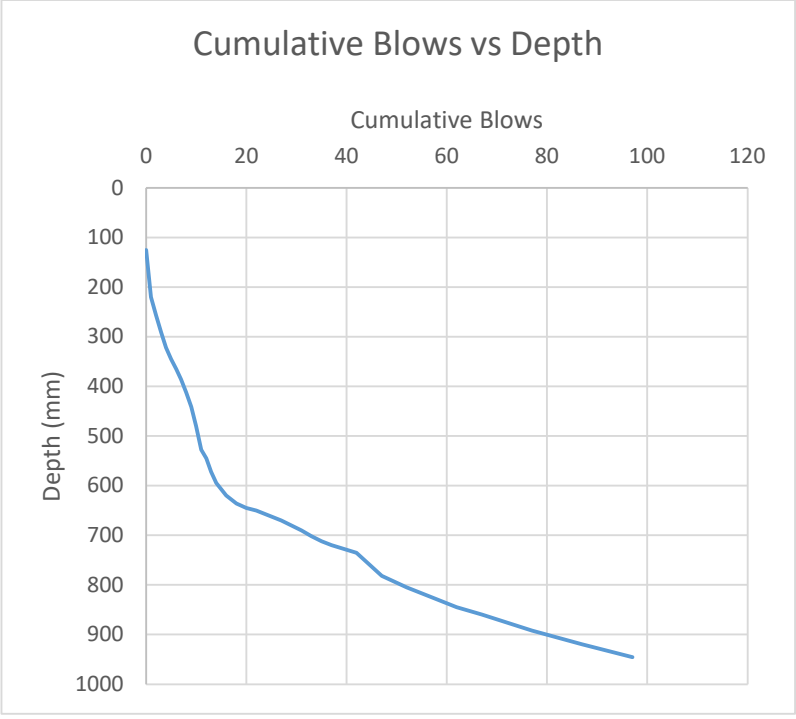
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 04
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	125	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
125	0	0	0	0		
220	1	95	1	95	95.00	2
257	2	132	1	37	37.00	7
292	3	167	1	35	35.00	7
322	4	197	1	30	30.00	8
345	5	220	1	23	23.00	11
365	6	240	1	20	20.00	13
386	7	261	1	21	21.00	12
412	8	287	1	26	26.00	10
441	9	316	1	29	29.00	9
480	10	355	1	39	39.00	6
528	11	403	1	48	48.00	5
545	12	420	1	17	17.00	15
572	13	447	1	27	27.00	9
595	14	470	1	23	23.00	11
620	16	495	2	25	12.50	21
636	18	511	2	16	8.00	34
645	20	520	2	9	4.50	62
650	22	525	2	5	2.50	>100
670	27	545	5	20	4.00	70
690	31	565	4	20	5.00	55
702	33	577	2	12	6.00	45
712	35	587	2	10	5.00	55
720	37	595	2	8	4.00	70
735	42	610	5	15	3.00	95
782	47	657	5	47	9.40	28
805	52	680	5	23	4.60	60
825	57	700	5	20	4.00	70
845	62	720	5	20	4.00	70
860	67	735	5	15	3.00	95
892	77	767	10	32	3.20	88
920	87	795	10	28	2.80	>100
945	97	820	10	25	2.50	>100





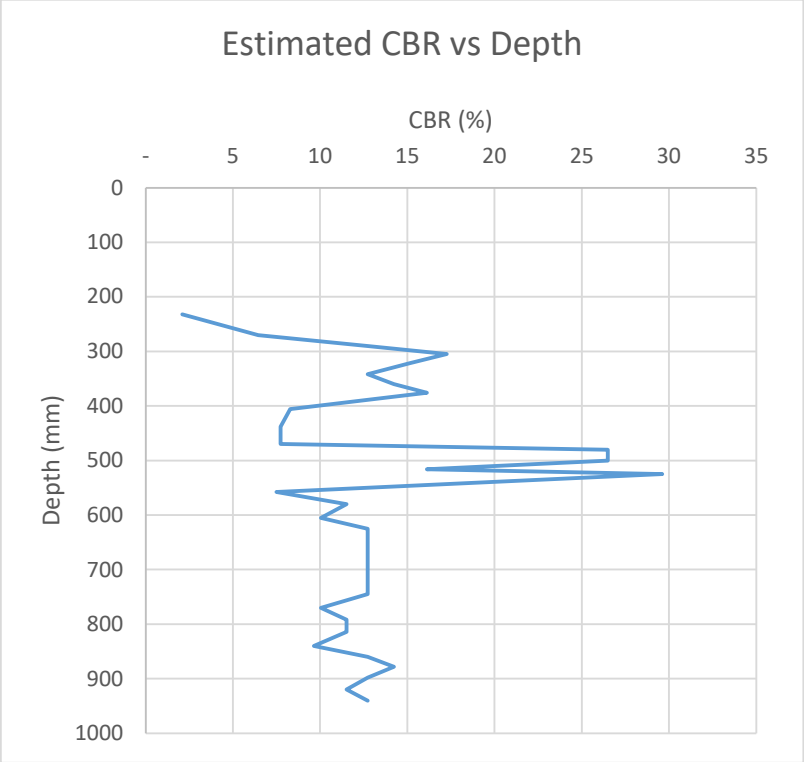
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 04**
Client:	Nigel Kay Homes Ltd	

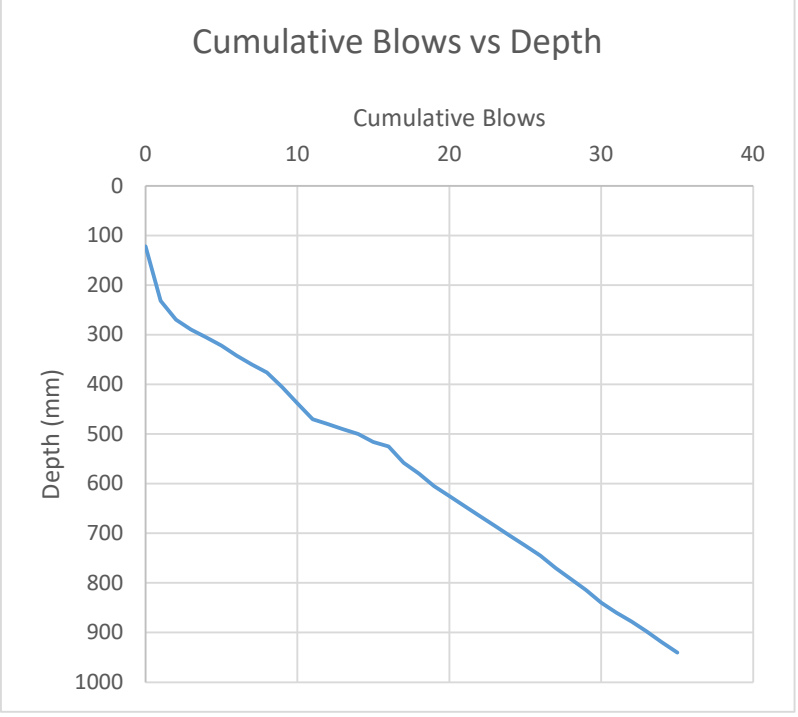
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 05
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	122	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
122	0	0	0	0		
232	1	110	1	110	110.00	2
270	2	148	1	38	38.00	6
290	3	168	1	20	20.00	13
305	4	183	1	15	15.00	17
322	5	200	1	17	17.00	15
342	6	220	1	20	20.00	13
360	7	238	1	18	18.00	14
376	8	254	1	16	16.00	16
406	9	284	1	30	30.00	8
438	10	316	1	32	32.00	8
470	11	348	1	32	32.00	8
480	12	358	1	10	10.00	26
490	13	368	1	10	10.00	26
500	14	378	1	10	10.00	26
516	15	394	1	16	16.00	16
525	16	403	1	9	9.00	30
558	17	436	1	33	33.00	7
580	18	458	1	22	22.00	12
605	19	483	1	25	25.00	10
625	20	503	1	20	20.00	13
645	21	523	1	20	20.00	13
665	22	543	1	20	20.00	13
685	23	563	1	20	20.00	13
705	24	583	1	20	20.00	13
725	25	603	1	20	20.00	13
745	26	623	1	20	20.00	13
770	27	648	1	25	25.00	10
792	28	670	1	22	22.00	12
814	29	692	1	22	22.00	12
840	30	718	1	26	26.00	10
860	31	738	1	20	20.00	13
878	32	756	1	18	18.00	14
898	33	776	1	20	20.00	13
920	34	798	1	22	22.00	12
940	35	818	1	20	20.00	13



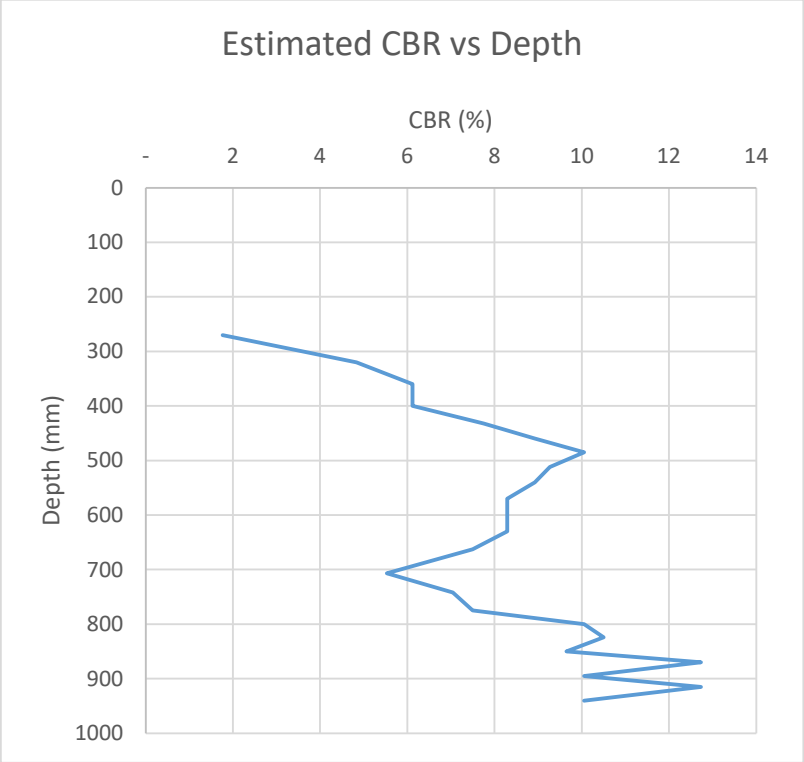


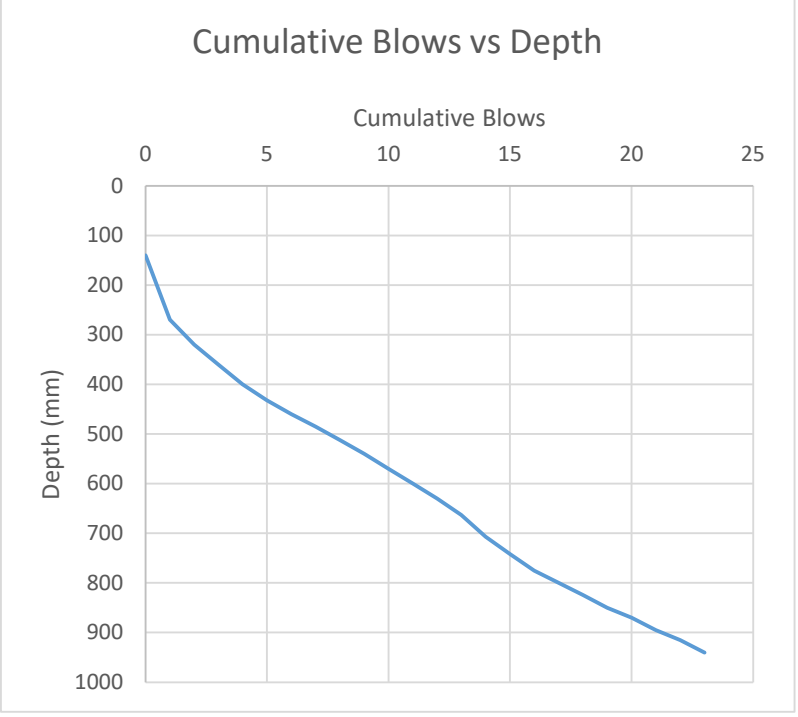
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 05**
Client:	Nigel Kay Homes Ltd	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 06
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	140	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
140	0	0	0	0		
270	1	130	1	130	130.00	2
320	2	180	1	50	50.00	5
360	3	220	1	40	40.00	6
400	4	260	1	40	40.00	6
432	5	292	1	32	32.00	8
460	6	320	1	28	28.00	9
485	7	345	1	25	25.00	10
512	8	372	1	27	27.00	9
540	9	400	1	28	28.00	9
570	10	430	1	30	30.00	8
600	11	460	1	30	30.00	8
630	12	490	1	30	30.00	8
663	13	523	1	33	33.00	7
707	14	567	1	44	44.00	6
742	15	602	1	35	35.00	7
775	16	635	1	33	33.00	7
800	17	660	1	25	25.00	10
824	18	684	1	24	24.00	10
850	19	710	1	26	26.00	10
870	20	730	1	20	20.00	13
895	21	755	1	25	25.00	10
915	22	775	1	20	20.00	13
940	23	800	1	25	25.00	10



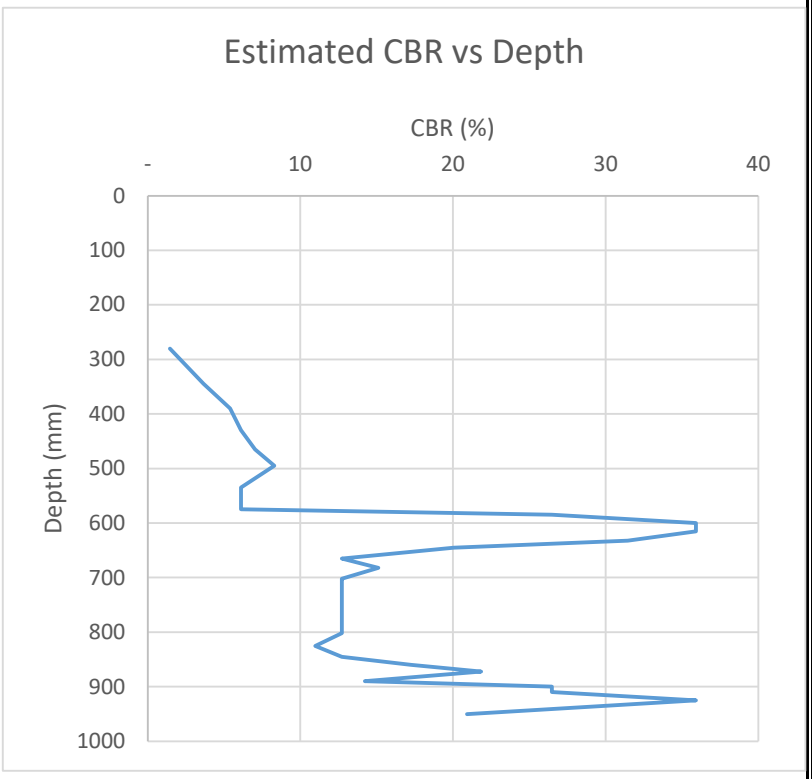


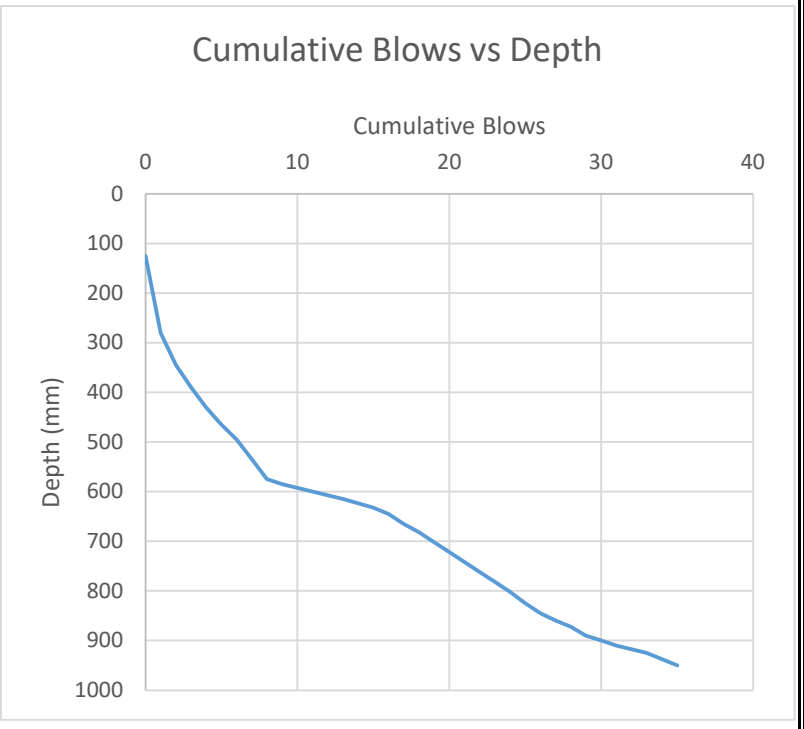
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 06**
Client:	Nigel Kay Homes Ltd	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 07
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	125	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
125	0	0	0	0		
280	1	155	1	155	155.00	1
345	2	220	1	65	65.00	4
390	3	265	1	45	45.00	5
430	4	305	1	40	40.00	6
465	5	340	1	35	35.00	7
495	6	370	1	30	30.00	8
535	7	410	1	40	40.00	6
575	8	450	1	40	40.00	6
585	9	460	1	10	10.00	26
600	11	475	2	15	7.50	36
615	13	490	2	15	7.50	36
632	15	507	2	17	8.50	31
645	16	520	1	13	13.00	20
665	17	540	1	20	20.00	13
682	18	557	1	17	17.00	15
702	19	577	1	20	20.00	13
722	20	597	1	20	20.00	13
742	21	617	1	20	20.00	13
762	22	637	1	20	20.00	13
782	23	657	1	20	20.00	13
802	24	677	1	20	20.00	13
825	25	700	1	23	23.00	11
845	26	720	1	20	20.00	13
860	27	735	1	15	15.00	17
872	28	747	1	12	12.00	22
890	29	765	1	18	18.00	14
900	30	775	1	10	10.00	26
910	31	785	1	10	10.00	26
925	33	800	2	15	7.50	36
950	35	825	2	25	12.50	21





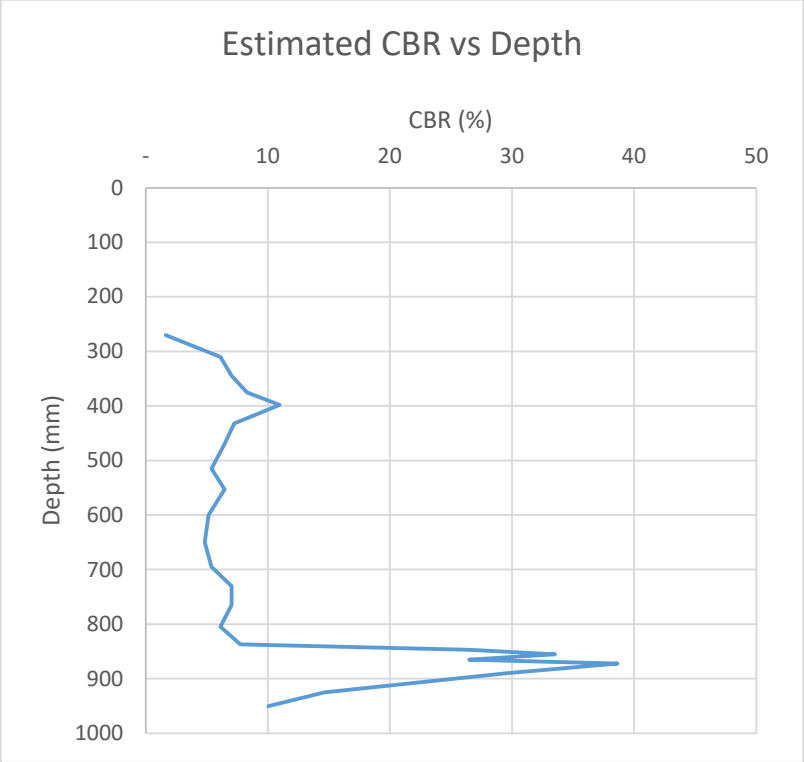
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 07**
Client:	Nigel Kay Homes Ltd	

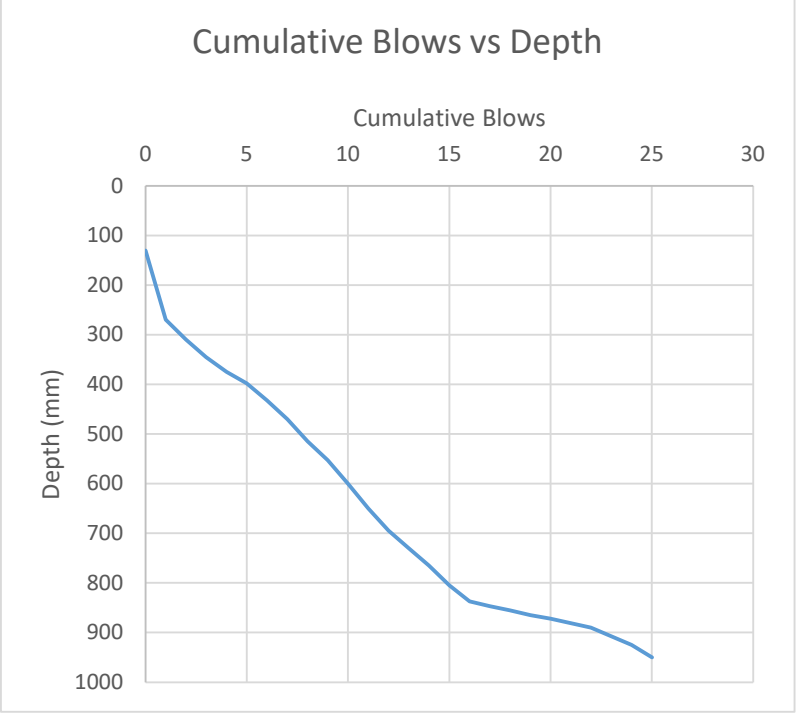
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 08
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	130	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
130	0	0	0	0		
270	1	140	1	140	140.00	2
310	2	180	1	40	40.00	6
345	3	215	1	35	35.00	7
375	4	245	1	30	30.00	8
398	5	268	1	23	23.00	11
432	6	302	1	34	34.00	7
470	7	340	1	38	38.00	6
515	8	385	1	45	45.00	5
553	9	423	1	38	38.00	6
600	10	470	1	47	47.00	5
650	11	520	1	50	50.00	5
695	12	565	1	45	45.00	5
730	13	600	1	35	35.00	7
765	14	635	1	35	35.00	7
805	15	675	1	40	40.00	6
837	16	707	1	32	32.00	8
847	17	717	1	10	10.00	26
855	18	725	1	8	8.00	34
865	19	735	1	10	10.00	26
872	20	742	1	7	7.00	39
890	22	760	2	18	9.00	30
925	24	795	2	35	17.50	15
950	25	820	1	25	25.00	10



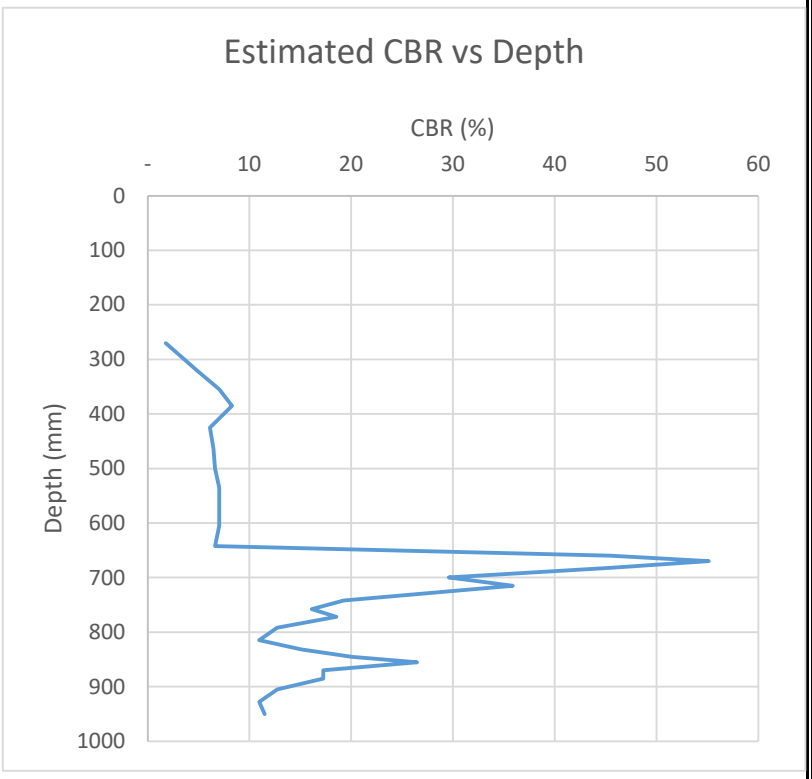


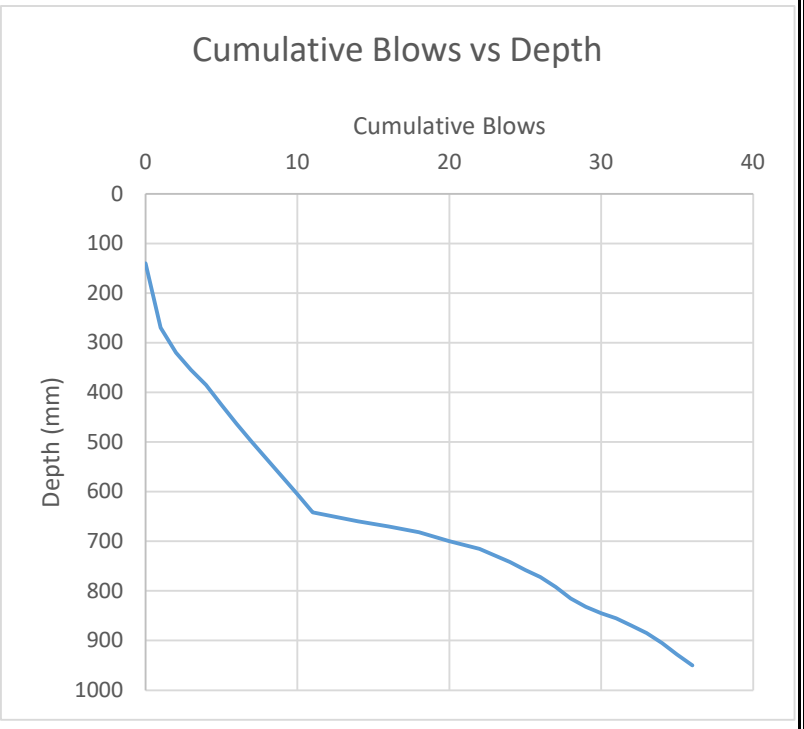
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 08**
Client:	Nigel Kay Homes Ltd	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 09
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	140	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
140	0	0	0	0		
270	1	130	1	130	130.00	2
320	2	180	1	50	50.00	5
355	3	215	1	35	35.00	7
385	4	245	1	30	30.00	8
425	5	285	1	40	40.00	6
463	6	323	1	38	38.00	6
500	7	360	1	37	37.00	7
535	8	395	1	35	35.00	7
570	9	430	1	35	35.00	7
605	10	465	1	35	35.00	7
642	11	502	1	37	37.00	7
660	14	520	3	18	6.00	45
670	16	530	2	10	5.00	55
682	18	542	2	12	6.00	45
700	20	560	2	18	9.00	30
715	22	575	2	15	7.50	36
742	24	602	2	27	13.50	19
758	25	618	1	16	16.00	16
772	26	632	1	14	14.00	19
792	27	652	1	20	20.00	13
815	28	675	1	23	23.00	11
832	29	692	1	17	17.00	15
845	30	705	1	13	13.00	20
855	31	715	1	10	10.00	26
870	32	730	1	15	15.00	17
885	33	745	1	15	15.00	17
905	34	765	1	20	20.00	13
928	35	788	1	23	23.00	11
950	36	810	1	22	22.00	12



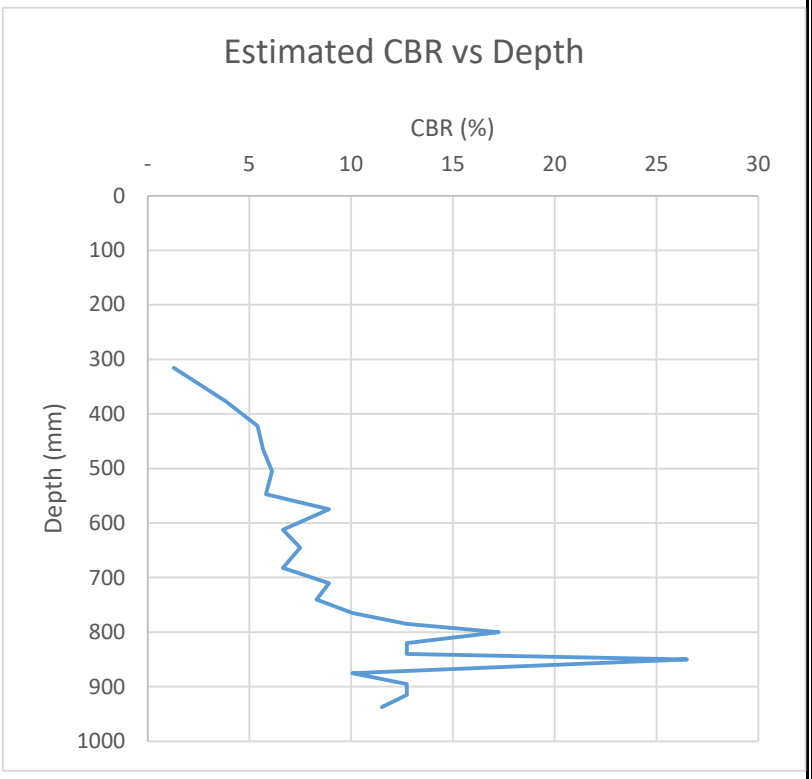


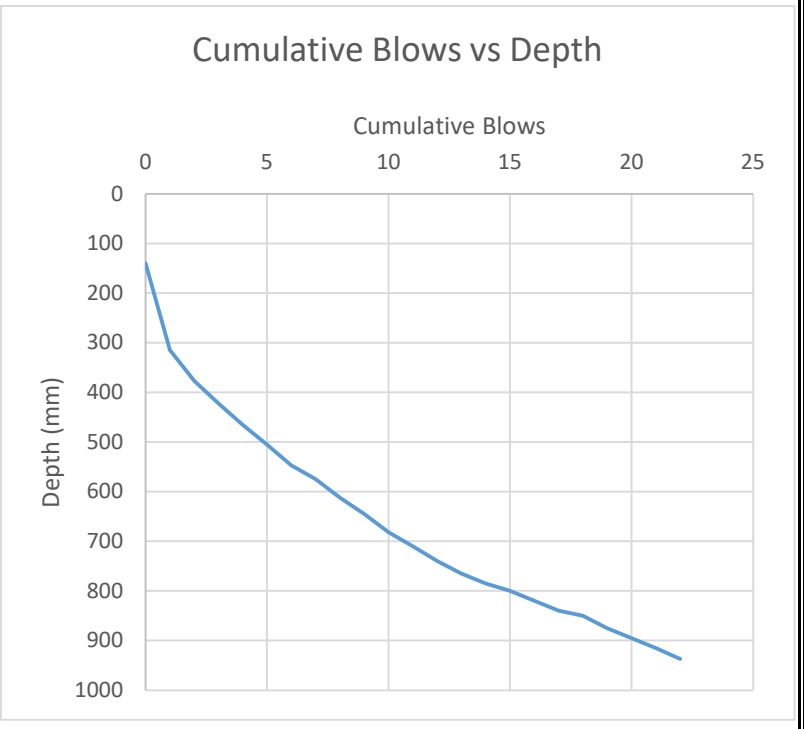
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 09**
Client:	Nigel Kay Homes Ltd	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 10
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	140	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
140	0	0	0	0		
315	1	175	1	175	175.00	1
377	2	237	1	62	62.00	4
422	3	282	1	45	45.00	5
465	4	325	1	43	43.00	6
505	5	365	1	40	40.00	6
547	6	407	1	42	42.00	6
575	7	435	1	28	28.00	9
612	8	472	1	37	37.00	7
645	9	505	1	33	33.00	7
682	10	542	1	37	37.00	7
710	11	570	1	28	28.00	9
740	12	600	1	30	30.00	8
765	13	625	1	25	25.00	10
785	14	645	1	20	20.00	13
800	15	660	1	15	15.00	17
820	16	680	1	20	20.00	13
840	17	700	1	20	20.00	13
850	18	710	1	10	10.00	26
875	19	735	1	25	25.00	10
895	20	755	1	20	20.00	13
915	21	775	1	20	20.00	13
937	22	797	1	22	22.00	12



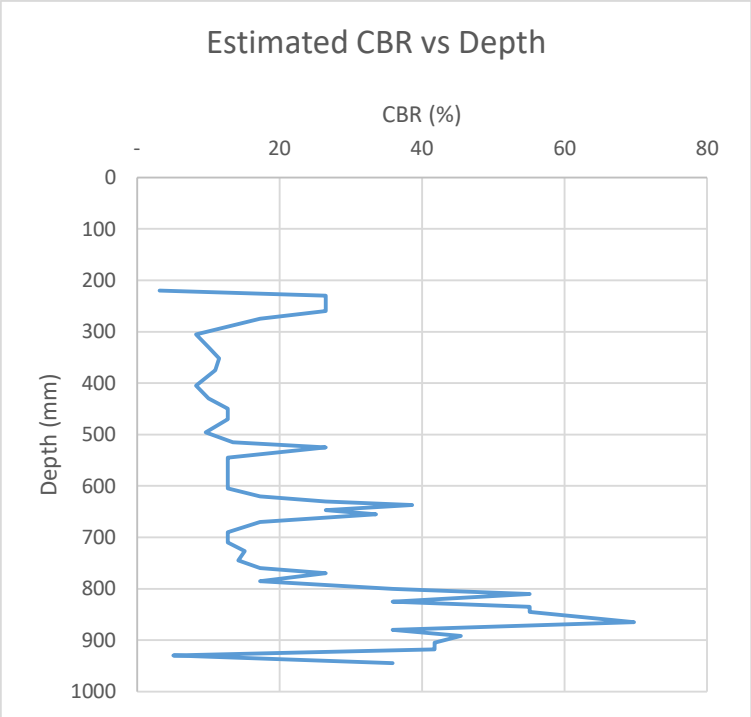


Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 10**
Client:	Nigel Kay Homes Ltd	

IN SITU CBR (TRL DCP)

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 11
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	145	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
145	0	0	0	0		
220	1	75	1	75	75.00	3
230	2	85	1	10	10.00	26
240	3	95	1	10	10.00	26
260	5	115	2	20	10.00	26
275	6	130	1	15	15.00	17
305	7	160	1	30	30.00	8
330	8	185	1	25	25.00	10
352	9	207	1	22	22.00	12
375	10	230	1	23	23.00	11
405	11	260	1	30	30.00	8
430	12	285	1	25	25.00	10
450	13	305	1	20	20.00	13
470	14	325	1	20	20.00	13
496	15	351	1	26	26.00	10
515	16	370	1	19	19.00	13
525	17	380	1	10	10.00	26
545	18	400	1	20	20.00	13
565	19	420	1	20	20.00	13
585	20	440	1	20	20.00	13
605	21	460	1	20	20.00	13
620	22	475	1	15	15.00	17
630	23	485	1	10	10.00	26
637	24	492	1	7	7.00	39
647	25	502	1	10	10.00	26
655	26	510	1	8	8.00	34
670	27	525	1	15	15.00	17
690	28	545	1	20	20.00	13
710	29	565	1	20	20.00	13
727	30	582	1	17	17.00	15
745	31	600	1	18	18.00	14
760	32	615	1	15	15.00	17
770	33	625	1	10	10.00	26
785	34	640	1	15	15.00	17
800	36	655	2	15	7.50	36
810	38	665	2	10	5.00	55
825	40	680	2	15	7.50	36
835	42	690	2	10	5.00	55
845	44	700	2	10	5.00	55
865	49	720	5	20	4.00	70
880	51	735	2	15	7.50	36
892	53	747	2	12	6.00	45
905	55	760	2	13	6.50	42
918	57	773	2	13	6.50	42
930	59	785	2	95	47.50	5
945	61	800	2	15	7.50	36



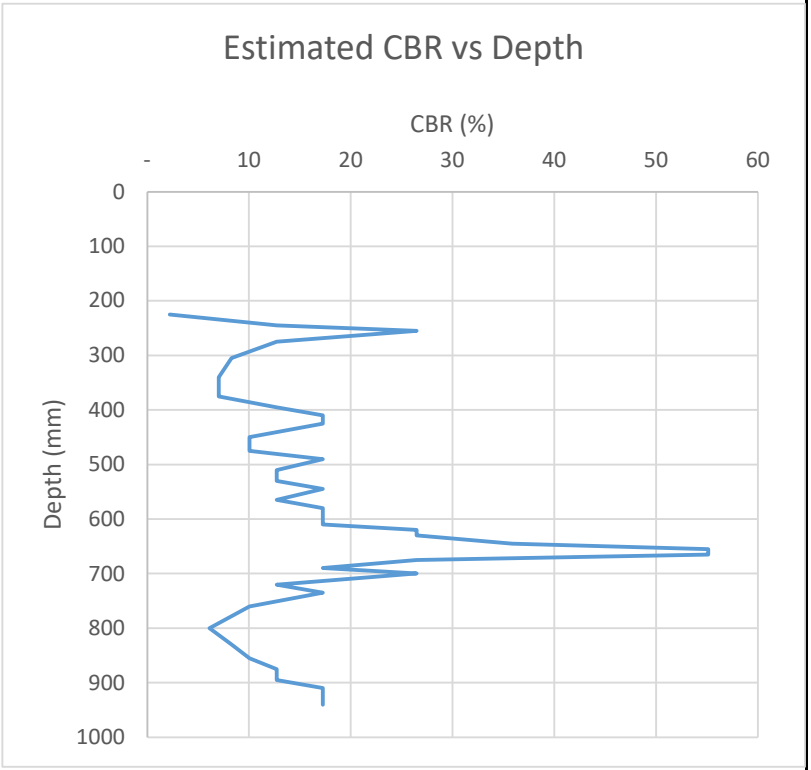
Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	TRL DCP 11
Client:	Nigel Kay Homes Ltd	

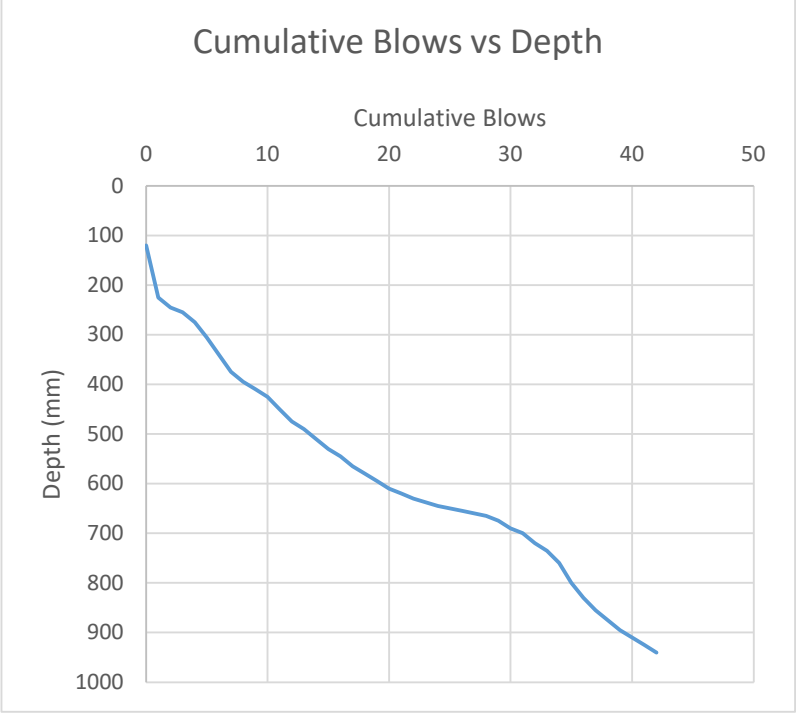
IN SITU CBR (TRL DCP)

GEOCON®

Operator:	Date:	Weather:	Remarks:	Location:	TRL DCP 12
WG	02/07/2024	Overcast	Test undertaken from groundlevel	mE:	-
				mN:	-
Chkd by:	**Start depth:**	**Surface layer:**	**Zero reading (mm):**	**Termination reason:**	mAOD:	-
LD	GL	TOPSOIL	120	Depth Extent Reached	Grid:	-

Depth to top of increment:	Cumulative blows:	Cumulative pen (mm):	Increment blows:	Increment pen (mm):	mm per blow:	Layer CBR (%)
120	0	0	0	0		
225	1	105	1	105	105.00	2
245	2	125	1	20	20.00	13
255	3	135	1	10	10.00	26
275	4	155	1	20	20.00	13
305	5	185	1	30	30.00	8
340	6	220	1	35	35.00	7
375	7	255	1	35	35.00	7
395	8	275	1	20	20.00	13
410	9	290	1	15	15.00	17
425	10	305	1	15	15.00	17
450	11	330	1	25	25.00	10
475	12	355	1	25	25.00	10
490	13	370	1	15	15.00	17
510	14	390	1	20	20.00	13
530	15	410	1	20	20.00	13
545	16	425	1	15	15.00	17
565	17	445	1	20	20.00	13
580	18	460	1	15	15.00	17
595	19	475	1	15	15.00	17
610	20	490	1	15	15.00	17
620	21	500	1	10	10.00	26
630	22	510	1	10	10.00	26
645	24	525	2	15	7.50	36
655	26	535	2	10	5.00	55
665	28	545	2	10	5.00	55
675	29	555	1	10	10.00	26
690	30	570	1	15	15.00	17
700	31	580	1	10	10.00	26
720	32	600	1	20	20.00	13
735	33	615	1	15	15.00	17
760	34	640	1	25	25.00	10
800	35	680	1	40	40.00	6
830	36	710	1	30	30.00	8
855	37	735	1	25	25.00	10
875	38	755	1	20	20.00	13
895	39	775	1	20	20.00	13
910	40	790	1	15	15.00	17
925	41	805	1	15	15.00	17
940	42	820	1	15	15.00	17





Project Name:	Land off Dazell Street, Moor Row, Cumbria	Test reference:
Project ID:	GSI 2132	**TRL DCP 12**
Client:	Nigel Kay Homes Ltd	

APPENDIX E

CHEMICAL TESTING RESULTS

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

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 24/06491/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 24/06491
Issue Number: 2 **Date:** 16 July, 2024

Client:
Geocon Site Investigations Ltd
Arden House
Shepley Lane Industrial Estate
Hawk Green, Marple
Stockport
Greater Manchester
UK
SK6 7JW

Project Manager: Use - Mailing list/Use - Mailing list 2
Project Name: Moor Row, Cumbria
Project Ref: GSI 2132
Order No: PO 24/0418
Date Samples Received: 28/06/24
Date Instructions Received: 02/07/24
Date Analysis Completed: 16/07/24

Approved by:

Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/4	24/06491/11	24/06491/19	24/06491/28	24/06491/30	24/06491/34	24/06491/38	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS02	DS04	DS07	DS10	DS11	DS12	DS13			
Depth to Top	0.10	0.40	0.20	0.30	0.50	0.70	0.90			
Depth To Bottom										
Date Sampled	24-Jun-24	24-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOLID	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	6AE	6AE	7	4A	4AE	4AE			
% Stones >10mm$_A$	0.8	6.3	5.4	<0.1	<0.1	42.1	<0.1	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	5.93	7.10	6.18	8.50^U	8.46	8.40	7.89	pH	0.01	A-T-031s
Cyanide (total)$_A$$^{M\#}$	<1	<1	<1	<1^U	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$$^{M\#}$	4.91	0.44	6.17	7.71^U	13.1	1.67	29.3	% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	17	6	24	4^U	82	12	56	mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	<0.5	<0.5	<0.5	<0.5^U	0.9	<0.5	0.6	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	24	14	35	18^U	187	31	105	mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	25	22	14	10^U	21	9	8	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	44	11	63	14^U	341	18	92	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	17	11	13	8^U	32	17	61	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1	<1^U	3	<1	2	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	37	15	24	199^U	307	34	147	mg/kg	5	A-T-024s

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/4	24/06491/11	24/06491/19	24/06491/28	24/06491/30	24/06491/34	24/06491/38	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS02	DS04	DS07	DS10	DS11	DS12	DS13			
Depth to Top	0.10	0.40	0.20	0.30	0.50	0.70	0.90			
Depth To Bottom										
Date Sampled	24-Jun-24	24-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOLID	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	6AE	6AE	7	4A	4AE	4AE			
Asbestos in Soil (inc. matrix) ^										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD^{U}	Chrysotile	NAD	Chrysotile			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	Loose Fibres	-	Loose Insolation			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing)$_{D}$	-	-	-	-	0.001	-	0.002	% w/w	0.001	A-T-054

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/4	24/06491/11	24/06491/19	24/06491/28	24/06491/30	24/06491/34	24/06491/38	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS02	DS04	DS07	DS10	DS11	DS12	DS13			
Depth to Top	0.10	0.40	0.20	0.30	0.50	0.70	0.90			
Depth To Bottom										
Date Sampled	24-Jun-24	24-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOLID	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	6AE	6AE	7	4A	4AE	4AE			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01^U	0.32	<0.01	0.05	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01^U	0.28	<0.01	0.08	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	<0.02	<0.02	<0.02	<0.02^U	0.41	<0.02	0.41	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.16	<0.04	0.09	<0.04^U	7.40	<0.04	1.60	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.16	<0.04	0.09	<0.04^U	15.5	<0.04	1.45	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.21	<0.05	0.16	<0.05^U	16	<0.05	1.88	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.11	<0.05	0.08	<0.05^U	14	<0.05	0.92	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.09	<0.07	<0.07	<0.07^U	5.97	<0.07	0.72	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.20	<0.06	0.14	<0.06^U	7.50	<0.06	1.72	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.04	<0.04	<0.04	<0.04^U	2.89	<0.04	0.20	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.36	<0.08	0.20	<0.08^U	5.82	<0.08	3.66	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	<0.01	<0.01	<0.01	<0.01^U	0.09	<0.01	0.06	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.12	<0.03	0.09	<0.03^U	13.6	<0.03	1.04	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	<0.03	<0.03	<0.03	<0.03^U	0.51	<0.03	0.22	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.15	<0.03	0.10	0.04^U	1.55	0.08	1.43	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.27	<0.07	0.15	<0.07^U	5.76	<0.07	2.95	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	1.83	<0.08	1.10	<0.08^U	97.6	0.08	18.4	mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/4	24/06491/11	24/06491/19	24/06491/28	24/06491/30	24/06491/34	24/06491/38	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS02	DS04	DS07	DS10	DS11	DS12	DS13			
Depth to Top	0.10	0.40	0.20	0.30	0.50	0.70	0.90			
Depth To Bottom										
Date Sampled	24-Jun-24	24-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOLID	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	6AE	6AE	7	4A	4AE	4AE			
TPH CWG with Clean Up										
Ali >C5-C6$_A$	-	-	<0.01	<0.05	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	-	-	0.01	<0.05	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	-	-	<1	<1	<5	2	6	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	-	-	<1	<1^U	<5	1	4	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	-	-	<1	<1^U	<5	3	8	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	-	-	1	2^U	9	3	11	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	-	-	13	2^U	66	8	75	mg/kg	1	A-T-055s
Total Aliphatics$_A$	-	-	14	4	76	18	104	mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	-	-	<1	<1	<5	1	5	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	-	-	<1	<1	6	1	5	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	-	-	1	<1	18	6	20	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	-	-	4	2^U	35	9	30	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	-	-	10	1^U	378	16	69	mg/kg	1	A-T-055s
Total Aromatics$_A$	-	-	15	3	437	33	129	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	-	-	29	7	512	50	234	mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	-	-	<0.01	<0.05^U	<0.01	<0.01	<0.05	mg/kg	0.01	A-T-022s

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/43	24/06491/44	24/06491/48	24/06491/51	24/06491/53			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS14	DS15	DS16	DS17a	DS18					
Depth to Top	0.90	0.30	0.60	0.50	0.10					
Depth To Bottom										
Date Sampled	25-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4A	4AE	4A	4A	6AE					
% Stones >10mm$_A$	21.1	<0.1	3.1	6.0	<0.1			% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.55	8.35	7.69	7.98	7.09			pH	0.01	A-T-031s
Cyanide (total)$_A$$^{M\#}$	<1	<1	<1	<1	<1			mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2			mg/kg	0.2	A-T-050s
Total Organic Carbon$_D$$^{M\#}$	19.4	15.9	24.1	22.5	7.13			% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	13	37	59	46	17			mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	0.8	1.1	8.0	<0.5	0.6			mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	81	138	333	67	43			mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	12	20	44	14	20			mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1			mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	90	92	229	81	78			mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.70	<0.17	<0.17	0.21			mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	61	44	114	48	20			mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	2	2	4	2	2			mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	159	199	626	82	73			mg/kg	5	A-T-024s

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/43	24/06491/44	24/06491/48	24/06491/51	24/06491/53			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS14	DS15	DS16	DS17a	DS18					
Depth to Top	0.90	0.30	0.60	0.50	0.10					
Depth To Bottom										
Date Sampled	25-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4A	4AE	4A	4A	6AE					
Asbestos in Soil (inc. matrix) ^										
Asbestos in soil$_{D}^{\#}$	NAD	Chrysotile	NAD	NAD	NAD					A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope)$_{D}$	-	Loose Fibres	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A					A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing)$_{D}$	-	<0.001	-	-	-			% w/w	0.001	A-T-054

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/43	24/06491/44	24/06491/48	24/06491/51	24/06491/53			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS14	DS15	DS16	DS17a	DS18					
Depth to Top	0.90	0.30	0.60	0.50	0.10					
Depth To Bottom										
Date Sampled	25-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4A	4AE	4A	4A	6AE					
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.02	0.04	<0.01	0.02	0.04			mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.01	0.02	<0.01	<0.01	0.04			mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.07	0.18	0.03	0.04	0.15			mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.31	0.70	0.11	0.13	0.93			mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.31	0.58	0.11	0.12	0.87			mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.40	0.71	0.18	0.15	1.24			mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.19	0.35	0.07	0.10	0.55			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.15	0.27	<0.07	<0.07	0.44			mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.36	0.74	0.15	0.17	1.14			mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.05	<0.08	<0.04	<0.04	0.15			mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.59	1.26	0.19	0.23	2.05			mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.02	0.04	<0.01	0.01	0.04			mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.21	0.39	0.08	0.10	0.65			mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.05	0.05	0.04	0.04	<0.03			mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	0.33	0.74	0.14	0.22	0.84			mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.48	1.03	0.15	0.21	1.56			mg/kg	0.07	A-T-019s
Total PAH-16MS$_A^{M\#}$	3.49	7.10	1.25	1.54	10.7			mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/06491

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06491/43	24/06491/44	24/06491/48	24/06491/51	24/06491/53			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS14	DS15	DS16	DS17a	DS18					
Depth to Top	0.90	0.30	0.60	0.50	0.10					
Depth To Bottom										
Date Sampled	25-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24	26-Jun-24					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4A	4AE	4A	4A	6AE					
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	2	1	2	<1			mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	2	<1	1	<1			mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	2	4	1	3	<1			mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	3	5	3	3	3			mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	11	35	37	12	18			mg/kg	1	A-T-055s
Total Aliphatics$_A$	16	49	42	22	21			mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	2	2	3	2	1			mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	2	1	2	<1			mg/kg	1	A-T-055s
Aro >C12-C16$_A$	4	10	5	8	4			mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	4	16	5	8	15			mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	8	39	8	15	51			mg/kg	1	A-T-055s
Total Aromatics$_A$	18	70	23	35	72			mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	33	119	66	57	93			mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.05	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s

Report Notes

General

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

Key

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

Asbestos

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

Assigned Matrix Codes

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

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

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

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

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

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

Envirolab Deviating Samples Report

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

Client: Geocon Site Investigations Ltd, Arden House, Shepley Lane Industrial Estate , Hawk Green, Marple, Stockport, Greater Manchester, UK, SK6 7JW

Project: Moor Row, Cumbria

Clients Project No: GSI 2132

Project No: 24/06491

Date Received: 02/07/2024 (am)

Cool Box Temperatures (°C): 15.2-16.0

Lab Sample ID	24/06491/28
Client Sample No	
Client Sample ID/Depth	DS10 0.30m
Date Sampled	25/06/24
Deviation Code	
F	✓

Key
F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	24/06491/28
Client Sample No	
Client Sample ID/Depth	DS10 0.30m
Date Sampled	25/06/24
Cyanide (total)	✓
PAH-16MS	✓
VPHCWG	✓

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

Envirolab Analysis Dates

Lab Sample ID	24/06491/4	24/06491/11	24/06491/19	24/06491/28	24/06491/30	24/06491/34	24/06491/38	24/06491/43	24/06491/44	24/06491/48	24/06491/51	24/06491/53
Client Sample No												
Client Sample ID/Depth	DS02 0.10m	DS04 0.40m	DS07 0.20m	DS10 0.30m	DS11 0.50m	DS12 0.70m	DS13 0.90m	DS14 0.90m	DS15 0.30m	DS16 0.60m	DS17a 0.50m	DS18 0.10m
Date Sampled	24/06/24	24/06/24	25/06/24	25/06/24	25/06/24	25/06/24	25/06/24	25/06/24	26/06/24	26/06/24	26/06/24	26/06/24
A-T-019s	08/07/2024	08/07/2024	08/07/2024	14/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-022s			05/07/2024	12/07/2024	05/07/2024	05/07/2024	09/07/2024	09/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024
A-T-024s	08/07/2024	08/07/2024	08/07/2024	16/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-031s	08/07/2024	08/07/2024	08/07/2024	16/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-032s	08/07/2024	08/07/2024	08/07/2024	16/07/2024	05/07/2024	08/07/2024	05/07/2024	08/07/2024	05/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-040s	08/07/2024	08/07/2024	08/07/2024	16/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-042sTCN	05/07/2024	05/07/2024	05/07/2024	12/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024
A-T-044	08/07/2024	08/07/2024	08/07/2024	15/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-045	04/07/2024	04/07/2024	04/07/2024	11/07/2024	04/07/2024	04/07/2024	04/07/2024	04/07/2024	04/07/2024	04/07/2024	04/07/2024	04/07/2024
A-T-050s	08/07/2024	08/07/2024	08/07/2024	12/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024	08/07/2024
A-T-054					05/07/2024		05/07/2024		05/07/2024			
A-T-055s			05/07/2024	12/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024
Calc-As Recd			05/07/2024	12/07/2024	05/07/2024	05/07/2024	09/07/2024	09/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024

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

End of Report

APPENDIX F

GEOTECHNICAL TESTING RESULTS

LABORATORY REPORT

Contract Number: PSL24/5003

Report Date:	17 July 2024
Client's Reference:	GSI 2132
Client Name:	Geocon Site Investigations Ltd Geocon Suite, Arden House Shipley Lane Industrial Estate Hawk Green Marple SK6 7JW
For the attention of:	**Graham Boultbee/Liam Daley/Ian Walker/Matt Styles/Dan Dawson/George Poole**
Contract Title:	Land off Dalzell Street, Moor Row
Date Received:	12/7/2024
Date Commenced:	12/7/2024
Date Completed:	17/7/2024
Notes:	**Opinions and Interpretations are outside the UKAS Accreditation**

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

Checked and Approved Signatories:

A Watkins (Managing Director)	R Berriman (Associate Director)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	D Nicholson (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

LABORATORY REPORT

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

Checked and Approved Signatories:

A Watkins (Managing Director)	R Berriman (Associate Director)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	D Nicholson (Senior Technician)	T Watkins (Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
DS02		D	0.50		Brown very gravelly very sandy CLAY.
DS03		D	0.40		Brown slightly gravelly sandy CLAY.
DS04		D	1.40		Brown very gravelly sandy CLAY.
DS05		D	2.00		Brown slightly gravelly very sandy CLAY.
DS05		D	3.80		Brown slightly gravelly sandy CLAY.
DS06		D	2.10		Brown slightly gravelly very sandy CLAY.
DS07		D	0.80		Brown slightly gravelly very sandy CLAY.
DS08		D	1.20		Brown slightly gravelly very sandy CLAY.
DS09		D	1.20		Brown slightly gravelly very sandy CLAY.
DS10		D	1.00		Brown very gravelly very sandy CLAY.
DS13		D	1.90		Brown very gravelly SAND.
DS15		D	1.20		Brown very gravelly very sandy CLAY.
DS16		D	1.50		Brown slightly gravelly sandy CLAY.
DS17a		D	1.20		Brown gravelly SAND.
DS18		D	1.00		Borwn very gravelly very sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
DS02		D	0.50		19			31	21	10	77	Low Plasticity CL
DS03		D	0.40		22			42	25	17	92	Intermediate Plasticity CI
DS04		D	1.40		13			36	16	20	80	Intermediate Plasticity CI
DS05		D	2.00		16			31	16	15	93	Low Plasticity CL
DS05		D	3.80		8.3			25	13	12	93	Low Plasticity CL
DS06		D	2.10		15			23	15	8	92	Low Plasticity CL
DS07		D	0.80		10			27	15	12	92	Low Plasticity CL
DS08		D	1.20		13			28	15	13	93	Low Plasticity CL
DS09		D	1.20		19			34	22	12	92	Low Plasticity CL
DS10		D	1.00		9.3			28	14	14	75	Low Plasticity CL
DS13		D	1.90		12				NP			
DS15		D	1.20		8.1			27	17	10	79	Low Plasticity CL
DS16		D	1.50		14			26	12	14	95	Low Plasticity CL
DS17a		D	1.20		7.8				NP			
DS18		D	1.00		13			29	15	14	77	Low Plasticity CL

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

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Land off Dalzell Street, Moor Row

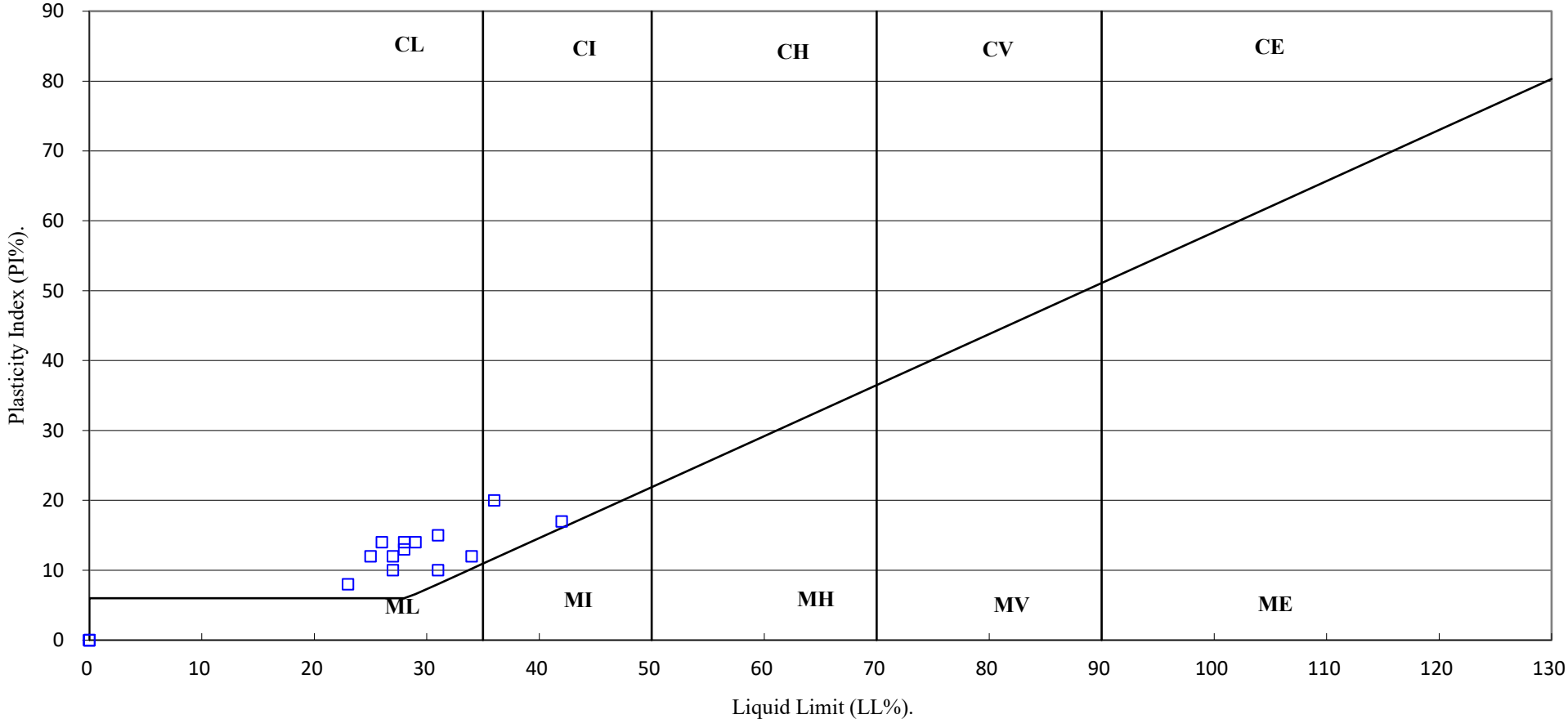
Contract No:

PSL24/5003

Client Ref:

GSI 2132

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	Land off Dalzell Street, Moor Row	Contract No: PSL24/5003 Client Ref: GSI 2132

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/06816
Issue Number: 1 **Date:** 16 July, 2024

Client:
Geocon Site Investigations Ltd
Arden House
Shepley Lane Industrial Estate
Hawk Green, Marple
Stockport
Greater Manchester
UK
SK6 7JW

Project Manager: Use - Mailing list/Use - Mailing list 2/William Ga
Project Name: Moor Row, Cumbria
Project Ref: GSI 2132
Order No: PO 24/0435
Date Samples Received: 11/07/24
Date Instructions Received: 12/07/24
Date Analysis Completed: 16/07/24

Approved by:

Gemma Berrisford
Deputy Client Services Supervisor

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 1247

Envirolab Job Number: 24/06816

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06816/1	24/06816/2	24/06816/3	24/06816/4	24/06816/5	24/06816/6	24/06816/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS02	DS04	DS05	DS06	DS10	DS12	DS15			
Depth to Top	1.00	2.00	1.40	1.70	1.20	1.10	0.90			
Depth To Bottom										
Date Sampled	24-Jun-24	24-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	25-Jun-24	26-Jun-24			
Sample Type	SOIL - D	SOIL - D	SOIL - D	SOIL - D	SOIL - D	SOIL - D	SOIL - D			
Sample Matrix Code	6A	6A	6	6A	6A	1A	6A			
% Stones >10mm$_A$	44.9	7.7	5.6	15.9	18.7	6.1	14.2	% w/w	0.1	A-T-044
pH BRE$_D^{M\#}$	6.24	4.98	4.86	6.30	8.12	8.07	8.24	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	<10	<10	<10	<10	12	<10	28	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.03	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.02	0.02	<0.01	<0.01	0.06	<0.01	0.05	% w/w	0.01	A-T-024s

Envirolab Job Number: 24/06816

Client Project Name: Moor Row, Cumbria

Client Project Ref: GSI 2132

Lab Sample ID	24/06816/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	DS18									
Depth to Top	0.70									
Depth To Bottom										
Date Sampled	26-Jun-24									
Sample Type	SOIL - D									
Sample Matrix Code	6A									
% Stones >10mm$_A$	<0.1							% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	6.77							pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	11							mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02							% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	<0.01							% w/w	0.01	A-T-024s

Report Notes

General

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

Key

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

Asbestos

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

Assigned Matrix Codes

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

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

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

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

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

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

Envirolab Deviating Samples Report

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

Client: Geocon Site Investigations Ltd, Arden House, Shepley Lane Industrial Estate , Hawk Green, Marple, Stockport, Greater Manchester, UK, SK6 7JW

Project: Moor Row, Cumbria

Clients Project No: GSI 2132

Project No: 24/06816

Date Received: 12/07/2024 (am)

Cool Box Temperatures (°C): 17.2

NO DEVIATIONS IDENTIFIED

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

Envirolab Analysis Dates

Lab Sample ID	24/06816/1	24/06816/2	24/06816/3	24/06816/4	24/06816/5	24/06816/6	24/06816/7	24/06816/8
Client Sample No								
Client Sample ID/Depth	DS02 1.00m	DS04 2.00m	DS05 1.40m	DS06 1.70m	DS10 1.20m	DS12 1.10m	DS15 0.90m	DS18 0.70m
Date Sampled	24/06/24	24/06/24	25/06/24	25/06/24	25/06/24	25/06/24	26/06/24	26/06/24
A-T-024s	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024
A-T-026s	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024
A-T-028s	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024
A-T-031s	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024
A-T-044	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024	16/07/2024

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

End of Report

APPENDIX G

GAS & GROUNDWATER MONITORING DATA

Gas Monitoring Results Sheet

GeoCon Site Investigations Ltd
Suite 2 Marple House,
39 Stockport Road,
Marple,
Stockport.
SK6 6BD
Tel: 0161 713 0174
email: info@geoconsiteinvestigations.com
Online: www.geoconsiteinvestigations.com

Site: Land off Dazell Street, Moor Row, Cumbria
Project Number: GSI 2132
National Grid Reference: -
Instrument: GFM 436 & Dip meter

Monitoring Point Reference	Date	Atmospheric pressure (mb)	Flow Range (l/hr)		Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Methane Gas Screening Value (GSV) (l/hr)	Carbon Dioxide Gas Screening Value (GSV) (l/hr)	Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	Standing Water Level (mbgl)	Well Depth (mbgl)
			Peak	Steady	Peak	Steady	Peak	Steady	Low	Steady						
DS01	10 July 2024	997	0.0	0.0	0.0	0.0	7.0	7.0	13.3	13.3	0.0000	0.0000	0.0	0.0	1.82	2.00
	23 July 2024	1007	0.0	0.0	0.0	0.0	8.7	8.7	9.6	9.6	0.0000	0.0000	0.0	0.0	1.80	2.00
	07 August 2024	996	0.0	0.0	0.0	0.0	8.5	8.5	10.2	10.2	0.0000	0.0000	0.0	0.0	1.82	2.00
	21 August 2024	1000	0.1	0.0	0.0	0.0	4.9	4.8	14.3	14.3	0.0000	0.0000	0.0	0.0	1.31	2.00
	05 September 2024	1012	0.5	0.0	0.0	0.0	6.9	6.9	8.9	8.9	0.0000	0.0000	0.0	0.0	1.16	2.00
	17 September 2024	1021	0.0	0.0	0.0	0.0	9.2	9.2	12.1	12.1	0.0000	0.0000	0.0	0.0	1.23	2.00
DS04	10 July 2024	996	0.0	0.0	0.0	0.0	8.9	8.9	10.5	10.5	0.0000	0.0000	0.0	0.0	Dry	1.89
	23 July 2024	1009	0.0	0.0	0.0	0.0	13.4	13.4	0.8	0.8	0.0000	0.0000	0.0	0.0	Dry	1.89
	07 August 2024	996	0.0	0.0	0.0	0.0	12.3	12.3	9.5	9.5	0.0000	0.0000	0.0	0.0	Dry	1.89
	21 August 2024	1001	0.0	0.0	0.0	0.0	14.1	14.1	0.6	0.6	0.0000	0.0000	0.0	0.0	Dry	1.89
	05 September 2024	1010	0.0	0.0	0.0	0.0	14.9	14.9	0.4	0.4	0.0000	0.0000	0.0	0.0	1.38	1.89
	17 September 2024	1022	0.0	0.0	0.0	0.0	15.2	15.1	0.4	0.5	0.0000	0.0000	0.0	0.0	1.54	1.89
DS06	10 July 2024	996	0.0	0.0	0.0	0.0	5.9	5.9	15.1	15.1	0.0000	0.0000	0.0	0.0	Dry	3.00
	23 July 2024	1008	0.1	0.0	0.0	0.0	9.0	9.0	8.8	8.8	0.0000	0.0000	0.0	0.0	2.51	3.00
	07 August 2024	996	0.0	0.0	0.0	0.0	9.2	9.2	11.3	11.3	0.0000	0.0000	0.0	0.0	1.63	3.00
	21 August 2024	1001	0.0	0.0	0.0	0.0	9.2	9.2	4.1	4.1	0.0000	0.0000	0.0	0.0	1.31	3.00
	05 September 2024	1012	0.2	0.0	0.0	0.0	9.9	9.9	4.2	4.2	0.0000	0.0000	0.0	0.0	1.50	3.00
	17 September 2024	1022	0.0	0.0	0.0	0.0	2.6	2.6	17.0	17.0	0.0000	0.0000	0.0	0.0	1.34	3.00
DS12	10 July 2024	996	0.0	0.0	0.0	0.0	2.9	2.9	17.8	17.8	0.0000	0.0000	0.0	0.0	Dry	2.00
	23 July 2024	1010	0.0	0.0	0.0	0.0	3.4	3.4	16.7	16.7	0.0000	0.0000	0.0	0.0	1.65	2.00
	07 August 2024	995	0.0	0.0	0.0	0.0	3.3	3.3	16.8	16.8	0.0000	0.0000	0.0	0.0	1.46	2.00
	21 August 2024	1000	0.0	0.0	0.0	0.0	4.1	4.0	13.4	3.4	0.0000	0.0000	0.0	0.0	1.12	2.00
	05 September 2024	1009	0.2	0.0	0.0	0.0	2.4	2.4	15.7	15.7	0.0000	0.0000	0.0	0.0	0.97	2.00
	17 September 2024	1021	0.0	0.0	0.0	0.0	1.5	1.5	19.2	19.2	0.0000	0.0000	0.0	0.0	0.93	2.00
DS13	10 July 2024	996	0.0	0.0	0.0	0.0	3.5	3.5	15.8	15.8	0.0000	0.0000	0.0	0.0	Dry	1.95
	23 July 2024	1009	0.0	0.0	0.0	0.0	3.8	3.8	14.9	14.9	0.0000	0.0000	0.0	0.0	Dry	1.95
	07 August 2024	995	0.0	0.0	0.0	0.0	3.9	3.9	15.1	15.1	0.0000	0.0000	0.0	0.0	Dry	1.95
	21 August 2024	1000	0.0	0.0	0.0	0.0	3.5	3.5	16.0	16.0	0.0000	0.0000	0.0	0.0	Dry	1.95
	05 September 2024	1012	0.0	0.0	0.0	0.0	3.7	3.7	14.1	14.1	0.0000	0.0000	0.0	0.0	Dry	1.95
	17 September 2024	1021	0.0	0.0	0.0	0.0	2.4	2.4	16.8	16.9	0.0000	0.0000	0.0	0.0	1.05	1.90
DS16	10 July 2024	996	3.5	0.0	0.0	0.0	4.0	4.0	11.1	11.1	0.0000	0.0000	0.0	0.0	1.63	2.00
	23 July 2024	1008	0.4	0.0	0.0	0.0	3.2	3.2	11.9	11.9	0.0000	0.0000	0.0	0.0	0.80	2.00
	07 August 2024	996	0.0	0.0	0.0	0.0	3.5	3.5	11.3	11.3	0.0000	0.0000	0.0	0.0	0.95	2.00
	21 August 2024	1000	3.0	1.7	0.0	0.0	0.8	0.8	19.6	19.6	0.0000	0.0136	0.0	0.0	0.52	2.00
	05 September 2024	1011	1.0	0.0	0.0	0.0	1.0	1.0	19.4	19.4	0.0000	0.0000	0.0	0.0	0.56	2.00
	17 September 2024	1021	0.8	0.0	0.0	0.0	0.8	0.8	19.8	20.0	0.0000	0.0000	0.0	0.0	0.49	2.00
DS17a	10 July 2024	996	0.0	0.0	0.0	0.0	1.8	1.8	18.1	18.1	0.0000	0.0000	0.0	0.0	Dry	2.00
	23 July 2024	1008	0.0	0.0	0.0	0.0	2.4	2.4	16.5	16.5	0.0000	0.0000	0.0	0.0	Dry	2.00
	07 August 2024	995	0.0	0.0	0.0	0.0	2.5	2.5	16.9	16.9	0.0000	0.0000	0.0	0.0	Dry	2.00
	21 August 2024	1000	0.0	0.0	0.0	0.0	0.9	0.9	18.2	18.2	0.0000	0.0000	0.0	0.0	Dry	2.00
	05 September 2024	1010	1.3	0.0	0.0	0.0	0.8	0.8	19.6	19.6	0.0000	0.0000	0.0	0.0	1.00	2.00
	17 September 2024	1021	0.0	0.0	0.0	0.0	1.8	1.8	18.0	18.1	0.0000	0.0000	0.0	0.0	1.11	2.00
RO2	10 July 2024	996	0.0	0.0	0.0	0.0	0.3	0.3	15.9	15.9	0.0000	0.0000	0.0	0.0	3.40	5.00
	23 July 2024	1008	0.0	0.0	0.0	0.0	0.1	0.1	15.2	15.2	0.0000	0.0000	0.0	0.0	2.73	5.00
	07 August 2024	995	0.0	0.0	0.0	0.0	0.2	0.2	15.4	15.4	0.0000	0.0000	0.0	0.0	2.31	5.00
	21 August 2024	1000	0.0	0.0	0.0	0.0	0.6	0.6	14.8	14.8	0.0000	0.0000	0.0	0.0	2.15	5.00
	05 September 2024	1011	0.0	0.0	0.0	0.0	0.7	0.7	12.1	12.1	0.0000	0.0000	0.0	0.0	2.13	5.00
	17 September 2024	1023	0.0	0.0	0.0	0.0	0.8	0.7	15.5	15.5	0.0000	0.0000	0.0	0.0	2.00	4.00
R07a	10 July 2024	996	0.0	0.0	0.0	0.0	0.2	0.2	19.9	19.9	0.0000	0.0000	0.0	0.0	0.70	1.93
	23 July 2024	1007	0.0	0.0	0.0	0.0	0.5	0.5	19.2	19.2	0.0000	0.0000	0.0	0.0	0.75	1.93
	07 August 2024	996	0.0	0.0	0.0	0.0	0.4	0.4	19.8	19.8	0.0000	0.0000	0.0	0.0	0.75	1.93
	21 August 2024	1000	0.0	0.0	0.0	0.0	1.4	1.4	16.6	16.7	0.0000	0.0000	0.0	0.0	0.75	1.93
	05 September 2024	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	17 September 2024	1021	0.0	0.0	0.0	0.0	2.1	2.0	16.7	16.7	0.0000	0.0000	0.0	0.0	0.60	1.93
Maximum			**3.5**	**1.7**	**0.0**	**0.0**	**15.2**	**15.1**	**0.4**	**0.4**	**0.0000**	**0.0136**	**0.0**	**0.0**		

Additional Information:

Date	Engineer	Weather	Air Temperature (°C)	Ground Conditions	Pressure Trend	Comments
10 July 2024	CHT	Heavy Rain	15.0	Wet	Falling	NA
23 July 2024	LH	Sunny	18.0	Damp	Rising	NA
07 August 2024	CHT	Overcast	17.0	Wet	Falling	NA
21 August 2024	WG	Overcast	13.0	Wet	Rising	NA
05 September 2024	LH	Sunny	16.0	Dry	Steady	RO7 could not be accessed
17 September 2024	WG	Sunny	18.0	Damp	Rising	RO7 cover repaired.

* All monitoring point locations are monitored for a minimum of 60 seconds, and both the peak reading and the steady / rest readings are recorded
* BD = Below the detection limit of the gas analyser (0.1units)
* NR = No reading taken
* NA = Not Applicable